

St. Petersburg University
Graduate School of Management

Master in Management Program

Scenario-Based Strategies for Russian Pharmaceutical Firms in Hospital Segment

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St. Petersburg

2024

RESEARCH ETHICS

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ABSTRACT

Master Student's Name	Egor Olegovich Sotnikov
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Master Thesis Title	Scenario-Based Strategies for Russian Pharmaceutical Firms in Hospital Segment
Description of the goal, tasks and main results of the research	<p>In light of the strong external impacts experienced by the Russian pharmaceutical market due to geopolitical changes in 2022, alongside the continued affirmation of import substitution policies since 2014, this paper aims to navigate the uncertain futures faced by pharmaceutical companies in Russia, particularly within the hospital segment. Recognizing the segment's critical role in ensuring the nation's pharmaceutical sovereignty, this study seeks to develop strategic recommendations that allow these companies to thrive amidst unpredictability. By employing the Scenario-Based Approach, complemented by the Resource-Based View framework, and analyzing semi-structured interviews through Qualitative Content Analysis by Mayring, this research endeavors to identify key environmental factors affecting these companies, construct future scenarios, and outline necessary strategic decisions focusing on vital resources and capabilities. This approach aims to facilitate the resilience and prosperity of Russian pharmaceutical firms in the face of ongoing environmental turbulence and change.</p> <p>The research delineates three pivotal scenarios influenced by significant uncertainties within the Russian pharmaceutical sector: the withdrawal of Western companies, sanctions' impact on collaborations with allied countries, and the labor market's dynamic nature. Each scenario was isolated to assess its systemic impact, with strategic decisions and essential resources and capabilities for development succinctly outlined in the study. It emerges that government relations (GR) & Lobbyism, alongside R&D specialists and infrastructure, play crucial roles across the scenarios, particularly in securing compulsory licenses and capturing vital markets as Western companies exit. Additionally, enhancing Supply Chain resilience, financial flow, and GR efforts are vital in navigating technology access challenges and ensuring sustainability. Addressing the labor market's flux involves engaging with academia, process optimization, and offering competitive remuneration to retain top talent. The study underscores the inherent synergy and potential positive outcomes of investing in identified areas—GR&Lobbyism and managerial capabilities being paramount for long-term success, emphasizing the strategic advantage of adept negotiations with government entities, supply chain management, and fostering productive academic-industry linkages.</p>
Keywords	Pharmaceutical industry; Scenario-Based Strategic Approach; Resource-Based View; Economic sanctions; Supply Chain; GR; Lobbyism

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INTRODUCTION

The Russian pharmaceutical market as well as other sectors of the economy was subjected to strong external impact due to geopolitical changes in 2022. Companies have adapted to the new realities of supply chains, market structure, possible changes in financing channels and volume, and so on. On the other hand, since 2014, the import substitution policy in the Russian Federation has been actively developing, giving companies new opportunities. The strategy of companies may also have undergone changes at different levels: corporate, business or functional.

On the other hand, environmental turbulence can tell us that future uncertainty is not a phenomena of the past. Changes in the external factors continue to occur. In this regard, we see the need to develop strategic recommendations for pharmaceutical companies that will take into account the unpredictability of future years. These recommendations should serve as a basis for the development and prosperity of Russian pharmaceutical companies in the hospital segment.

Why do we concentrate on the pharmaceutical market and its hospital segment? We identify three primary reasons: (1) The development of this segment ensures the country's pharmaceutical sovereignty, providing assurance that, regardless of any future challenges, our patients will be able to receive essential therapy produced within the territory of Russia; (2) The hospital segment is precisely where the efforts of **innovative Russian pharmaceutical companies are focused**, companies that will supply Russian patients with modern therapy and sustain the quality of healthcare at the highest international level. This companies produce original drugs as well as highly scientific-intensive biosimilars and other types of reproduced products. The share of such companies prevails in the Russian pharmaceutical market of the hospital segment (Nikulina & IQVIA, 2023); (3) In our view, the pharmaceutical business possesses a unique set of distinguishing characteristics: unlike the majority of the Russian economy, this segment sees a significant amount of investment in R&D; the innovation cycle in the pharmaceutical segment can span 7, 8, 10 years or more, necessitating a blend of scientific experiments and the pursuit of long-term financial stability; a considerable portion of the Russian pharmaceutical market today is owned by foreign companies, and domestic firms are heavily reliant on foreign raw materials and equipment; also, unlike many sectors, the pharmaceutical market is strictly regulated; unlike, for example, banking or the oil and gas industry, the largest Russian pharmaceutical companies are independent from the state player, and this list of unique traits could be extended further.

To develop strategic recommendations that will allow achieving success in uncertain conditions, we plan to utilize the Scenario-Based Approach, frequently applied for this purpose in other spheres, most notably in the oil and gas sector. Considering the high dependency of pharmaceutical companies in the hospital segment on their own R&D capabilities, financial resources, investments in equipment, and relationships with stakeholders, we also see the necessity to systematize our recommendations through the Resource-Based View framework.

Our research method will involve conducting semi-structured interviews, which we will analyze using the Qualitative Content Analysis technique by Mayring.

Thus, we can define the objective of our work as follows: to develop **strategic recommendations** and identify **the key resources and capabilities for pharmaceutical companies** in the hospital segment based on **Scenario-Based Planning**.

To achieve the set objective, we will need to answer the following research questions:

- What factors of the external environment impact pharmaceutical companies in the hospital segment;
- Among these factors, in which does uncertainty exist, and what scenarios can we construct;
- What strategic decisions should companies make, and in which resources and capabilities should efforts be invested.

The first chapter of the work will describe the existing literature that may be useful for answering the specified questions. Also, in the first chapter, we will examine the theoretical foundations of the Resource-Based View Framework and Scenario-Based Approach. In the second chapter, we will detail the research methodology, the selection of experts, data analysis, and data limitations. In the third chapter, we will formulate the main scenarios and experts' recommendations for these scenarios.

1. LITERATURE REVIEW

This chapter aims to examine both international and domestic literature regarding strategic planning in pharmaceutical firms. By analyzing such literature, we aim to evaluate the present theoretical advancements concerning this matter. Subsequently, we intend to introduce a Resource-Based View (RBV) framework as a means to formulate strategic recommendations within the current landscape.

To justify our chosen approach, we commence with underscoring the significance of employing the Scenario-Based Approach concerning the strategies adopted by Russian pharmaceutical companies within the hospital segment. Furthermore, utilizing the PEST framework, we will delve into the influence of environmental factors on pharmaceutical enterprises. This exploration will involve an assessment of scientific articles and theories related to dealing with these factors, culminating in a synthesis of the existing research gap.

1.1. Pharmaceutical company strategy

1.1.1 Domestic and Global Literature on the Strategy of Pharmaceutical Companies under Uncertainty

The current level of development of foreign academic theory describing the strategy of pharmaceutical companies is characterized by the dominance of two types of publications: (1) Research and publications on *functional strategies* (2) Research and publications devoted to *specific challenges or issues*. In the first group, we can note a number of significant publications in the field of innovation strategy (Schuhmacher, Gassmann, & Hinder, 2016; Baxendale et al., 2007; Lane & Probert, 2007; Pennings & Sereno, 2011), an extensive number of publications in the field of Supply Chain (Yarosan et al., 2021; Uthayakumar & Priyan, 2013; Marmolejo-Saucedo, 2020), Marketing publications (Lim & Rokhim, 2020; Kalotra, 2014). The second group of publications mainly presents the strategies of globalization (Kesić, 2009; Javalgi & Wright, 2003) and sustainability (Teramae et al., 2020; Al-Awamleh et al., 2022; Alzoubi et al., 2019). Publications of consulting firms with extensive expertise in the field of pharmaceuticals are also mainly devoted to individual elements of the value chain of pharmaceutical companies (McKinsey & Company, 2013; Strategy&; Balz et al., 2021; Dukart et al., 2022). We will move on to the analysis of this literature when we separately consider the development of separate functions and links of the value chain, but at the moment it is important to note two factors by which we can judge that the literature written abroad is not enough to answer the questions of our research: (1) the focus on deep theoretical study of separate functions in foreign literature does not provide an

answer to the large-scale challenges of the modern context in Russia, which requires a rethinking of the business model of companies as a whole; (2) foreign literature does not respond to the crisis context of the Russian pharmaceutical market.

The response of pharmaceutical companies to external challenges has been studied in detail recently as part of the analysis of the impact of COVID-19 on the industry (Nader et al., 2022; Garattini et al., 2021). However, of course, we can clearly indicate that there is a significant difference between the COVID-19 crisis and the foreign policy escalation after February 2022. A closer subject of study to our problem is the development of UK pharmaceutical companies after Brexit (Roscoe et al., 2020), however, there are significant differences with the context of modern Russian industry. Iranian scientists have also studied aspects of the formation of the Iranian pharmaceutical industry (Cheraghali, 2017), however, the context and level of development and integration into the international pharmaceutical market in Russia and Iran are completely different.

Foreign literature describing the relatively stable and rapidly developing markets of the United States, Western Europe and Asia in terms of technology and innovation, as we noted, is prone to an in-depth analysis of individual functions and consideration of business at a detailed level. At the same time, domestic researchers are focused primarily on high-level analysis of the pharmaceutical industry. Publications in Russian journals are predominantly focused on the implementation of the state program “Pharma-2030” (Kovtyukh, Khreptus, & Zakharova, 2023). Domestic researchers also describe the challenges of external circumstances for pharmaceutical companies (Pletnev et al., 2022; Dorzhiyeva, 2022) and among these publications there are many worthy conclusions, which we will turn to below. At the same time, classic strategic issues of development of the companies themselves remain unreflected.

Thus, we can say with confidence about the need for analysis of the issue of strategy for pharmaceutical companies, the result of which will make it possible to describe the strategic decision making of companies taking into account the modern Russian context.

1.1.2 Resource-based view for pharmaceutical company strategy

As we described above, for our work it is necessary to conceptualize at the top level the strategy of pharmaceutical companies. We consider it relevant to use the Resource-based view framework (RBV) to study the strategy of pharmaceutical companies. This framework combines various functions described in detail in foreign literature, as we wrote earlier.

The rationale for using the Resource Based View framework lies in the distinction between modern Russian pharmaceutical companies in the hospital segment and fully generic

pharmaceutical companies operating in the commercial segment. Companies in the hospital segment form a competitive advantage based on the efficacy of their own therapies proven by clinical trials, while in the commercial segment branding, promotional activities, and sales management play a major role (Yasinskaya & Trofimova, 2020). That is, there is a difference between focusing on **internal features** and **external activities**. In order to achieve competitive advantage in the hospital segment based on the results of clinical trials, it is necessary to create in-house R&D capacities, develop relations with regulators, and ensure high-tech production through the supply of foreign equipment.

The Resource-Based View (RBV) framework assesses and interprets an organization's resources to elucidate how it attains sustainable competitive advantage. RBV emphasizes the significance of firm-specific attributes that are challenging for competitors to replicate, thus contributing to superior performance and competitive edge (Barney, 1986; Hamel and Prahalad, 1996). Resources characterized by attributes such as non-transferability or non-purchasability, necessitating extensive learning curves or significant organizational climate and culture shifts, are more likely to be unique to the organization and hence, more resistant to imitation by competitors.

For a resource to give a company a competitive edge and maintain its success over time, it needs to meet the 'VRIN' criteria, as outlined by Barney (1991). This means it must be **valuable**, meaning it brings strategic benefits like seizing opportunities or countering threats in the market. It also needs to be **rare**, meaning not many other companies have it, otherwise, it won't set the company apart. Moreover, it should be difficult for others to copy (**imperfect imitability**) due to reasons like being hard to acquire or understand. Lastly, it must be **non-substitutable**, meaning it can't be easily replaced by something else without affecting the company's performance. These criteria ensure that a resource isn't just good to have, but it's actually a source of lasting advantage for the company.

RBV, as we have outlined, implies the development and use of resources and capabilities to achieve a competitive advantage. Domestic researchers define the key resources of pharmaceutical manufacturing companies as regulatory documents, technical equipment, intellectual property, qualified personnel and raw materials (Yasinskaya & Trofimova, 2020). However A. Holdford (2018), based on existing literature, described the types of resources and capabilities category in a more detailed and structured way with examples for the pharmaceutical market (see Table 1). In the results of our research, we will consider the main resources and capabilities required for development in possible future scenarios. For our part, we would like to make one point: in our opinion, not all Relational

Resources are actually Resources. Often, for example, relations with government or patient organizations are a process that needs to be managed, and not just some resource.

Resource type	Examples from pharmacy literature
Financial	A business case for stakeholders, allocation of financial resources
Physical	Physical environment of pharmacy (e.g., adequate space/privacy and workflow), equipment and technology (e.g., computers); location
Legal	Prescriptive authority, collaborative practice agreements, provider status, credentialing
Human	Pharmacist competence, education and training for personnel, communication skills, motivation, leadership skills, professional satisfaction, pharmacist knowledge of and attitude toward cognitive services, pharmacists' self-efficacy, autonomy, attitude of staff, sufficient staff
Organizational	Culture of pharmacy, innovative practice orientation, script volume, management support, reputation with the community
Informational	Access to patient records, access to reference literature, evidence of benefits of services
Relational	Relationships with physicians, pharmacist/patient relationship, support from professional organizations and/or government, external advisors or mentors
Capability Category	Examples from pharmacy literature
Managerial	Use of pharmacy technicians, delegation of tasks, organizational flexibility, human resources management
Marketing	Customer service, market segmentation, proactive entrepreneurial behaviors, services management, active relationship management with stakeholders
Financial	Cross-subsidization of expanded services, financial management

Technical	Being patient-centered, use of protocols, interaction with other pharmacists, use of a documentation system, learning from others, working in interprofessional teams
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Figure 1. Resource types, capability category, and examples. Source: A. Holdford (2018)

The active study and application of the RBV framework by researchers to analyze the strategy (Diericix & Cool, 1998; James, 2002; Amaya, Bernal-Torres, Nicolás-Rojas, & Pando-Ezcurra, 2022; Herrmann, 2008) of pharmaceutical companies also confirms the relevance of using this framework in our study. RBV's pivotal role in offering strategic insights for pharmaceutical companies: internally, it fosters competitive advantage through the utilization of unique resources and capabilities, enhancing internal knowledge, resource allocation, and strategic alignment. Externally, RBV propels the industry towards innovation and competitiveness, emphasizing the importance of strategic decisions in resource investment for addressing identifiable market gaps (Holdfold, 2018; Ferreira Dos Santos, 2023).

One of the goals of our research is to understand what resources and capabilities need to be developed in an uncertain future. Once we have understood the relevance of framing strategy through the RBV framework, we need to consider a strategic planning approach to help navigate an uncertain future.

1.2. Scenario-Based Approach

The scenario approach, according to our position in the study, has a number of important advantages compared to classical methods of strategic planning. In our research, this approach will help determine what resources and capabilities may be needed in the future to gain a competitive advantage. In this chapter we will consider the theoretical component of the approach, and also justify its relevance and importance for our research.

1.2.1. Theoretical overview

The difference between scenarios and forecasting

Since the 1970s, both scholars and practitioners have advocated for the adoption of multiple-scenario analysis as a means to effectively manage the multitude of uncertainties inherent in the future trajectories of business organizations. Given the unpredictable nature of the external environment, characterized by unforeseen changes and elusive trends, traditional long-term forecasts often become obsolete shortly after their inception. In response to this

challenge, managers have increasingly turned to the scenario method and similar approaches as substitutes for conventional forecasting techniques (Postma & Liebl, 2005).

Scenario analysis diverges from traditional forecasting methods in that its primary objective is not to generate precise *forecasts* but rather to construct **alternative narratives** depicting potential future developments in the external environment. By doing so, scenarios serve to illuminate critical uncertainties that could significantly impact the strategic decisions faced by managers (Postma & Liebl, 2005). Policymakers and business leaders can gain deeper insights into emerging trends, influential factors, key stakeholders, and potential disruptions that may reshape prevailing conditions (Dean, 2019). Additionally, scenario analysis helps illuminate previously unrecognized opportunities and threats associated with each projected future scenario (Wack, 1985; Schwartz, 1991; Grant, 2003). This, in turn, enables executives to formulate more comprehensive and resilient strategies capable of addressing various contingencies (Wack, 1985; Martelli, 2014).

The roots and development of Scenario-Planning Approach

The systematic application of scenario planning traces back to the late 1950s, initiated by the US RAND (Research AND Development) Corporation. RAND began exploring various potential global scenarios to evaluate alternative military strategies and weapons systems (e.g., Kahn and Weiner, 1967; Kahn et al., 1976). By the late 1960s, scenario planning expanded beyond RAND, with companies like Royal Dutch/Shell incorporating such methodologies into their corporate planning processes (Wack, 1985). In 1967, Shell launched the 'Year 2000' study to anticipate the business landscape of the future. It predicted a disruption in the oil industry, indicating that its traditional pattern of growth would falter by 1985. Consequently, in 1969, several Shell companies initiated the 'Horizon Planning' project to look ahead to 1985. *Pierre Wack*, a planner at Shell Francaise, introduced scenario planning, inspired by the work of Kahn, using France as a test case. Initially, these scenarios provided insights but lacked depth. However, they highlighted the potential of scenario planning as a strategic tool. As the Year 2000 study confirmed the need for alternative forecasting methods, Shell began experimenting with scenario planning in 1971. These early scenarios, presented in 1972, accurately foresaw an oil shortage and price increase, leading to widespread adoption of scenario planning within the company (Bradfield et al., 2005).

Similarly, in 1971, GE also explored scenarios, producing four alternative visions of global and US economic and socio-political conditions by 1980. However, unlike Shell, GE's scenario work remains less publicized. Shell's comprehensive approach to scenario planning has earned it recognition as the leading corporate practitioner in this field, with its methods

often regarded as the industry standard, hence the reference to the "Shell approach" or the "gold standard" in corporate scenario generation.

Scenarios gained public attention in the 1970s following the release of *The Limits to Growth* report by the Club of Rome (Meadows et al., 1972), which underscored potential environmental risks associated with existing growth trajectories. Subsequent events such as the oil shocks of 1973 and 1979, the critique of traditional rational planning in the 1980s, and the structural upheaval linked to globalization processes further underscored the theoretical significance of scenario-based approaches for managing uncertainty (Lindgren and Bandhold, 2003; Martelli, 2014).

Different Scenario-Based Planning Schools arised (Bradfield et al., 2005). **The Probabilistic Modified Trends School** (Gordon, 1994) emphasizes the modification of existing trends based on probabilistic assessments. It focuses on identifying current trends within an industry or environment and then applying statistical and probabilistic analysis to forecast future changes. The major contribution of this approach lies in its systematic way of considering the likelihood of various future outcomes. It assumes that the future is an extension of the past and present, and by understanding the probability of certain events or changes, organizations can better prepare for them. **The French Centre**, or Centre de Prospective et d'Évaluation, (Bradfield et al., 2005) stands as a notable example within the Probabilistic Modified Trends School. It was recognized for its methodological contributions to scenario planning in France. The Centre focused on incorporating a wide array of statistical methods to refine the understanding of future possibilities. Its approach was deeply analytical, relying on quantitative data to support the development of scenarios. Though rooted in probabilistic assessments, the Centre's work also involved a degree of qualitative judgment to interpret the data and craft coherent narratives about the future.

On another front, the **La Prospective School**, pioneered by Gaston Berger and further developed by Michel Godet, offers (Godet, 1987) a broader and more holistic approach to scenario planning. Unlike the probabilistic modified trends approach, La Prospective does not rely solely on quantitative analysis or statistical probabilities. Instead, it incorporates a mix of qualitative assessments, expert opinions, and strategic dialogue among stakeholders. The school's methodology is grounded in the belief that the future is not predetermined but can be shaped by human action and decisions. Thus, the focus is on generating a plurality of possible futures, emphasizing the importance of human creativity and anticipation in crafting and choosing desired futures.

Today, scenario planning finds application across a wide spectrum of contexts, utilized by numerous companies, agencies, and governmental bodies (van Notten, 2006; Gordon, 2013). However, this broad application has resulted in a diversity of scenario types. Consequently, the term "scenario planning" has evolved into a comprehensive concept encompassing various approaches, techniques, and tools of differing complexities (Bishop et al., 2007; Börjeson et al., 2006;).

Todays lack of standardization

Over the past five decades, scenario planning has witnessed the emergence of various approaches, ranging from sophisticated methodologies to simplistic techniques. This diversity renders scenario planning a flexible strategic tool adaptable to the specific requirements of the problem at hand (van Notten, 2006; Martelli, 2014). However, the plethora of scenario creation methods, coupled with the lack of standardization in most scenario planning practices (Cairns et al., 2004; Schwenker and Wulf, 2013), and at times, the reluctance of scenario experts to fully disclose their methodologies (Chermack et al., 2001), contribute to a high degree of subjectivity within the discipline. Consequently, the outcomes of many scenario planning processes are challenging to replicate and are not amenable to third-party audits (Schwartz, 1991; Desmerais, 2000).

In large studies to date, there are large methodological differences in all the main elements of the approach: scenario definition; scenario construction; script elements; information sources; equipment, etc. (Cordova-Pozo & Rouwette, 2023)

Methodological problems and the dissimilarity of this tool to classical scientific research tools, on the one hand, as noted, carry risks of research reproducibility. On the other hand, the difference in approaches proves the possibility of using this tool for different situations and its modification depending on the goals of the study and the assigned tasks. The methodology of our research will also be a synthesis and a kind of “constructor” of various approaches based on *Intuitive Logic Approach* in order to provide the most relevant result.

1.2.2. Rationale for using

Three fundamental phenomena within the realm of strategy formulation serve as the cornerstone for transitioning towards the adoption and appreciation of scenarios as a fundamental framework: (a) the intrinsic challenges associated with predictive methodologies, (b) the imperative of implementing pragmatic systems thinking, and (c) the conceptualization of strategy as an ongoing process of learning and adaptation (Van der Merwe, 2008).

Problems with prediction

The justification for the first phenomenon lies in three planes: (1) Methodological bias in predicting the future in the corporate and academic reality (2) Business reasons (3) High uncertainty of the external environment.

The most commonly used way to figure out what might happen in the future is by looking at what has happened in the past, according to Bartlett and Ghoshal (2002). They suggest using past events as a basis for predicting the future. However, there's a big problem with this approach related to how our minds work. The issue is that when people do this, they end up only considering a limited range of possibilities for what could happen in the future, as Schwartz (1991) explains.

We call business reasons what often occurs in large organizations on a daily basis, when the view of the future is curtailed by the “official version” that dominates the company. Often this is the version promoted by a formal or informal leader. In command-and-control organizations departing from the usual way of accepting the future is often viewed as disloyalty, and sometimes it's punished or corrected (Shwartz, 1991). In such organizational setups, the majority of strategic thinking typically originates from upper management, and managers are anticipated to implement these decisions (Porter, 1998). Learning primarily occurs at the highest levels of the hierarchy, restricting the dissemination of knowledge throughout the organization. Consequently, responses to environmental shifts tend to be sluggish, and indecision or delays can occasionally prove detrimental to the organization's viability, as it may become misaligned with its surrounding environment (Porter, 1998).

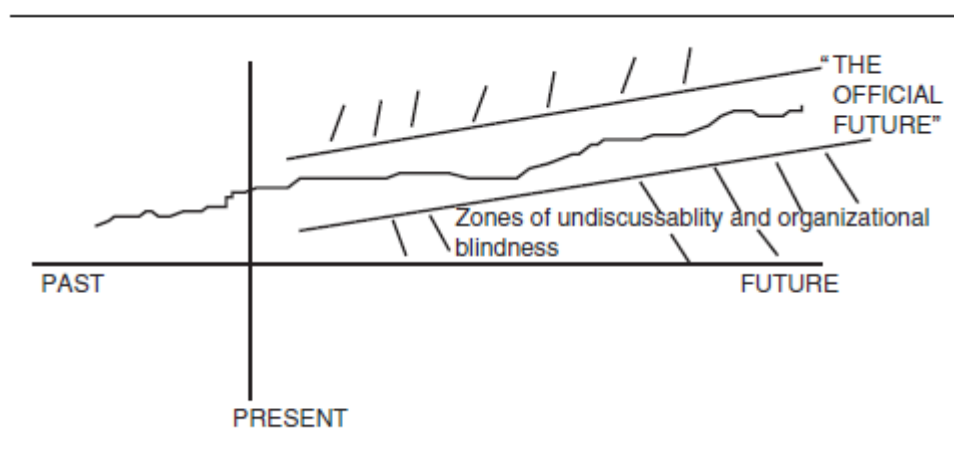


Figure 1. Illustration of two first problems with prediction the future. Source: Van der Merwe, 2008

The third challenge arises from the high level of uncertainty, which accounts for the significant variability in the future, as illustrated, for instance, in Figure 1. „Uncertainty today is not just an occasional, temporary deviation from a reasonable predictability; it is a

basic structural feature of the business environment”, and “future has become a moving target” - states the founder of Scenario-Based Approach P. Wack (Wack, 1985). This indicates that uncertainties stem not solely from the heightened intricacies of recent years or phenomena such as digitization but rather signify a profound and inherent transformation characteristic of contemporary economic and social endeavors. Consequently, there arises a necessity for suitable methodologies to effectively navigate and address these uncertainties. Executives at Royal Dutch Shell, where Strategic-Approach was integrated in the way we understand it now, were among the pioneers in recognizing that traditional linear planning methods were inadequate for predicting future developments in an increasingly complex and turbulent world (Rohrbeck et al., 2015).

As for the Russian economy, the level of uncertainty according to the Baker-Bloom index after February 2022 turned out to be three times greater than the uncertainty index in pre-Covid times (Petrova & Trunin, 2023). By mid-2023, the average value of the index became approximately equal to the period of the beginning of the COVID-19 pandemic (Petrova & Trunin, 2023), from which we can conclude that the degree of uncertainty has significantly increased. External economic factors such as geopolitical uncertainty, the risk of personnel shortage, tight monetary policy and others also correlate with challenges specific to the pharmaceutical business: uncertainty regarding the supply of technologies, innovative medicines, raw materials (substances and other components) and equipment (including spare parts), many foreign companies began to refuse investment, promotion (marketing, advertising, etc.) and supplies of their products to Russia (Dorzhieva, 2023).

Speaking separately about forecasts in the context of the Russian economy, over the past two years we have received enough examples of how the most authoritative forecasts ultimately did not come true. For example, a study by the Central Bank of the Russian Federation in June 2022 said that experts expected a fall in GDP of 7.5% in 2022 and zero growth in 2023, but in reality GDP decreased by 1.2% in 2022 and grew by 3.6% in 2024 (Experts Assessed the Long-term Effect of Sanctions on the Russian Economy, 2022; Rosstat Softened Its Estimate of the Russian GDP Decline in 2022 From 2.1% to 1.2%, 2023). Another problem with current forecasting of the pharmaceutical industry in Russia is the limited data on which the forecasts are based. In addition to the problem of the dominance in the literature of the analysis of the state strategy “Pharma-2030”, which we wrote about earlier, forecasting articles by Russian researchers are based on the same reports from analytical agencies such as DSM or IQVIA and reflect exclusively the dynamics and forecasts of market growth, drug costs, accounting for inflation, refusing to assess qualitative

changes in the activities of Russian pharmaceutical companies (Kostin & Shanava, 2022; Panfilova, 2021).

One important purpose of scenario-based strategy is to address these issues and provide solutions to navigate the future without classical limitations.

1.2.2 System thinking

The second phenomenon proposed as a basis for using the Scenario-Based Approach is the need for strategic management to evaluate not individual events, but interrelated factors that influence each other (Van der Merwe, 2008). Davidson (1983) coins systems thinking as "uncommon sense" in his book of the same name. When confronted with complexities in either the external or internal dynamics of an organization, adopting a systems perspective empowers decision-makers to perceive beyond surface events. It allows them to discern underlying patterns, as well as the interrelated forces and causal connections that sustain these patterns.

We will consider external dynamics in more detail in the next paragraph. Speaking about internal dynamics, it is important to indicate the complexity and multi-level nature of the value chain of pharmaceutical companies, where many elements are interconnected. For the innovative companies we consider, the long value chain includes (Aitken, 2016): **(a) R&D, Clinical Studies and Approval.** Searching for innovations and new molecules, conducting long clinical studies and registering the drug. The primary expenses are linked to drug discovery, which entails the identification of new chemical or biological entities with the capacity to enhance existing standards of disease treatment, as well as the costs associated with subjecting prospective drug candidates to extensive testing via clinical trials, a process during which many candidates fail to progress to completion. **(b) Manufacturing.** The production capacities of biotechnology companies typically encompass multiple plants and laboratory research centers. These capacities are usually not concentrated on a single site within one region, but rather have multiple locations across various regions of Russia, justified by logistical considerations and the potential for obtaining incentives and benefits in several regions (Yasinskaya, 2020). **(c) Sales and Marketing.** Marketing and sales endeavors play a crucial role in cultivating trust and credibility in pharmaceutical brands. By employing targeted advertising, educational initiatives, and engagement with healthcare professionals, pharmaceutical firms establish themselves as dependable purveyors of medical knowledge. These companies allocate resources towards market research, tailored advertising strategies, and robust sales teams to proficiently promote their products (Sather Research LLC, 2023). **(d) Distribution.** Efficient distribution networks facilitate the smooth flow of medications

from manufacturing facilities to pharmacies, hospitals, and ultimately, patients. These networks entail a sophisticated interplay of transportation, warehousing, and logistics management to guarantee that medications are stored, handled, and transported under optimal conditions, thereby preserving their integrity and effectiveness.

In addition to the Value chain elements indicated by Aitken, it is worth noting the important role of administrative functions such as HR or Finance and Control, which support all activities of pharmaceutical companies.

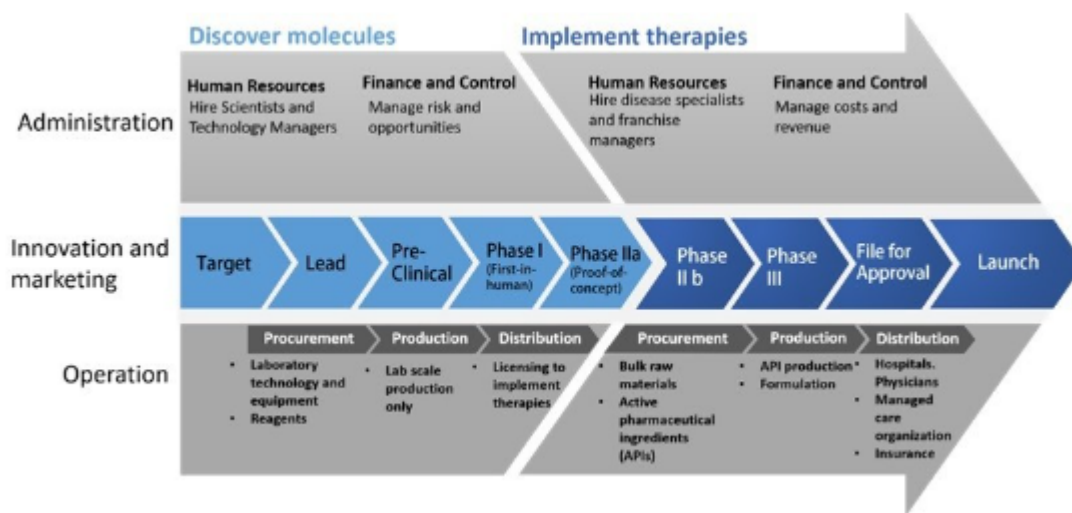


Figure 2. Pharma Value Chain. Source: Wallace, 2023

In addition to the Value chain elements indicated by Aitken, it is worth noting the important role of administrative functions such as HR or Finance and Control, which support all activities of pharmaceutical companies.

The Scenario-Based approach uses a systems approach lens to change the consideration of individual events and their impact on individual functions towards the assessment of external trends and relationships and their impact on the entire company's activities for competent strategic planning.

Strategy as Fit

Describing strategy as a process of alignment underscores the continuous endeavor of identifying discrepancies from an optimal fit and rectifying such deviations. The theory of fit posits that when an organization aligns effectively with its future environment, it is poised for success, whereas failure may ensue if this alignment is lacking. Porter (1998) referred to this alignment with the external environment as first-order fit.

Moreover, internal operations necessitate what Porter (1998) termed as second-order fit, signifying the need for coherence among these internal processes to equip the

organization with the maximum capability to adapt and achieve alignment with environmental changes.

The contemporary business landscape has evolved beyond the capacity of singular forecasting tools to effectively navigate its complexities. Business challenges inherently embody intricacies that necessitate not only an analytical perspective but also a synthesis of viewpoints. Moreover, organizational processes must harmonize with one another to enable the organization to respond cohesively. Consequently, it is evident that traditional approaches to strategy are insufficient in addressing the demands of the present-day environment.

In section 1.2.1 we described the need to use scenarios due to problems in prediction. However, to develop a rationale for the significance of our work, we still need to explain the complexity of the external environment and consider the strategic decisions that companies make to fit strategy with the environment. The following paragraphs of the literature review will be devoted to this.

1.3. External Environment of Russian pharmaceutical industry

In this section, we will consider the changing parameters of the external environment that influence the strategy of pharmaceutical companies, the situation with their development in Russia, as well as recommendations for strategic development that are included in the influence of external factors.

The external organizational environment encompasses everything outside the organization's boundaries that could impact it. This includes competitors, resources, technology, and economic conditions that shape the organization's operations. However, it doesn't include events that are too distant from the organization to have a noticeable impact (Daft, 2010). PEST analysis is the initial stage of the scenario methodology for identifying the most important external factors (Burt et al., 2006). We will also use PEST as a basic framework for describing the external environment, but we will repeat this step later in interviews with industry experts so as not to miss elements important to our study.

PEST analysis examines various aspects of the external environment affecting organizations (Kenton, 2024). *Politically*, it evaluates how government policies and legislative changes impact the economy, industry, and organization, including areas like taxation and labor laws. *Economically*, it assesses factors such as interest rates, economic growth, supply and demand dynamics, inflation, and recession. *Socially*, it considers demographics, cultural attitudes, workplace trends, and lifestyle preferences. Lastly, *technologically*, it examines the role and advancement of technology within the sector and

organization, as well as broader technological trends and government investments in research and development.

1.3.1. Political and economical environment

As part of our analysis, we decided to combine an assessment of the political and economic external environment due to the fact that most trends in these two areas are interrelated.

Foreign economic sanctions have had a tremendous impact not only on the pharmaceutical industry, but also on the entire economy and industry as a whole. V.V. Dorzhieva, a researcher at the Institute of Economics of the Russian Academy of Sciences, gives the following assessment of the impact of sanctions on the pharmaceutical market (Dorzhiyeva, 2022):

Strong Influence	<ol style="list-style-type: none"> 1. Closing the skies for Russian aircraft and closing ports for Russian ships -> Refusal of the world's largest container lines to handle Russian cargo; departure of DHL and FedEx from Russia -> difficulty in importing pharmaceutical substances from all over the world and the need to rebuild supply chains; 2. Ban on the import of high-tech supplies -> hindering access to substances, components, equipment and technologies; 3. Suspension of the launch of new productions due to equipment problems.
Moderate Influence	<ol style="list-style-type: none"> 1. Refusal of large manufacturers from carrying out clinical studies in Russia; 2. Suspension of export due to logistical problems; 3. The need to obtain permission from the authorities to work with Russian companies 4. Disconnection of Russian banks from SWIFT -> prepayment requirement before shipment.
Low influence	<ol style="list-style-type: none"> 1. Currency deficit and price growth; 2. Restricting the export of vaccines from COVID; 3. Exit of GC Rostec from the founders of the joint production of vaccines of the Indian pharmaceutical industry.

Table 2. Consequences of sanctions and its impact : Dorzhieva, 2022

The sanctions have introduced logistical and financial constraints, compounded by recent developments such as foreign banks in allied nations beginning to decline payments from Russia (Petrova, 2024). In addition to emerging problems with payment, the Central Bank in its study also cites a number of reasons complicating imports: deteriorating

transportation conditions; refusal of foreign companies to supply raw materials, materials and components; problems with the supply of spare parts and maintenance. The refusal of foreign companies to supply technologies may be motivated by reducing the risk of falling under secondary sanctions, since a wide range of technologies are included in the “dual-use” list (Central Bank of the Russian Federation, 2023).

In response to the imposition of international sanctions, the Russian government has implemented various measures, with the primary focus being special state programs offering subsidies and financial support to priority projects. These initiatives aim to stimulate import substitution processes, foster the development, and localize domestic pharmaceutical manufacturing. The foundation for such import substitution policies in the industry began to take shape in 2014 with the introduction of an industry-specific import substitution plan. This plan involved organizing the production of pharmaceutical products listed as priority and critically important, including active pharmaceutical ingredients (Dorzhieva, 2022). The specifics of import substitution industrial policy in the pharmaceutical sector are outlined in the "Pharma-2030" development strategy (Pharmprom, 2022). They are primarily based on: (a) actively developing domestic production of analogs of imported drugs (patents protected and owned by foreign companies), generics (non-patented pharmaceuticals), instead of original drugs, dietary supplements (DAS), substances, and components for drug production; (b) developing new domestic pharmaceutical products similar in pharmacotherapeutic action and/or superior to foreign analogs; (c) substituting imported products from countries participating in international sanctions against Russia with products from competitors - pharmaceutical companies from neutral countries, equivalent in quality and cost.

Among the economic influences, it is also important to consider the impact of currency changes, disagreeing with the fact that researcher Dorzhieva classified this factor in the Low influence category. In March 2022, due to the depreciation of the ruble, there was a pressing issue regarding the prices of essential drugs, which cannot exceed the government-set values. This led to regulatory relaxations by the Ministry of Health to prevent drug shortages. Prices for drugs on the list of essential drugs increased by an average of 5% in March, while prices for other drugs rose by approximately 15%. However, with the strengthening of the ruble, prices decreased slightly thereafter. The March rush due to public panic also contributed to shortages of certain drugs, but later, consumer activity returned to normal. Currently, according to the head of Roszdravnadzor, there are no drug shortages in Russia (Zaytseva, 2022). In our opinion, the risk of an increase in cost due to exchange rate fluctuations can significantly influence the importance of developing an import substitution

policy and government incentives for the development of vital drugs in the Russian Federation by Russian companies.

Refusal of large manufacturers from carrying out clinical studies in Russia may delay the introduction of new drugs in Russia because registration requires the submission of results from at least one clinical trial conducted within the territory of the EAEU. Russia, with the largest population among EAEU member states, has been a major "supplier" of patients. Therefore, it is possible that patient recruitment from other member states will proceed more slowly, thus impeding the acquisition of trial results. An obvious solution would be to revoke this rule and allow the use of results from European clinical trials (Zaytseva, 2022). However, there has been no such initiative from the Russian government thus far.

Despite Western companies refraining from conducting clinical trials within the territory of the Russian Federation, multinational corporations still maintain a market share of 63.7%. Nonetheless, their market volume has experienced a decrease of 0.9% compared to the figures reported in 2022. It is worth noting that the dynamics have a different vector for the two market segments: in the retail segment, the share of drugs of local companies increased by 4% from 2021 on 223, while in the state segment share, on the contrary, fell from 35% to 31% (Nikulina & IQVIA, 2023). Both the state and retail segments are also dominated by international companies (8 of the TOP-10). In the retail segment, the top ten Russian companies include OTCPHARM and BINNOPHARM GROUP, in the state sector, BIOCAD RF and GENERIUM.

How the industry and companies adapt

As an industry and government response to environmental challenges, experts see (Yakov & Partners, 2022) three possible areas of work: (1) stimulating fundamental research into novel drug types and advanced therapies such as cell and gene therapy, as well as other biological products. (2) This encompasses replacing crucial foreign drugs within the state segment and (3) enhancing the production of active pharmaceutical ingredients (APIs) for essential medications, alongside developing technologies for purifying imported APIs. According to forecasts, these measures will require investments from 175 to 225 billion rubles, 80 billion of which will be allocated by the state as support.

Regarding changes in supply chains, it is logical to consider the reaction not only of pharmaceutical manufacturers, but of the entire Russian industry, since the challenges have affected a large number of sectors of the economy. In response, they are adopting various strategies (Rabinovich, 2022): (1) Supplier and product substitution: Many enterprises are

seeking new suppliers to replace those they can no longer collaborate with due to sanctions. This includes sourcing suppliers domestically and in "friendly" states such as China and Turkey. However, this may lead to increased costs and decreased quality. (2) Product line review: Some firms are completely revising their product lines, adapting them to changed conditions to maintain competitiveness and reduce costs. Examples include simple packaging changes or alterations to product chemical compositions. (3) Logistics development: Companies are adapting their logistics strategy by expanding transportation geography and optimizing supply chains through alternative routes and delivery methods. (4) Innovation and technology: Incorporating new technologies, such as IT systems for more efficient resource management, procurement planning, and dynamic material cost accounting. (5) Risk diversification: Companies are seeking ways to minimize risks by distributing them among multiple suppliers or transitioning to multilateral production. (6) Focus on digitalization: Increased attention to developing and expanding digital services and products, such as online platforms and services, which help overcome some physical limitations of supply chains. These strategies demonstrate the flexibility and adaptability of Russian businesses in the face of sanctions, allowing companies not only to survive but also to find new opportunities for growth and development in a changing economic environment.

The reaction of the state and the market both to the withdrawal or even possible withdrawal, and to the risks of rising prices for drugs or the refusal of Western companies to supply innovative products to the Russian market may become the practice of compulsory licensing. A current example of compulsory licensing of the drug "Keytruda" influenced the decline in the market share of the originator of MSD in Russia (Nikulina & IQVIA, 2023), a more recent example is the drug "Ozempic" from Novo Nordisk. Today, the expert community has submitted a request for a compulsory license for dolutegravir, an anti-HIV drug (Gritsenko, 2024). Today, a compulsory licensing commission is being created at the state level in Russia (Mingazov, 2024).

To summarize this paragraph, we can say that at the moment the main challenges for companies, based on the literature review, lie in the area of logistics difficulties. On the other hand, from the point of view of the entire healthcare industry and government strategy, there are challenges in connection with the possible departure of innovative products from Western pharmaceutical companies. As we have already said, the capabilities of pharmaceutical companies in this context are not reflected in the domestic literature, which will be mentioned and described once again as a part of the research gap (see 1.4).

1.3.2. Social factors affecting pharmaceutical industry

The aging of the Russian population is, in our opinion, the most important social factor in the context of the entire economy, and not just the pharmaceutical sector. By 2046, Russia anticipates a significant increase in the proportion of elderly citizens, reaching 26.9%, which will impact various aspects of society. Economic growth may be hindered due to a reduced workforce, with GDP growth expected to remain modest at around 1.5% annually (Kalabikhina & Kazbekova, 2022). Pressure on the pension system will intensify, necessitating potential increases in state contributions. To counterbalance demographic shifts, the country will likely rely more on labor migration. This demographic change will also necessitate adjustments in budgetary allocations, with greater emphasis on healthcare and social services. To mitigate these effects, Russia will need to prioritize automation and digitalization to maintain productivity. Overall, addressing population aging will require comprehensive government and business strategies, including measures to stimulate birth rates, facilitate migrant integration, reform pensions, and enhance healthcare (Vinogradova & Tkachev, 2023).

Another significant factor has been the emigration of specialists from Russia. According to Levin (2024), no fewer than 2500 scientists have left Russia since February 2022. While the number of researchers is increasing in leading countries, it has been decreasing in Russia for over 20 years. Over the past decade alone, the total number of scientists has decreased by approximately 28,000, from 368,900 in 2010 to 340,700 in 2022 (according to Rosstat, excluding new regions). Additionally, the number of researchers under the age of 29 has dropped by 20%. This brain drain is due to factors such as the start of the Special Military Operation and concerns about mobilization in 2022. Developed unfriendly countries have offered special incentives to attract Russian specialists, including higher salaries compared to Russia. For instance, in Germany and the Czech Republic, scientists earn 3.2 and 1.4 times more respectively than their Russian counterparts. According to data from January to September 2023, the average salary for scientific employees in Russian state organizations was 123,300 rubles per month. The brain drain is also fueled by challenges in utilizing the scientific and engineering potential of Russian scientists domestically, including outdated equipment and machinery (Galcheva & Vinogradova, 2024).

Thus, we can conclude that, on the one hand, an aging population will potentially increase government spending on healthcare. On the other hand, a large number of Russian companies may begin to face staff shortages.

How the industry and companies adapt

To answer these questions, we need to refer to HR practices described in the literature and on specialized portals.

McKinsey analysts highlight the problem that the pharmaceutical sector as a whole has been slow to identify areas where talent will be needed (Dukart et al., 2020). Experts see the main solution to the problem of talent shortage in reskilling programs. Businesses can adopt a three-part strategy to tackle the skills gap: scouting, shaping, and shifting. *Scouting* involves identifying the skills needed to realize the future objectives and recognizing any disparities between what's required and what's available. Many pharmaceutical companies find themselves in this initial phase, which is crucial before moving forward. *Shaping* entails creating the framework needed to bridge the gap between demand and supply. *Shifting* refers to expanding and implementing the necessary infrastructure to recruit, retrain, or enhance the skills of employees throughout the organization.

Another important area is employee retention. Unfortunately, the literature on retention in pharmaceutical companies is region specific and we see a large number of articles on retention factors in different countries. However, we hypothesize that the structure and influence of these factors may differ depending on the region. In Russian sources we can find the following recommendations: (1) Employers need to overhaul their hiring practices, moving away from age and gender stereotypes and focusing on candidates' skills rather than diplomas or job titles. (2) Systematic wage increases should be implemented to remain competitive in attracting and retaining talent, especially in sectors experiencing wage competition. (3) Additionally, companies should address various employee needs, including housing affordability, health support programs, and comfortable working conditions. (3) Mentoring programs and professional skills competitions are effective tools for employee retention, providing recognition and fostering professional development. (4) Overall, a shift towards skill-centric hiring practices and comprehensive employee support programs is essential for businesses to thrive in the evolving labor market (Personnel Shortage in Production, 2023).

To tackle the challenges of attracting and retaining talent in today's job market, companies should take a multifaceted approach. Firstly, they should refine their traditional employee value proposition, emphasizing factors like career advancement, compensation, benefits, and company reputation. Secondly, developing a nontraditional value proposition focused on flexibility, mental health support, strong company culture, and diverse career paths can appeal to a wider range of candidates. Thirdly, broadening talent-sourcing strategies

to target both active and passive job seekers, leveraging a deep understanding of different worker personas. Finally, investing in creating meaningful work, fostering a sense of belonging, and strengthening team relationships can make job roles more appealing and encourage long-term commitment from employees (De Smet et al., 2022).

1.3.3. Technological factors affecting pharmaceutical industry

The most significant disruptors in pharma operations have been and will continue to be new **product modalities** (such as cell and gene therapy), **digitization**, and **advanced analytics** (Dukart et al., 2020).

Biopharma companies are developing diverse **modalities** targeting molecular targets, including antibodies, proteins, cell therapies, gene therapies, and nucleic acids. Monoclonal antibodies are well-established, with over 100 products on the market, while cell therapies like CAR-T are gaining traction. Gene therapies offer potential for treating rare diseases, and nucleic acids, such as mRNA for COVID-19 vaccines, are emerging as impactful modalities (Brochu et al., 2023). For the purposes of our research, it is important to understand that the development of these areas is an incredibly capital-intensive area that requires long-term investments in equipment and R&D capacities. However, strategically, such areas are incredibly important for the company, as they allow the creation of innovative products and blockbusters that will occupy profitable niches for a long time in the areas of oncology, rheumatology, orphan diseases and other segments.

The pharmaceutical industry is increasingly leveraging **digital technology** and analytics to drive innovation and enhance the efficiency of drug discovery, development, and patient care (Golub et al., 2023). Recognizing the transformative potential of digital tools, many pharmaceutical companies have appointed Chief Digital and Technology Officers (CDTOs) to spearhead digital initiatives, embedding digital and analytics into early drug discovery and clinical development to expedite timelines and increase success probabilities. Additionally, there's a growing trend towards revamping interactions with healthcare providers and patients through technology to improve treatment outcomes. Despite these efforts, McKinsey's 2022 industry review suggests that companies have only begun to tap into the potential of digital transformation, finding that investments often result in isolated success stories rather than broad organizational change. To move beyond piecemeal experimentation towards significant transformation, McKinsey recommends five actions: rethinking operating models around outcomes, embracing DataOps for innovation, industrializing AI with MLOps, transforming talent strategies, and defining a digital health strategy. Through such comprehensive approaches, pharmaceutical companies can better

harness the power of digital and analytics, shifting from small-scale projects to realizing more substantial impacts on their business and the healthcare ecosystem.

Life sciences companies are heavily investing **in analytics**, dedicating 45% of their tech budgets to applied AI, industrialized ML, and cloud computing, expected to drive significant short to medium-term benefits (Albrecht et al., 2023). Over 80% of leading pharma and medtech firms have adopted cloud technologies to enhance tech-driven innovation and infrastructure management. Despite the focus on cutting-edge technologies like quantum computing, these only make up 15% of investments. The industry's challenges have shifted from needing executive support to tackling issues related to data quality, talent scarcity, and the scaling of digital and analytics (DnA) solutions. High-quality data integration and the need for DnA talent adept in bridging the gap between technical and business domains are paramount challenges. Additionally, there's a critical need for scaling DnA solutions and changing organizational culture to facilitate widespread DnA adoption.

As we can see from the above articles, international pharmaceutical companies today are actively changing and transforming using various technologies to ensure long-term competitive advantage. The implementation of technologies and, what is important for Russian companies, simply access to these technologies is critically important in order to prevent a critical growth of the gap between domestic companies and the leaders of the international pharmaceutical market.

Summarizing the analysis of factors influencing the company and specific measures taken by the industry and manufacturers, we assume that some of the existing recommendations will be duplicated by our research. At the same time, we consider it important to independently generate recommendations together with experts on the Russian market, since two problems that we described earlier continue to exist: (1) the literature does not consider the strategy of individual companies to adapt to external changes; (2) there are risks of transferring international experience to the Russian market due to different levels of maturity and different environmental contexts.

1.4. Research gap

We see several shortcomings in the existing literature that do not allow us to answer the questions raised about the strategy of pharmaceutical companies in the hospital segment in today's context.

The first problem is that domestic sources, when describing strategic development, refer only to the level of development of the entire industry through the lens of the state program "Pharma-2030". On the other hand, foreign literature at this point in development

describes the functional strategies of pharmaceutical companies, answering questions of development in an economic environment of big pharma companies that is much more stable from external influences. Thus, there is a research gap in the need to answer the question **What strategic critical resources and capabilities do companies need to develop to succeed in an uncertain future.** To conceptualize possible recommendations in answering this question, we will use the Resource-Based View framework, focused on the internal capabilities of the company.

The second problem is the need to go beyond classical strategic forecasting for several reasons. First, forecasting is subject to biases (see 1.2.2), which lead to the development of one limited understanding of the future. Secondly, forecasts of the pharmaceutical industry in today's domestic literature are presented by the analysis of limited quantitative data, from which it is impossible to determine qualitative vectors of environmental development. Thirdly, answers to questions about an easily predictable future do not have much practical value, since in every decent company these areas have already been worked out. In this regard, we see an important task in developing "Plan B strategies." Finally, in conditions of high uncertainty, forecasts often fail to materialize, so it is useful to have different views on the future. This leaves the need for development **several scenarios for strategic planning**, which will allow you to be prepared for the realization of unexpected events at first glance that were not included in the basic forecast.

2. METHODOLOGY

The relevance and legitimacy of using the scenario approach was described by us in the first part of our work. It is based on three prerequisites that work in the Russian pharmaceutical market: (1) Difficulty with forecasting due to high uncertainty and the emergence of new trends (2) The need to use a systematic approach due to the complexity and interdependence of the value chain components and the organization's external environment (3) The need to fit the organization's strategy into relation with the external environment.

Taking into account the relevance of the scenario framework, we will describe the structure of the section. First of all, we will describe the criteria for the scenarios that we will use. Next, we describe the relevance of using interviews as an information-gathering method for scenario-based strategy development. We will then describe the sample of experts and the set of interview questions, as well as the method for analyzing the information.

2.1. Scenario planning methodology

There are a large number of approaches to scenario analysis, and Ringland (1998) analyzes them in detail. Ringland suggests that many organizations she surveyed employ what she refers to as Pierre Wack Intuitive Logics. This approach, pioneered by former Shell group planner Pierre Wack, focuses on generating a cohesive and believable set of future scenarios to test business plans or projects, spark public discourse, or enhance coherence. This approach is convenient for our study for several reasons: (1) it is not technically feasible to conduct more than two rounds of interviews to determine detailed probabilities, as, for example, The French Center's approach suggests; (2) the need to define both scenarios and strategies with small resources; (3) the need to consider different aspects of the value chain, rather than focusing on matrix scenarios fixated on two factors.

Wack's approach to Scenario Planning process include the following steps that we will implement in our research design (Van der Merwe, 2008):

- (1) Determining the main purpose of the study (focal issue);
- (2) Determination of the main factors of the macroenvironment (PEST analysis);
- (3) Formulating 2-4 system scenarios;
- (4) Using scenarios to discuss strategic decisions.

An important aspect of the methodology is the Scenario Building process, for which it is necessary to define scenario criteria. The basic group of criteria for scenarios includes (Van der Merwe, 2008) statements that scenarios must be Relevant (must be anchored in the current concerns and, at the same time, take the thinking beyond the current assumptions), Challenging (must provide a story that is in some way surprising) and Plausible (must be able to stand up to scrutiny in terms of the accuracy of the storylines).

Another important parameter is that the scenarios should be based on uncertain driving forces (Postma & Liebl, 2005). Initially, Driving Forces can be classified (Porter, 1985) as constant (very unlikely to change), predetermined (change is largely predictable) and uncertain (outcomes are known, but not yet coming about). Examples of (fundamental) uncertainties are economic growth in countries like Iraq, and the development of the political relationship between Continental Europe and the United States.

Compliance of the scenario building process with predetermined criteria should be ensured by the design of our research, which will be described in the next paragraph.

Speaking of time horizons, experts do not give a precise answer to the question of how many years should be set aside for planning, but general recommendations lie in the range of 3-10 years (Van der Merwe, 2008; Rhydderch, 2009). In conversation with experts,

we will set a horizon of 5 years in order to fit into the framework of the state planning “Pharma 2030” on the one hand, and on the other hand, not to take too small or too long an interval. Looking ahead, it is also worth mentioning that according to the experts interviewed, the foreign policy situation is unlikely to change in the next 3-4 years.

2.2. Empirical Research Design

The research will include 4 main stages: (1) interviews with experts to identify the main uncertain external factors, their development trends and the level of uncertainty, (2) identification of the main factors for constructing scenarios, (3) formulation of scenarios, (4.1) development of strategic recommendations based on these factors, (4.2) formulation of the resources and capabilities required by companies to successfully achieve strategic goals in the selected scenarios.

Qualitative approach for defining external factors and scenario building instead of quantitative is based on a number of reasons. Firstly, there is a lack of open data to independently formulate trends without a high risk of missing elements important for analysis. Secondly, it's the point of access to different sources of data: open consulting reports and regulatory data limit the range of trend analysis. Thirdly, this is the secrecy of a large amount of company data due to the high level of confidentiality.

We take into account the obvious risks of a qualitative approach associated with the fact that despite the high level of expertise, interviewees bring some subjective assessment to their answers. However, firstly, the scenario planning approach allows for a level of subjectivity, since scenario analysis is not aimed at obtaining forecasts but advocates the creation of alternative images of the future development of the external environment (Postma & Liebl, 2005). That is, creativity in identifying scenarios is acceptable and desirable. Secondly, taking into account the recommendations of Scenario Planning experts (Alcamo, 2001), we consider it legitimate to use a methodological mix when drawing up scenarios, that is, filtering expert responses through the prism of current data, if available. Thirdly, the panel of experts is not limited to one group, for example, specialists from Russian pharmaceutical companies. The sample will include respondents with different experiences and different positions in the pharmaceutical market.

In qualitative research, the format of the interview warrants consideration. Unlike written questionnaires, the dynamic interview setting permits clarification of unclear points and allows for adaptation to the flow of conversation. It also facilitates the inclusion of new, unplanned aspects that may arise during the interview process. Unlike the focus group method, the advantages of a series of interviews are obvious not only in terms of resource

requirements, but also from the point of view that the answers of expert practitioners may be greatly limited by the presence of specialists from competing companies.

Determining the main factors for constructing scenarios, as we wrote earlier, should take into account the compliance of the selected factors and future scenarios with the criteria specified by the methodology. To ensure plausibility of scenarios, we, as outlined above, will use additional quantitative information from external sources. For example, if an expert says that the healthcare budget is being cut, in order to finally include this trend in the basis of the scenario, we consider it necessary to verify this statement using quantitative data. Next, it is necessary to indicate that in order to base the scenarios on truly uncertain external factors, we must include this aspect in the research design. A factor will be called uncertain if it meets one of two conditions: (1) 2 or more experts spoke about a high degree of uncertainty of the factor, while other experts did not indicate a clear unified trend in the development of the factor; (2) Among experts there are mutually exclusive assumptions about the vector of development of the factor or there is no certainty. We see a reason to consider a factor important if two conditions are met: (1) the factor was declared by 3 or more experts (see Appendix 1.1); (2) the factor was identified as important in question 10 of the first round of interviews (see Appendix 1.1).

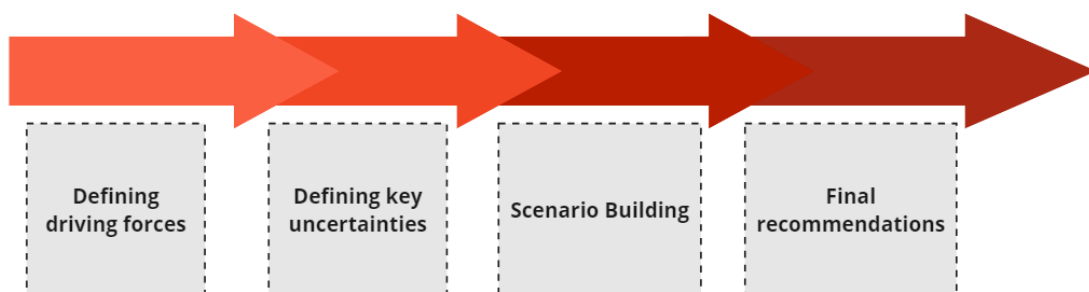


Figure 3. Research steps. Source: Own research

2.3. Data Collection

As described earlier, the source of information for constructing scenarios and strategies is a series of semi-structured interviews. Since the geographical boundaries of the study cover the Russian market, we conducted interviews exclusively with specialists working in the Russian market. The interviews were conducted by respondents on condition of anonymity due to the possible sensitivity of the questions to the corporate and operational strategy of the companies in which the specialists currently work.

The first round of interviews is devoted to identifying the main external factors affecting the company, in order to then highlight key uncertainties for building scenarios.

N o.	Institution of Interview Partner	Business specialization	Date of the 1st interview	Date of the 2nd interview
1	<i>BIOCAD</i>	<i>Organizational Transformation</i>	<i>21.03.2024</i>	<i>07.05.2024</i>
2	<i>GEROPHARM</i>	<i>Corporate Governance</i>	<i>28.03.2024</i>	<i>07.05.2024</i>
3	<i>VALENTA PHARM</i>	<i>Market Access</i>	<i>07.04.2024</i>	<i>05.05.2024</i>
4	<i>NOVARTIS</i>	<i>Market Access, Government Affairs</i>	<i>15.04.2024</i>	<i>06.05.2024</i>
5	<i>ex. PFIZER</i>	<i>Market Access</i>	<i>21.04.2024</i>	<i>06.05.2024</i>
6	<i>BIOCAD</i>	<i>Market Access</i>	<i>02.05.2024</i>	<i>None</i>

Table 3. Interview experts

The sample of experts includes both representatives of Russian pharmaceutical companies and representatives of foreign companies operating in the Russian market. Such a panel of experts allows us to mitigate subjectivity in assessing external factors, for example, the regulatory attitude of Russian authorities towards foreign companies or the likelihood of foreign companies ceasing their activities in the Russian market. The panel of experts includes specialists from different fields, but there is a dominance of Market Access specialists. We justify this by the high importance of relations with the state and navigation in financing channels for companies in the hospital segment of Russian pharmaceuticals. At the same time, experts No. 1, No. 2, No. 6 represent other areas related to corporate strategy and have the competencies for top-level assessment of the entire business. It is also worth noting that experts No. 1, No. 3, No. 4, No. 5, No. 6 have the correct education and academic qualifications in the field of Health Management.

The questionnaire for the first round of interviews is based on the PEST-analysis technique as the most popular method in the literature for identifying megatrends and key external factors (Postma & Liebl, 2005). The first question is used to create a general field of discussion and identify a focal issue according to the methodology we use. Also, the research

design involves determining the level of uncertainty at this stage and identifying the most important factors, which was also taken into account in the questionnaire.

No.	Type	Question
1.	<i>Focal issue</i>	<i>What is the main strategic goal of Russian pharmaceutical companies in the hospital segment?</i>
2.	<i>Political (P)</i>	<i>What are the main political factors influencing the strategy of Russian pharmaceutical companies after 2022?</i>
3.	<i>(P) / Trends</i>	<i>How do you think these factors will develop in the future? How can you assess the degree of uncertainty in the development of these factors?</i>
4.	<i>Economical (E)</i>	<i>What are the main economic factors influencing the strategy of Russian pharmaceutical companies after 2022?</i>
5.	<i>(E) / Trends</i>	<i>How do you think these factors will develop in the future? How can you assess the degree of uncertainty in the development of these factors?</i>
6.	<i>Social (S)</i>	<i>What are the main social factors influencing the strategy of Russian pharmaceutical companies after 2022?</i>
7.	<i>(S) / Trends</i>	<i>How do you think these factors will develop in the future? How can you assess the degree of uncertainty in the development of these factors?</i>
8.	<i>Technological (T)</i>	<i>What are the main technological factors influencing the strategy of Russian pharmaceutical companies after 2022?</i>
9.	<i>(T) / Trends</i>	<i>How do you think these factors will develop in the future? How can you assess the degree of uncertainty in the development of these factors?</i>
10.	<i>Importance</i>	<i>Which 3 or 4 the most important key uncertainties that will strongly affect the strategy of Russian pharmaceutical</i>

		<i>companies you could define?</i>
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Table 4. Round 1 questionnaire

It is important to note that this list of questions is a guide. During the interview, clarifying questions were asked.

The second round of interviews with the first five experts from the first round (Table 1.) is devoted to identifying strategic recommendations for pharmaceutical companies in each of the highlighted scenarios.

No.	Type	Question
<i>1.1</i>	<i>Scenario 1</i>	<i>What strategic objectives should Russian pharmaceutical companies establish in response to the continued withdrawal of Western companies from the market?</i>
<i>1.2</i>	<i>Scenario 1</i>	<i>What resources and capabilities companies need to develop to achieve these goals?</i>
<i>2.1</i>	<i>Scenario 2</i>	<i>What strategic objectives should Russian pharmaceutical companies establish in the event of encountering obstacles in procuring technologies, equipment, and raw materials from “friendly” countries?</i>
<i>2.2</i>	<i>Scenario 2</i>	<i>What resources and capabilities companies need to develop to achieve these goals?</i>
<i>3.1</i>	<i>Scenario 3</i>	<i>What strategic objectives should Russian pharmaceutical companies establish in response to an exacerbation of staffing shortages?</i>
<i>3.2</i>	<i>Scenario 3</i>	<i>What resources and capabilities companies need to develop to achieve these goals?</i>

Table 5. Round 3 questionnaire

2.4. Data Analysis

The evaluation of the first round interviews in our study follows the qualitative content analysis framework outlined by Mayring (2015), which involves three successive

steps: (1) summarizing, (2) inductive category development, and (3) coding. During the summarizing stage, responses are structured according to the questions posed, with each answer serving as a coding unit. The subsequent inductive category development phase entails the derivation of categories directly from the language material, devoid of pre-existing theoretical constructs, thus representing a generalized process. This category system, as articulated by Mayring and Fenzl (2014), constitutes the fundamental toolkit for analysis and directly informs the formulation of scenarios in our study. These categories are further classified into overarching coding categories and documented in Appendix 1.1.2 Finally, the coding process involves assigning these categories to responses, as per the guidelines by Mayring and Fenzl (2014). Our coding approach extends beyond descriptive categorization of scenario content to encompass explicit or implicit assessments of interviewees' future expectations. As part of the analysis, we also note the level of uncertainty that was indicated by the expert in the interview.

In the second round of interviews, we use deductive analysis (Mayring, 2015) to determine recommended resources and capabilities for development in each scenario using typology by Holdford (*see 1.1.2*)

As noted earlier, one of the intentional mix-approach methods we use is used when constructing scenarios in order to avoid violating the fundamental criterion of scenario plausibility. As part of this approach, when creating scenarios, we implement real world data for validation.

2.5. Data Limitations

Given the time pressure of the study, we could not afford to wait for postponed and indefinitely postponed meetings with representatives of a larger number of Russian pharmaceutical companies in the hospital segment. This increases the weight of the voice of representatives of only 3 Russian companies in assessing the market position.

It is also worth noting that a sample of 6 experts to generate uncertainty factors, especially in cases where expert opinions diverge, may be limited in the representativeness of the assessment of future trends. This leaves room for further large-scale research, for example, surveys of top management.

Another note is that for ethical reasons, our work does not provide recommendations on methods of illegal competition and black schemes that have been discussed with experts and in practice can be used in the work of pharmaceutical companies.

We would also like to note that the expert sample represents specialists from large companies that are focused not only on generics, but also on their own innovations in the

hospital segment. This focus is in line with our research interest described in the introduction to this paper.

3. RESULTS

3.1. Key uncertainties and scenario building

The results of the work are a set of synthesized scenarios with strategic recommendations to companies within each scenario. Based on the analysis of the first round of interviews (see Appendix 1.2), twelve environmental factors were identified that influence company strategy. Eight of them pass the importance filter that we built into the research design. The six factors are **key uncertainties**, which will form the basis of 3 scenarios.

Two factors: “Presence of Western companies” and “Development of compulsory licensing policy”, according to the commentary of expert 4 and the general logic, are part of the same trend, as well as “Access to technology” and “Relations with friendly countries”. It is also important to say about the factor “Structure of financing channels and target markets”: we decided to artificially exclude it from the scenarios for consideration for three reasons: (1) the lack of a large influence on the main goal of the company due to the continued financing of the same nosologies through other channels; (2) equally probable scenarios for the launch of a national program for multiple nosologies, which ultimately will be of strategic importance only for companies with drugs of selected nosologies in the portfolio (3) lack of room for originality, since strategies will be built around playing in the markets of target nosologies of national programs. The area for studying the scenario could be the comment of expert 5 about reducing the regional benefit budget, however, according to quantitative data from market analysts, this fact is not true (Nikulina & IQVIA, 2023).

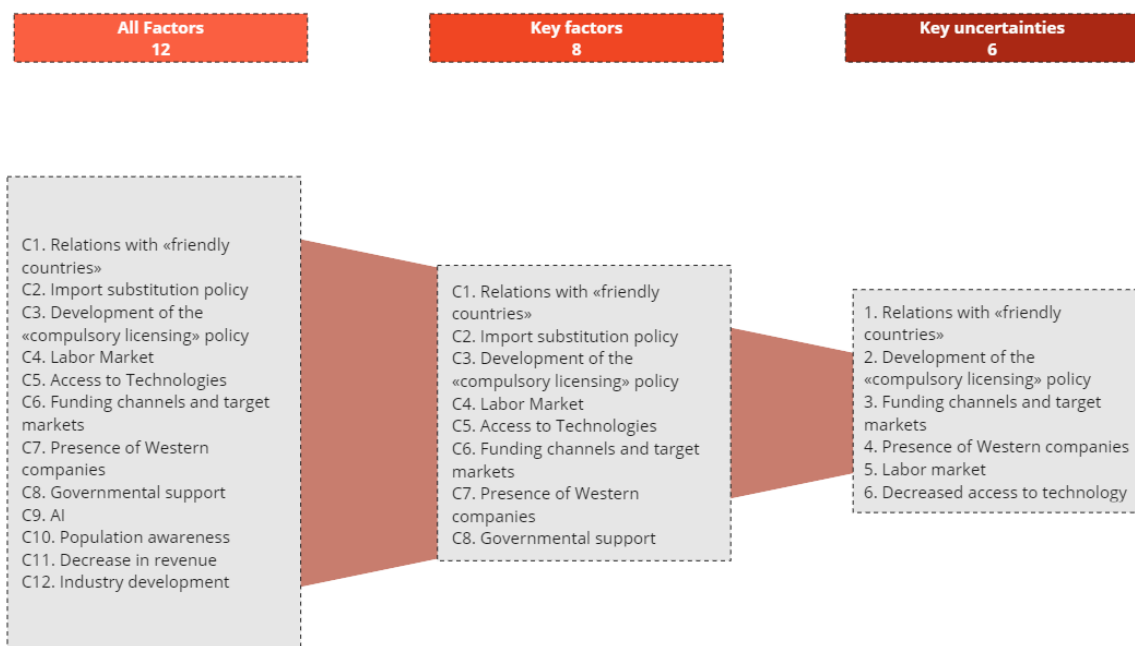


Figure 4. Generated factors. Source: Own research

Thus, the highlighted scenarios will be based on 3 most important factors with a high degree of uncertainty: (1) Expanding pressure on Western companies and their gradual withdrawal from the Russian market (2) The impact of sanctions on partnerships with “friendly” countries; (3) Risks of staff shortage. Within the scenarios we have identified, the main factor will be considered in isolation from others in order to consider its impact on the entire system. The structure of the scenario is based on a detailed description of the megatrend and the identification of uncertainties.

Scenario 1.	1 Western companies leaving	2 Access to technologies	3 Risks of staff shortage
Scenario 2.	1 Western companies leaving	2 Access to technologies	3 Risks of staff shortage
Scenario 3.	1 Western companies leaving	2 Access to technologies	3 Risks of staff shortage

Figure 5. Scenarios. Source: Own research

3.2. Scenario 1. Western companies leaving

The share of multinational companies in the Russian pharmaceutical market decreased at the end of 2023 compared to 2022 by 1% in monetary terms, but still remains at the level

of 63.7%. In the TOP 10 companies by market share there are only 2 domestic companies: BIONNOPHARM and BIOCAD. Six Western companies Roche, Novartis, Johnson & Johnson, Astrazeneca, Sanofi and Pfizer own a third of the government procurement market. At the same time, some companies began to lose revenue. Thus, Pfizer's revenue decreased by 16%, Takeda by 14%, and MSD by 50% (Nikulina & IQVIA, 2023).

Many foreign pharmaceutical companies have announced a decrease in investment in Russia. In particular, the French Sanofi has reduced spending on advertising and promotion in our country. The Danish Novo Nordisk did the same. The company has suspended investments in marketing and has also “shifted its focus from drug launches and clinical trials to securing insulin supply,” as it said in its 2023 H1 report. Finnish Orion Pharma also “ceased its operations in Russia.” American pharmaceutical companies Eli Lilly and Bristol-Myers Squibb (BMS) also left the country, transferring local business to Swiss Swixx BioPharma (Shubina, 2023). IBC Real Estate analysts calculated that out of 419 representatives of international businesses registered on the Russian market, 139 decided to leave Russia (Gritsenko, 2024).

A significant factor was the termination or suspension of clinical trials. In the future, this may lead to a lack of foreign innovative medicines on the Russian market. According to interview experts, Western companies may end up registering new drugs in Russia with a large lag behind priority markets, three to five to seven years later.

Pressure is also exerted on Western companies through the compulsory licensing policy, as well as the “Patent on the Shelf” mechanism. A current example of compulsory licensing of the drug “Keytruda ” has influenced the decline in the market share of the originator of MSD in Russia; a more recent example is the drug “Ozempic” from Novo Nordisk. Today, the expert community has submitted a request for a compulsory license for dolutegravir, an anti-HIV drug. Today, a compulsory licensing commission is being created at the state level in Russia (Mingazov, 2024). According to the forecasts of two study experts, this practice will expand, providing opportunities for domestic companies to occupy important niches and reducing the incentives for the presence of Western companies in the Russian market. On the other hand, as other experts in the study note, the expansion of this practice and pressure on Western companies will reduce the availability of future innovations for Russian patients. According to Yakov&Partners (Yakov & Partners, 2022) forecasts, it is expected that about 300 innovative advanced therapy drugs, taking into account current trends, will not enter the Russian market in the next 10 years.

According to the results of our research, the strengthening of the identified trend, that is, the expansion of the practice of compulsory licensing, is and the natural decrease in the activity of Western pharmaceuticals in the Russian market is **key uncertainty**. Within the framework of scenario 3.1. It is proposed to develop strategic recommendations in case of development of this trend.

Recommendations for Russian pharmaceutical companies

Note: This paragraph refers to Appendix 4.2.1., Q1.1-Q1.2.

The study experts agree that the strategic task of companies in this scenario is to include in their portfolio products of Western companies whose patents can be challenged.

Expert 01 recommends that you first consider the drugs on the Vital and Essential Drugs list and the List of Strategically Important Medicines. This strategy is beneficial for three reasons: this approach requires less investment and effort than in-house innovation; key opinion leaders and patients are already familiar with these products; this is advisable from the point of view of the possibility of obtaining subsidies and government support.

Experts 02 and 03 also say that in such a scenario, Russian companies will have the opportunity to challenge patents on innovative drugs in foreign markets that are not registered in Russia. These may be drugs for which the market in Russia has not yet been formed, but there is potential for its development and there are clear potential funding channels, such as the “Circle of Good” for orphan diseases. However, the format of market development is risky, since the right to produce the drug, judging by existing precedents, will not only be issued to one company; accordingly, investments in market development will also work to develop the market for another company.

Research experts identify two main areas that companies need to gain a competitive advantage in this scenario: (1) Lobbyism and GR; (2) R&D. The first direction is necessary to successfully obtain compulsory licenses for key drugs: companies need to be able to justify to the state the need of Russian patients for this drug, as well as the risks of defects, high prices or other reasons. which will be developed by the compulsory licensing commission in the future. The second direction is important because it allows you to quickly and efficiently reproduce innovative drugs (monoclonal antibodies, gene therapy, etc.) with great market potential. The need to develop our own scientific potential in terms of personnel, laboratories and production facilities is determined by the high knowledge intensity of the pharmaceutical development process, even when it is not necessary to find a new molecule and invest in its research. Moreover, the efficiency of pharmaceutical development will directly affect the cost, which is important in the context of this scenario, since, as we have already noted, a

license to produce a drug under compulsory licensing will be issued to several companies, so there may be competition on price.

However, there are also opinions among experts about the possible risks of such a strategic decision. First of all, it is important to note that the use of compulsory licensing tools by companies and the investment of resources in this direction may depend on the company's ambitions for presence in the international market. Another risk also lies in the area of scaling and international expansion and is that such companies will find it difficult to attract foreign investment and raise funds through an IPO. According to expert 01, such companies will not receive high ratings from foreign agencies and may be assessed as a toxic asset, given their history of intellectual property theft.

To summarize, we can also say that in order to achieve strategic goals in this scenario, it is necessary to have developed relations with the state and have its own infrastructure and capabilities necessary for R&D and pharmaceutical development.

3.3. Scenario 2. Access to technologies

According to the opinions of some of the experts in our study, relations with “friendly countries” and “replacement of the West” are the most important factor in the future development of the pharmaceutical market. According to these same experts, a scenario in which these relations become more complicated cannot be avoided.

Total Russian imports, which recovered last year to the level of February 2022, fell again in March 2024 (Gritsenko, 2024). The Central Bank of the Russian Federation reports that supplies from abroad decreased by 18%. The first quarter of 2024 saw a record drop in Turkish exports. It decreased by 33.7%. Trade turnover between China and Russia also decreased in March 2024. Its value was 15%. For Turkey and China, exports to Russia do not play a big role in the foreign trade balance. In China, the volume of exports to its northern neighbor is 3%, in Turkey this figure is approximately the same - 3.2%. The main reason: the refusal of banks in Turkey, the UAE, China and other countries to accept payments from Russia due to the risks of secondary sanctions. Companies, regardless of their focus, face problems with financial support for imports, including pharmaceutical companies, due to the fact that banking organizations in third countries are afraid to take any risks associated with Russia.

In addition to emerging problems with payment, the Central Bank (2023) in its study also cites a number of reasons complicating imports: deteriorating transportation conditions; refusal of foreign companies to supply raw materials, materials and components; problems with the supply of spare parts and maintenance. The refusal of foreign companies to supply

technologies may be motivated by a reduction in the risk of falling under secondary sanctions, since a wide range of technologies are included in the “dual-use” list.

The expansion of the practice of refusing to interact with Russian companies and the increase in such precedents are identified by experts as a factor of uncertainty. Pharmaceutical companies in the Russian Federation depend on foreign suppliers in several key areas: (1) supply of raw materials to support production; (2) supply of equipment to ensure current production, as well as providing a technological base to improve quality and create innovation; (3) delivery of software to increase efficiency and innovation.

Recommendations for Russian pharmaceutical companies

Note: This paragraph refers to Appendix 4.2.1., Q2.1-Q2.2.

The strategy of Russian companies in this scenario, according to most experts, should be built around the development of partnerships and increased flexibility of supply chains. It is necessary to direct resources to create a broad base of partners so that for each element of the list of strategically important technological positions there is a number of partners identified **which** or **through which** you can buy them. It is proposed to build a chain in which, through a large number of interlayer companies, it will be possible to hide the end consumer. An important area is also to deepen the research of equipment suppliers from China, create a map of suppliers, discuss product characteristics and delivery conditions with each.

In addition to developing Supply Chain flexibility, experts also note the importance of expanding payment mechanisms and finding new schemes through constant development by financial departments. Additionally, experts see prospects in paying for foreign products through cryptocurrency, so companies should also explore this option.

Another important area in maintaining stability amid procurement complications is the development of GR competencies. On the one hand, it is important to maintain relations with Russian government agencies, which since 2022 have been actively helping to build logistics routes. This should be done primarily through professional organizations and business unions, since the weight of the pharmaceutical industry on the scale of the entire economy is not the greatest and it is necessary to unite with other industries. On the other hand, it is also necessary to develop relations with government agencies and chambers of commerce of friendly countries like Armenia and Kazakhstan in order to be able to negotiate mutually beneficial relations.

In general, experts have a positive assessment of the prospects for maintaining procurement stability while strengthening and developing those competencies that have been acquired by Russian business over the past two years.

In addition to the development of strategies that have emerged over the past two years, experts 04 and 05 see prospects in the long-term development of domestic suppliers. At the moment, it is necessary to invest resources in the training and development of Russian technology manufacturers. Benefits can be found here by creating links in the logistics chain that are less risky in terms of timing and cost. Also, in such a strategy, under the terms of exclusive contracts, it will be possible to provide our own production with the necessary technologies.

Thus, in this scenario, in order to achieve strategic goals, it is recommended to develop the Supply Chain and Finance areas, as well as develop partners and relations with states.

3.4. Scenario 3. Risks of staff shortage

Three study experts spoke about the development of a personnel shortage, two spoke out that a shortage is likely, but is not observed at the moment. One of the experts suggested that the shortage situation in the pharmaceutical market will not be acute due to staff cuts at Western pharmaceutical companies reducing their activities in Russia, as well as increased automation and technologization. The likelihood of active use of government measures and their effectiveness in reducing personnel shortages in the country as a whole also adds to the uncertainty of the situation. Among the experts who announced a shortage, different categories of personnel can also be distinguished: so-called “blue collar” workers, that is, production employees; research assistants; or, in general, employees of different profiles: from managers to factory workers.

The government's response to the growing shortage in pharmaceutical production also adds to the uncertainty. In February, the Association of Pharmaceutical Manufacturers of the Eurasian Economic Union (AFPEAEU), together with leading players in the pharmaceutical market and relevant departments, asked to include state support measures in the Pharma-2030 program to solve the problem of personnel shortages (*Pharmaceutical Manufacturers Are Asking for Help With Staffing.*, 2024). The adoption of the proposed measures in the medium and long term can help overcome the crisis, but their adoption and implementation remain questionable.

In this regard, companies may face serious strategic challenges related to attracting and retaining managers, researchers, and production workers.

Recommendations for Russian pharmaceutical companies

Note: This paragraph refers to Appendix 4.2.1., Q3.1-Q3.2.

In order of importance, depending on the frequency of expert recommendations, there are three possible areas that pharmaceutical companies should work on in the absence of a solution to the problem of personnel shortage: (1) Attracting and retaining talented employees; (2) Process optimization; (3) Attracting foreign specialists.

Experts see the main way to attract talented employees is interaction **with universities**. “Investing in relationships with universities will become an important strategic expense, and not just branding,” notes expert 03. Companies that win the competition for talent in specialized areas such as chemistry, computational biology, synthesis and analysis of compounds, and others will gain a strategic advantage.

Among the tools offered are open days, development of general educational programs, open lectures and internships. A separate area worth highlighting is the development of the practice of targeted training, the expansion of which requires interaction with relevant authorities. Expert 02 notes the fact that today a very limited number of companies are engaged in such work with universities.

Experts call growth another relevant tool for attracting salaries **and corporate benefits**. Despite the growing burden on the payroll of pharmaceutical companies, experts say that these are important strategic costs that pharmaceutical companies face. Companies can afford it given the high profit margins of the business.

From the point of view of both content and attraction, experts 02 and 04 talk about the need to develop corporate **culture**. Expert 02 notes that a large number of employees of foreign companies will currently refuse to move to Russian companies even with a multiple increase in wages due to the low level of development of corporate culture. In the event of layoffs in Western companies, employees are still left with the alternatives of moving abroad, leaving for companies in the non-pharmaceutical sector, or starting their own business.

The second strategic direction in this scenario could be production **optimization**. Expert 03 talks about two tools that will allow you to create a strategic advantage through optimization. Firstly, it is a change in the processes of the organization in order to build **processes**, which are less dependent on the unique competencies of individual specialists. This will reduce dependence on a small number of extremely important personnel, replacements for which are difficult to find. Secondly, this is development, retraining and development of **T-shape specialists**, that is, specialists who have basic skills and knowledge in many specialties in addition to their main specialty. Retraining will allow the company to

develop flexibility and replaceability of employees in the face of staff shortages. Thirdly, the potential for optimization also lies in increasing the productivity of individual employees through **technologization of their work**.

Another recommendation for process optimization is the development of automation. However, such a strategy has important vulnerabilities: (1) at the moment there are no developed technological solutions to replace the majority of specialists with deep knowledge in the areas of R&D, pharmaceutical development, clinical research, management and others; (2) automation is dependent on foreign software and technologies, the procurement of which is either unavailable or complicated or may be complicated.

The third direction is the possible attraction of foreign specialists from friendly countries. To include such specialists in the company's work, it is necessary to develop a diversity culture. An alternative option is to transfer part of the value-chain to other countries. The strategy for attracting foreigners is the most risky and uncertain.

To achieve success in this scenario, it is necessary to develop cooperation with universities, invest in GR and corporate culture, and also have a budget to be able to ensure an increase in employee salaries.

3.5. Recommendations Summary and Resource based view

Scenarios, a brief scenario description and summarization of strategic decisions and the resources and capabilities required for development are presented in Table 6.

Scenario	Short Scenario Description	Recommendations Summary	Resources and Capabilities to Develop
Western companies leaving	Under pressure from regulators, Western companies continue to reduce their presence in the Russian market	Achieve compulsory licenses and capture the most attractive markets	GR&Lobbyism; R&D specialists; R&D facilities
Access to technologies	Due to the threat of secondary sanctions, foreign banks and partners refuse to cooperate with Russian companies	Lengthen supply chains, expand network of partners and ensure sustainability through GR	Supply Chain; Financial Flow; GR&Lobbyism
Risks of staff shortage	Personnel hunger is increasing due to difficulties in attracting Western pharma specialists	Attract students, streamline processes, and retain top employees with big salaries	Universities relationships; Cash flow for salaries; Process optimization

	and lack of support measures		
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Table 6. Recommendations summary

The two most important factors that will lead to success in the future if these scenarios come true are Relational and Managerial capabilities (see 7.2.2.) according to Holdford classification (see 1.1.2.). The ability to negotiate with the government to your advantage, set up supply chains, streamline processes, and effectively manage university relationships will provide long-term competitive advantage.

Considering the strategies generated as part of the study through the Resource-Based View, we can draw several important conclusions. First, as shown in Figure 6, the GR&Lobbyism resource has an impact on the achievement of strategic goals in each of the proposed scenarios. Moreover, this resource allows us to support the development of Supply Chain capabilities. In turn, Supply Chain capabilities are necessary for the development of R&D capabilities that affect the success of achieving strategic goals in the first scenario.

The development of corporate culture also influences the attraction of scientific specialists who provide a competent advantage in the strategy of occupying vacated niches. The identified relationships indicate the potential for synergy of the most important resources and capabilities. On the other hand, the prevalence of the relationship potentially argues for the validity of investments in the areas we have identified already now, since most of them will give a positive result in the implementation of any of the scenarios we have identified.

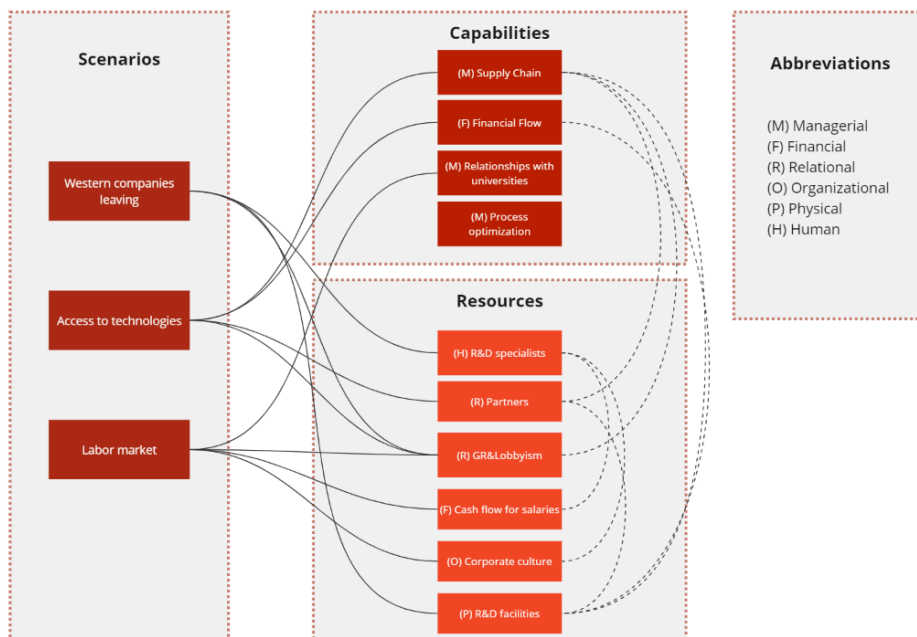


Figure 6. RBV interconnections. Source: Own research

4. IMPLICATIONS

Scientifically, there are three levels at which conclusions need to be drawn. Firstly, we need to consider what insights this research provides into the theoretical framework underlying the topic (as discussed in section 4.1). Secondly, we should assess whether the practical recommendations for strategic management derived from this research can be readily applied in real-world business settings (as explored in section 4.2). Finally, it's essential to acknowledge the limitations of this study and identify avenues for future research to overcome these constraints and deepen our understanding of the subject matter (as outlined in section 4.3).

4.1. Theoretical implications

First of all, our study is the first analysis of the strategy **specifically of pharmaceutical companies**, but not public policy in the modern political and economic context (see 1.1.1.). To describe the strategy, we used an integrated systems approach and considered all aspects of the business model of innovative pharmaceutical companies in the hospital segment, and not separately different strategic directions.

We also demonstrated the ability to combine two popular strategic frameworks: **Scenario-Based Planning** based on external factors and **Resource-Based View** addressed to the internal elements of the organization. This approach can be scaled to other technology industries and, first of all, industries where the main buyer is the state or large firms. The advisability of using this approach lies in the fact that in modern realities, high uncertainty is becoming commonplace and for successful operation companies need (a) to be able to respond to this (b) to develop resources and capabilities that will help achieve success in the face of a variety of surprises in the external environment.

Thirdly, we moved away from the classical forecasting method, replacing forecasts with scenarios. This was done for several reasons (Van der Merwe, 2008; Bartlett&Ghoshal, 2002; Shwartz, 1991): (1) forecasting is subject to the development of one direction of development of the external environment and is often dictated by the leading opinion in the company or scientific community, which limits their feasibility and does not make it possible to think through a strategy in the event of other changes in the environment; (2) forecasts in the pharmaceutical industry in the domestic literature are based on quantitative data, and this is logical, however, the variability of this data limits the range of perception of development vectors, focusing on publicly available and easily measured indicators of market volume, company shares and other economic indicators; (3) the high degree of uncertainty in Russian

realities often results in the fact that most forecasts turn out to be useless; (4) forecasts are built around the most likely factors, which removes the challenging element for researchers and practitioners, so we see less scientific value in creating recommendations for understandable and certain developments.

Fourthly, taking into account the scale of the influence of external factors on business and their diversified focus, we moved away from the classic approach of focusing on one level of strategy: corporate, business or functional. Instead, we analyzed the critical areas and developed recommendations that allow the company to succeed in a specific situation.

4.2. Practical implications

The practical significance of our work lies in three outcomes: (1) scenarios and uncertainty factors synthesized with experts; (2) specific recommendations that lie in the plane of both corporate strategy and functional strategy; (3) recommendations for the development of key resources and capabilities.

At the scenario level, we have developed three critical directions for the development of the external environment, which managers can already pay attention to in companies today. This material can form the basis for strategy sessions or discussions at the executive or function level. The developed scenarios can be used to develop more custom solutions for specific companies. Moreover, we are convinced that, to one degree or another, scenarios can be used in other technology industries.

At the recommendation level, we provide managers with specific strategic steps for “Plan B.” They can become a starting point for developing a strategy for change and adaptation if one of the scenarios comes to fruition.

Also, our results in demonstrating the main resources and capabilities provide the management of pharmaceutical companies with directions to discuss increasing investments in the development of areas that will provide a sustainable competitive advantage if at least one of the possible scenarios is realized. Such a resource, for example, is GR&Lobbyism. Our findings strengthen the case for increased spending in this and other areas covered by the study.

In addition, our research can become a starting point for other researchers and analysts in related fields. From the point of view of lawyers, there is an opportunity to develop knowledge of the issues of “compulsory licensing”, having the understanding that, probably, many domestic companies will try to use this tool under a certain set of circumstances. From the point of view of Science & Technology specialists, it would be

interesting to develop approaches to quickly recreate the production of biosimilars to foreign drugs.

4.3. Research Limitations and Further Research Opportunities

Given that we ourselves recognize the high uncertainty and vulnerability of any forecasts, we accept that implementation **of any of these scenarios** may happen differently or not happen at all. Based on this, we recommend that company managers consider introducing the practice of strategic planning based on scenario analysis at a certain frequency, for example, once a quarter.

We also understand that our recommendations are general in nature and can be applied effectively within each company only with significant additions or modifications. However, our research provides a starting point for developing the most effective strategy for an individual enterprise.

Further, we understand that the sample of experts could be wider and include a wider number of representatives of Russian pharmaceutical companies. This situation arose due to the time frame and the fact that scheduled interviews were postponed by some of the researchers. In addition, for future studies of this type, we see the need to involve government officials, for example, the Ministry of Industry and Trade, as experts. As part of our research, we tried to contact representatives of regulatory authorities and executive authorities, however, without success. Perhaps more influential researchers with research status and government connections will be able to significantly deepen our research.

As a future development of the problem, we see an expansion of the pool of external data that can form the basis of scenarios. Another possible development option could be a deeper discussion of identified or newly generated scenarios with specialized specialists in different areas: GR, Supply Chain, HR, pharmaceutical development and others.

5. CONCLUSION AND OUTCOMES

In conclusion, this master thesis provides a comprehensive exploration of scenario planning within the Russian pharmaceutical market, characterized by its high uncertainty, the complexity of its value chain, and the necessity for organizations to adapt their strategies to the external environment. By employing a qualitative research design, including semi-structured expert interviews and a systematic analysis of external factors, this study delves into the development of plausible and relevant scenarios and formulates strategic recommendations for pharmaceutical companies operating in Russia.

The research findings underscore the importance of a scenario planning approach, demonstrating its practical implications for the pharmaceutical industry in navigating uncertainties and crafting robust strategies. Three key scenarios were identified, each presenting distinct challenges and opportunities: the withdrawal of Western companies, challenges in accessing technologies and materials due to sanctions, and labor market dynamics. For each scenario, strategic objectives were formulated, focusing on leveraging internal resources and capabilities, such as government relations (GR) and lobbying, research and development (R&D), and supply chain management, to ensure resilience and competitiveness.

Moreover, the study highlights the necessity for pharmaceutical companies to invest in developing strategic resources, such as GR and lobbying efforts, managerial capabilities, and a strong corporate culture, to effectively respond to the dynamic external environment. These resources and capabilities are depicted as fundamental for companies to secure a competitive edge across the varying scenarios discussed.

This thesis contributes to both theoretical and practical knowledge by integrating scenario planning with a resource-based view, offering a novel framework for strategic decision-making in highly uncertain environments. It also provides actionable insights for pharmaceutical firms, suggesting areas of focus that are critical for maintaining market presence and growth in the face of external pressures.

However, the study acknowledges certain limitations, such as the scope of expert samples and the absence of viewpoints from governmental stakeholders, which could have provided additional depth to the analysis. These limitations open avenues for future research, emphasizing the need for ongoing scenario planning exercises and broader engagement with industry and regulatory stakeholders to refine and adapt strategies.

In essence, this thesis reaffirms the value of scenario planning as a strategic tool for pharmaceutical companies in Russia, enabling them to envision multiple futures, prepare for unforeseen changes, and craft strategies that ensure sustainability and growth in a volatile market landscape.

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7. APPENDIX

7.1.1 Round one interview: Qualitative Content analysis

Q1: What is the main strategic goal of Russian pharmaceutical companies in the hospital segment

Interviewee	Summarizing
01	Maximizing shareholder profits; Implementation of state plans to ensure drug independence.
02	Strengthening positions in the markets of presence and entering new markets;
03	Ensuring the state needs indicators for the import substitution policy
04	Replace as many foreign medicines as possible with our own products
05	Increase in revenue and profitability
06	Making a profit in target markets

Q2: What are the main political factors influencing the strategy of Russian pharmaceutical companies after 2022?

How do you think these factors will develop in the future? How can you assess the degree of uncertainty in the development of these factors?

Interviewee	Summarizing	Category	Coding
01	The impact of sanctions on the operating activities of companies. Today, Russian companies have switched to suppliers of raw	Relations with “friendly countries” - Uncertain; Import substitution policy - Predetermined	C1 C2

	<p>materials from Asia, this is an important trend. There is a dependence and it will get worse. There remain risks of secondary sanctions and complications in relations with some countries, so there is uncertainty here.</p> <p>Another important trend that remains is the policy of import substitution, fixed in the Pharma 2030 strategy. The state uses different tools to achieve its goals in drug independence. This policy by the state is not a new trend; it is a logical continuation and strengthening that we will see in the future.</p>		
02	<p>Relations with China, India and other countries are the most important political factor. If suddenly something affects these relations for the worse, it will be incredibly difficult for Russian pharma. We will have to create everything inside Russia or look for new routes.</p> <p>The political situation is volatile, theoretically different scenarios could come true, which are impossible to predict today</p>	Relations with “friendly countries” - Uncertain;	C1
03	This is clearly a policy of import substitution, turning a blind eye to	Import substitution policy - Predetermined	C2

	<p>many other factors such as the quality of drugs, the presence of innovation, healthy competition</p> <p>The trend is absolutely clear, there is no reason to think that anything will change in the future</p>		
04	<p>The main trend is the pursuit of beautiful figures on import substitution and reports on the growth of Russian pharmaceuticals. They are backed by subsidies and support for their own companies in patent disputes, but in reality this does not lead to innovation and the development of modern pharmaceuticals.</p> <p>What we are seeing today is an intensification of a development trajectory that has been outlined quite a long time ago, so I do not expect changes in this direction.</p>	<p>Import substitution policy - Predetermined</p> <p>State support is predetermined;</p> <p>Development of compulsory licensing policy - Predetermined</p>	<p>C2</p> <p>C3</p> <p>C8</p>
05	<p>The main external factor is the state's commitment to ensuring complete drug autonomy for the main nosologies</p> <p>In the current reality, this obviously seems like a reasonable strategy that is unlikely to change.</p>	<p>Import substitution policy - predetermined</p>	<p>C2</p>
06	<p>Development in practice of the "Pharma 2030" strategy; The program will probably run like the</p>	<p>State support is Predetermined;</p> <p>Reduced profitability of</p>	<p>C8</p> <p>C11</p>

	<p>previous one. If you look at the development of the industry in recent years, the successful result is obvious. high volatility of the ruble also affects the company's economic success and margins</p> <p>Yes, this is a long-term external factor, an economic trend</p>	<p>companies -</p> <p>Predetermined</p>	
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Q3: What are the main economic factors influencing the strategy of Russian pharmaceutical companies after 2022?

How do you think these factors will develop in the future? How can you assess the degree of uncertainty in the development of these factors?

Interviewee	Summarizing	Category	Coding
01	<p>The development of financing channels is important to the strategy and there is a lot of uncertainty here. It is important for companies in the segment to understand, for example, what the next national programs will be and how institutions like the “Circle of Good” will develop. The question is whether Western companies will leave the market completely. Will they continue to conduct clinical research and innovate? There is uncertainty here that is important for the strategies of domestic companies.</p> <p>Another possible trend is the</p>	<p>Funding channels and target markets -</p> <p>Uncertain; Development of compulsory licensing policy - Predetermined;</p> <p>Relations with “friendly countries” - Uncertain;</p>	<p>C6</p> <p>C3</p> <p>C1</p> <p>C7</p>

	<p>development of the practice of compulsory licensing, which is what we have seen now with Ozempic. I do not believe that the state will choose a strategy that will remove innovation from the Russian market. However, there is room for a trade-off here between expanding access to therapy and developing innovation</p> <p>Another important factor is the development of the EAEU</p> <p>Now it's really hard to say what the degree of integration will be: will the general rules remain only on paper or will a single field really be created?</p> <p>The next question to ask is: what will happen to the presence of Western companies? Will they continue to innovate? What part will go away? Many have remained, but there are staff cuts, as well as other first signs that some companies will cease to be active in the Russian market</p>		
02	<p>The number of subsidies and the format of their presentation plays an important role: today companies are developing largely thanks to government support programs.</p>	<p>State support - Predetermined; Development of compulsory licensing policy - Predetermined</p>	<p>C8 C3 C1</p>

	<p>If assessed through the prism of the Pharma-2025 and Pharma-2030 programs, then it is obvious that support will continue, but its nature is unknown</p> <p>Another trend is compulsory licensing, which will also determine the strategy of companies in the future. Russian companies are investing a lot of effort in GR to achieve such solutions and there will definitely be more of this in the future</p>	<p>Developing relations with friendly countries - Uncertain</p>	
03	<p>It is difficult to identify obvious trends here. The budget for the purchase of medicines, as we see, remains stable: it does not grow or fall. Western companies that have decided to leave have already left, but most are not going to leave, since too much effort has been invested in conquering the market.</p> <p>An important role for companies, of course, will be played by the saturation of funding channels and government spending on certain nosologies. This is a field of great uncertainty</p>	<p>The presence of Western companies - Predetermined; Funding channels and target markets - Uncertain</p>	<p>C7 C6</p>
04	<p>Such factors include uncertainty with financing channels and a decrease in margins due to the inflationary cost of components, the</p>	<p>Funding channels and target markets - Uncertain; Reduced profitability of</p>	<p>C6 C11 C4</p>

	<p>cost of attracting financing, and an increase in the wage fund due to the need to retain personnel.</p> <p>In the horizon of the next 5-6 years, I do not see any prerequisites for anything radically changing among the listed factors in terms of their vector.</p>	<p>companies - Predetermined; The labor market - Predetermined;</p>	
05	<p>The events that have happened and the situation with logistics access to Russia, as well as the protectionist policies of Russian regulators in the form of, for example, compulsory licensing or “patents on the shelf” are scaring off Western companies. Innovative products will be registered on the Russian market several years after registration in Western countries, on priority markets. So far, the state has managed to find this balance in behind-the-scenes negotiations with Western pharmaceuticals, but there are examples like NovoNordisk that show that this balance is not always possible to find.</p> <p>Another important trend is the reduction of the regional budget for the purchase of drugs due to the need to provide benefits to the needs of the northern districts. Here we can expect a decrease in margins for</p>	<p>Funding channels and target markets - Uncertainty; Presence of Western companies - Uncertainty; Development of compulsory licensing policy - Uncertain</p>	<p>C6 C7 C3</p>

	<p>distributors and manufacturers, as well as a flow of patients in need to other financing channels.</p> <p>There really is a lot of uncertainty here, which concerns the development of specific channels of financing to provide for citizens that the region will not be able to provide.</p>		
06	<p>Completion and launch of new national programs. For example, the Oncology program ends in 2024, and at the same time the diabetes program begins. The cardiovascular program is in question. I can't say that from a strategic point of view there is a lot of uncertainty for companies here. There is already information that, for example, even with the closure of the oncology program, funds for the purchase of drugs will continue to be allocated in the same amount and will be distributed through the compulsory medical insurance fund.</p>	<p>Funding channels and target markets are predetermined;</p>	C6

Q4: What are the main social factors influencing the strategy of Russian pharmaceutical companies after 2022?

How do you think these factors will develop in the future? How can you assess the degree of uncertainty in the development of these factors?

Interviewee	Summarizing	Category	Coding
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01	<p>It seems logical to me to highlight population decline, which will manifest itself in two aspects: future contraction of the market and contraction of the labor market. Today there is already a shortage of specialists of various qualifications and skills.</p> <p>This is a demographic trend, which is also influenced by external circumstances, so it is quite predictable.</p>	Market contraction - Predetermined; The labor market - Predetermined;	C4 C11
02	<p>Today, companies are experiencing an acute shortage of blue-collar workers, which is leading to increased salaries and intensified measures to retain employees.</p> <p>This situation is likely to continue due to external conditions, in particular, the NWO.</p>	The labor market - Predetermined;	C4
03	<p>If we look optimistically at the state of the market, then there is hope that the development of Russian companies and the healthcare system as a whole can be ensured by qualified personnel, of which there are still many</p> <p>It is difficult to absolutely predict what will happen next with this situation due to unpleasant external conditions. However, I do not think that a critical situation will develop</p>	Labor market - Predetermined	C4

04	There is clearly a large shortage of scientific personnel, and it is not clear what to do with it next. Many have left abroad because the prospects for the development of science within Russia are becoming less and less.	Labor market - Predetermined	C4
05	Having downsized, Western companies left a large number of pharmaceutical specialists on the market, so at the moment I cannot say about a shortage in the labor market. On the other hand, automation is increasing, which also helps avoid shortages.	Labor market - Predetermined	C4
06	<p>I would name among the social factors the growing awareness of the population and understanding of their rights in the field of medicine. This is something that is often discussed at conferences.</p> <p>This is what happens with the expansion of access to information and education on the Internet, this is becoming more and will become more</p> <p>Another factor is the aging of the population, this will also affect the nature of medical care and the development of healthcare</p>	Growing awareness of the population - Predetermined	C10

Q5: What are the main technological factors influencing the strategy of Russian pharmaceutical companies after 2022?

How do you think these factors will develop in the future? How can you assess the degree of uncertainty in the development of these factors?

Interviewee	Summarizing	Category	Coding
01	<p>Due to the political situation, there is uncertainty regarding the access of innovations, equipment and software to the Russian market; many companies have already faced these risks. <i>As we discussed earlier, there is a risk of complications in relations with “friendly” countries, and this may also affect companies’ access to technology.</i></p> <p>As for the development of artificial intelligence, at the moment, it seems to me that the technology is in the “hype” stage, and real disruption has not yet occurred. <i>Whether the role and value of AI will increase in the future is a question. This is influenced by many trends developing today.</i></p>	<p>Reduced access to technology, equipment and software - Uncertain;</p> <p>The growing importance of Artificial Intelligence - Uncertain;</p>	<p>C5 C9</p>
02	<p>The company's equipment and software began to be made public in roundabout ways. All of this is critical to production. If suddenly relations with China or, for example, Kazakhstan deteriorate, it will be very difficult for Russian manufacturers. <i>Theoretically, I do not exclude the possibility that anything can happen, based on the context of recent years: political</i></p>	<p>Reduced access to technology, equipment and software - Uncertain; The growing importance of Artificial Intelligence - Predetermined</p>	<p>C5 C9</p>

	<p>conflict, tightening of regulation, exchange rate fluctuations and problems with payments - anything</p> <p>Also according to a report by the World Economic Forum, artificial intelligence will play a big role in the future, so its development can be attributed to important factors</p> <p>It is likely that the role of artificial intelligence will continue to increase, this is a natural development</p>		
03	<p>The ability to use high-quality equipment and software today allows you to increase efficiency at any stage of the Value Chain. Russian companies today are switching to lower quality suppliers, which, of course, affects companies.</p> <p>There is no reason to think that anything will change here: it is becoming more difficult to purchase Western equipment, on the one hand, and on the other hand, Russian companies in the current realities do not have much motivation to integrate innovations.</p>	<p>Reduced access to technologies, equipment and software - Predetermined;</p>	C5
04	<p>The question is whether Russian IT companies and manufacturers will be able to meet the needs of the pharmaceutical market. In general, it is important to understand how interested</p>	<p>Reduced access to technologies, equipment and software - Uncertain;</p>	C5

	they are in developing solutions for this industry.		
05	<p>Access to Western equipment really affects the work of Russian companies. On the other hand, there remain supply channels from “friendly” countries that will be stable, since Russian companies have learned to circumvent sanctions and find options to get what they need</p> <p><i>It seems to me that the situation with access will not get worse due to the competencies in supply chain maneuvering that Russian companies have acquired</i></p>	<p>Access to technologies -</p> <p>Predetermined Relations with friendly countries -</p> <p>Predetermined</p>	C5; C1
06	<p>Technology is clearly influencing the market. Two leading modern technologies: CAR-T therapy and gene therapy. To develop such drugs, we need platforms, expensive Western and Chinese equipment, and advanced ones. Only large companies like R-Pharma, Generium, Biocad can afford it, and that’s not a fact. <i>Yes, it is certainly difficult to say whether all innovative technologies will appear in Russia due to logistical difficulties and high costs.</i></p>	<p>Access to technologies -</p> <p>Uncertain</p>	C5

Q6: Which 3 of the most important key uncertainties that will strongly affect the strategy of Russian pharmaceutical companies you could define?

Interviewee	Summarizing	Category	Coding
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01	The three most significant: the following national programs and development of financing channels; the format of the presence of Western companies on the Russian market; development of the situation with sanctions and access to external markets in terms of exports and imports, as well as the development of the EAEU	Funding channels and target markets; Presence of Western companies; Development of relations with “friendly” countries;	C6 C1 C7
02	It seems obvious to us that the main factor is the policy of “Western substitution,” that is, the development of relations with “friendly countries,” as well as the development of a policy of compulsory licensing and the direction of state support.	Development of relations with “friendly” countries; Governmental support; Compulsory licensing policy	C1 C8 C3
03	I would definitely highlight the availability of qualified personnel, the growth of markets for certain nosologies and the possibility of using high-quality equipment and innovations in production.	Labor market; Funding channels and target markets; Access to technology;	C4 C5
04	I would highlight here philosophical questions that relate to state and industry policy: will the Russian market be aimed at creating innovation, fair competition, and creating quality products?	Industry development	C12 S14

05	As we have discussed, the most important factors are the success of the state's balancing act in negotiations with Western pharmaceuticals, as well as the development of new channels for financing the needs of patients.	Funding channels and target markets; Presence of Western companies;	C6 C7
06	The main factors are all possible government support measures, including subsidies, “compulsory licensing” policies, and the launch of national programs	Governmental support; Compulsory licensing policy; Funding channels and target markets;	C6 C8 C3

7.1.2 Importance of Factors table

Factor	Number of experts mentioned the factor	Present in the list of important factors (7.1.1, Q6)	“Uncertain” / “Predetermined”
C1. Relations with «friendly countries»	3	Yes	2/1
C2. Import substitution policy	4	Yes	0/4
C3. Development of the «compulsory licensing» policy	4	Yes	0/4 (but different vectors)
C4. Labor Market	5	Yes	0/4 (but different vectors)
C5. Access to Technologies	6	Yes	4/2
C6. Funding channels and target markets	5	Yes	5/0
C7. Presence of Western companies	4	Yes	2/2

C8. Governmental support	3	Yes	0/3
C9. AI	2	No	
C10. Population awareness	1	No	
C11. Decrease in revenue	3	No	
C12. Industry development	1	No	

7.2.1. Round two interview: Qualitative Content analysis

Q1.1: What strategic objectives should Russian pharmaceutical companies establish in response to the continued withdrawal of Western companies from the market?

Interviewee	Summarizing
01	Taking into account the fact that own innovations and R&D are expensive and not a single Russian pharmaceutical company has succeeded with them on the international market, obviously the main strategy of companies should be to occupy all the vacated niches.
02	The main goal: to localize everything that is important on the market. This is beneficial for three reasons: it is cheaper and easier than its own developments; Doctors and patients are already familiar with this; this is definitely beneficial in terms of government support and various subsidies.
03	First, take the most attractive products with the greatest weight in the healthcare system. Second, take foreign products that are becoming the standard of therapy there, but the market has not yet been formed in Russia. For example, drugs for orphan diseases. However, this is a riskier strategy, since you will be growing a market, but probably not only for yourself.

	The third option, also with a large level of uncertainty inside, is to quickly develop a me-too drug of Western innovation and enter the market before the appearance of compulsorily licensed Russian drugs.
04	Occupy target niches and prepare production sites for the production of new drugs
05	The choice of strategy in this case depends on the ambitions of the companies. Of course, it is much easier for most companies in Russia to simply copy existing products and produce them. On the other hand, companies that want to innovate and introduce products to foreign markets will face barriers to introducing products in other countries if measures such as compulsory licensing are used.

Q1.2: What resources and capabilities companies need to develop to achieve these goals?

Interviewee	Summarizing	Resources/capabilities	Coding
01	<p>Companies will need to follow two lists: Vital and Essential Medicines and the List of Strategically Important Medicines. Take released drugs from there and either try to reach an agreement with the originator, or use the courts and a strong lobbying resource to obtain licenses.</p> <p>Then it is logical to apply the same strategy to new effective drugs that will no longer be registered in Russia. Provide arguments to the authorities about the significance</p>	Lobbyism and GR - <i>Relational resource</i>	R2

	<p>and effectiveness of foreign innovations and the need to adapt them.</p> <p>One of the risks of such a strategy is the refusal of companies with ambitions to expand through IPOs and enter international markets. It is unlikely that companies engaged in theft of intellectual property will be highly valued by Western agencies and investors. The second risk is that dependence on the state could result in high-profile corruption cases.</p> <p>When assessing the economic efficiency of investments, it is necessary to take into account the precedent of semaglutide, a patent for which was issued to two companies. This was a smart move on the part of the state.</p>		
02	<p>For compulsory licensing, nothing is needed except two things: the support of the courts and the Ministry of Industry and Trade. These two problems can be solved. To move production, capacity and technology platforms are needed. For such investments, it is necessary to negotiate with the state, firstly, on subsidies, and secondly, on guaranteeing demand at a fixed price, so that I can predict my profit.</p>	<p>Lobbyism and GR - <i>Relational resource</i>; R&D facilities - <i>Physical resource</i></p>	R2; R5

	There are two types of risks of such a strategy. First, the export potential of drugs will stop at countries like Venezuela or Cuba. Secondly, this is the ossification of management, which will ultimately result in Russian pharmaceuticals becoming completely generic and bioanalogue.		
03	The creation of innovative therapy drugs with a tasty market share in any case requires investment in in-house R&D. The process of bringing a molecule into pharmaceutical development is very science-intensive. Therefore, companies that decide to play in this field should still not refuse to invest in their own scientific potential, including specialists and equipment.	R&D specialists - <i>Human resource;</i> R&D facilities - <i>Physical</i>	R1 R5
04	First, of course, you need to go to the originator and try to come to an agreement in an official way. This is necessary in order to go to the state with a refusal or without an answer. To succeed in this field, you need to invest in GR.	Lobbyism and GR - Relational resource;	R2
05	Russian companies will be able to achieve success using classic GR methods and with the help of Russian regulatory protection	Lobbyism and GR - <i>Relational resource;</i>	R2

Q2.1: What strategic objectives should Russian pharmaceutical companies establish in the event of encountering obstacles in procuring technologies, equipment, and raw materials from “friendly” countries?

Interviewee	Summarizing
01	<p>We need to do the same thing we did for the last two years, only more intensely. Develop a network of partners and intermediaries. This has been done recently and will continue to be a working tool.</p> <p>The cost of an increasingly complex supply chain will rise. Also, such well-established paths now exist in large companies, which makes it difficult for young enterprises to exit.</p>
02	<p>Develop relationships with all partners, chambers of industry of countries such as Armenia, Kazakhstan and others. At the same time, we study the offer on the Chinese markets in order to know where and what we can generally order and what conditions to discuss.</p>
03	<p>Expand the range of partnerships in strategic procurement and areas such as R&D equipment and production systems.</p>
04	<p>Expand the network of partners, maintain legal representation in other countries.</p> <p>Another direction is the development of domestic suppliers. Investment and training.</p>
05	<p>Develop competencies in the area of circumventing sanctions, because loopholes will always remain. These are legal, financial aspects, development of supply chains.</p> <p>We also need to invest in our own industry, search for and develop manufacturers of the necessary raw materials and equipment in Russia.</p>

Q2.2: What resources and capabilities companies need to develop to achieve these goals?

Interviewee	Summarizing	Resources/capabilities	Coding
01	<p>Every strong company should have a network of contractors A, B, C, D and so on. The same goes for intermediaries. Supply Chain specialists must work through different directions and make sure that the procurement tail is eventually lost. At the same time, it is necessary to work out various payment mechanisms through intermediaries, opaque payment systems and tools like crypto. This should be done by financial flow specialists.</p> <p>It is also logical for companies to seek support for these pathways and subsidies from the state, explaining the importance of the production of certain drugs</p>	<p>Supply Chain - <i>managerial capability</i>; Financial Flow - <i>financial capability</i>; GR and lobbying - <i>relational resource</i>. Partners - <i>Relational Resource</i></p>	C3 C2 R2 R6
02	<p>Most likely, this is primarily the strategic direction of GR.</p> <p>From the point of view of purchasing Chinese equipment, issues of preserving and maintaining quality will come before production.</p>	GR and lobbying - <i>relational resource</i> .	R2
03	<p>We need interlayer companies, but this carries with it the risks of missed deadlines, fraud, and a sharp increase in cost.</p> <p>Another option is direct import</p>	<p>GR and lobbying - <i>relational resource</i>; Supply Chain - <i>managerial capability</i>; Financial Flow -</p>	C3 C2 R2

	<p>through the opening of a representative office, for example, in China.</p> <p>Of course, the state should provide support in the import of technology. The Government should be made aware of the difficulties faced by business, but the first fiddle here will not be pharma. It is important to communicate with the state through associations and alliances with other industries.</p> <p>We should not expect our own production.</p>	<i>financial capability;</i>	
05	<p>Look for as many different suppliers and partners in China as possible, develop new payment tools and test new legal schemes.</p> <p>It is also necessary to start investing in domestic manufacturers, because the state now has other tasks besides supporting pharmaceuticals manufacturers. This is a long game, but in the long term it will reduce risks and costs.</p>	<p>Supply Chain - <i>managerial capability;</i></p> <p>Financial Flow - <i>managerial capability;</i></p> <p>Partners - <i>Relational Resource</i></p>	<p>C3</p> <p>C2</p> <p>R6</p>

Q3.1: What strategic objectives should Russian pharmaceutical companies establish in response to an exacerbation of staffing shortages?

Interviewee	Summarizing
01	Attracting and retaining the best talent

02	Attracting young talented specialists and employees of foreign pharmaceuticals. I see only one main way out - developing relationships with universities. Unfortunately, not all companies currently use this.
03	There will be no special solutions here; you need to work on retaining key employees and attracting new ones. The second direction is process optimization.
04	Attract students and retain key employees
05	Here, in order of priority, three areas can be distinguished: automation of all processes that can be automated; development of your human resources potential; attracting competent personnel from abroad.

Q3.2: *What resources and capabilities companies need to develop to achieve these goals?*

Interviewee	Summarizing	Resources/capabilities	Coding
01	Increase in wages and corporate benefits. This is what Western pharma has gone through, and what Russian pharma will now go through with a lag. Given the margins of the pharmaceutical business and the amount of money generated by the sale of drugs, companies will be able to afford this.	Cash flow - <i>financial resource</i>	R3
02	I see only one main way out - developing relationships with universities. Development of a strategy by HR departments: select top universities in each federal district, hold open days and presentations.	Universities relationships - <i>Managerial capability;</i> Corporate culture - <i>Organizational</i>	C4 R5

	<p>Unfortunately, not all companies currently use this.</p> <p>On the other hand, this is the development of corporate culture. Many employees of foreign pharmaceuticals do not even look towards Russian companies precisely because of this, even if the salary is twice as much.</p>	<i>capability</i>	
03	<p>Investing in university relationships will become an important strategic expenditure, not just a branding exercise. Companies that win the competition for talent in specialized areas such as chemistry, biology, computational biology, etc. get a big advantage. Speaking of optimization. it is necessary to increase labor productivity through automation. It is necessary to build processes that do not require experienced and competent personnel. And they do not create a situation where the company has difficult-to-replace employees with unique expertise.</p> <p>It is also necessary to retrain and develop T-shape specialists who will be ready to switch to priority tasks.</p>	<p>Universities relationships - <i>Managerial capability</i>;</p> <p>Process optimization - <i>Managerial capability</i>;</p>	C4 - C6
04	<p>Creation of training programs in target universities; sponsorship of ambassadorship; internship program starting from early courses. From a</p>	<p>Cash flow - <i>financial resource</i></p> <p>Corporate culture - <i>organizational</i></p>	R3 R4

	<p>retention point of view, corporate culture is important, and there are many different not very pleasant rumors about Russian pharmaceuticals.</p> <p>From a retention point of view, an important aspect now is salaries, which can be increased, as well as reservations from mobilization</p>	<i>resource</i>	
05	<p>First of all, you need to identify processes performed by line employees that can be automated. Then look for technological opportunities to do this.</p> <p>As for the development of human resources, these are targeted training programs and partnership initiatives with universities.</p> <p>The option of involving foreigners is the most risky, but it can be considered. In addition to directly attracting foreigners to the company, you can consider transferring R&D activities to friendly countries, for example. When attracting specialists to the company directly, it is important to develop a culture of diversity.</p>	<p>Process optimization - <i>Managerial capability</i>; Corporate culture - <i>organizational</i></p>	C5 R4

7.2.2. Resources and capabilities

Resources	Types	Times mentioned
Financial	Cash flow for salaries	2
Physical	R&D facilities	2

Human	R&D specialists	1
Organizational	Corporate culture	2
Relational	Lobbyism and GR; Partners	11
Capabilities	Types	Times mentioned
Managerial	Supply Chain; Universities relationships; Managerial capability	7
Financial	Financial Flow	3