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IMPLEMENTING ESG PRINCIPLES IN PHARMA INDUSTRY IN EMERGING MARKETS

Implementacija ESG principa u farmaceutskoj industriji na tržištima u razvoju

Abstract

The implementation of Environmental, Social, and Governance (ESG) principles in the pharmaceutical industry within emerging markets presents both a significant challenge and a valuable opportunity for sustainable development. Given the crucial role of this sector in public health, adopting ESG practices can substantially influence not only the industry's environmental footprint but also its social and governance responsibilities. In emerging markets, where regulatory frameworks may be less stringent compared to developed economies, the pharmaceutical industry often operates under increased scrutiny. Therefore, alignment with global ESG standards is essential for companies aiming to enhance competitiveness, attract investment, and meet the rising expectations of stakeholders. This study focuses on the Serbian pharmaceutical sector and employs a mixed-method approach, combining semi-structured interviews and focus groups to assess the extent of ESG adoption. The findings reveal that while some companies have partially integrated ESG principles into their operations, others have not adopted them at all. Key challenges, such as limited financial resources, diverse regulatory frameworks, and potential resistance to change, hinder widespread ESG implementation. However, the long-term benefits of ESG compliance including improved reputation, better risk management, and financial sustainability, underscore the importance of these principles for companies in this sector. Environmental aspects are leading concern, such as waste reduction, carbon footprint minimization through sustainable supply chains, and proper disposal of pharmaceutical products remain crucial.

Keywords: *company competitiveness, ESG, pharmaceutical industry, small open economies*

Sažetak

Implementacija principa zaštite životne sredine, društvene odgovornosti i upravljanja (ESG) u farmaceutskoj industriji na tržištima u razvoju predstavlja značajan izazov, ali i vrednu priliku za održivi razvoj. S obzirom na ključnu ulogu ovog sektora u javnom zdravlju, usvajanje ESG praksi može imati veliki uticaj ne samo na ekološki otisak industrije, već i na njene društvene i upravljačke obaveze. Na tržištima u razvoju, gde regulatorni okviri mogu biti manje strogi u poređenju sa razvijenim ekonomijama, farmaceutska industrija često posluje pod pojačanom pažnjom. Stoga je usklađivanje sa globalnim ESG standardima ključno za kompanije koje žele da poboljšaju svoju konkurentnost, privuku investicije i zadovolje rastuća očekivanja stejkholdera. Ova studija se fokusira na srpski farmaceutski sektor i koristi kombinovani metodološki pristup, uključujući polustrukturirane intervjue i fokus grupu kako bi se procenio stepen usvajanja ESG principa. Rezultati pokazuju da su neke kompanije delimično integrisale ESG principe u svoje poslovanje, dok ih druge uopšte nisu usvojile. Ključni izazovi, kao što su ograničeni finansijski resursi, različiti regulatorni okviri i potencijalni otpor prema promenama, otežavaju širu implementaciju ESG principa. Međutim, dugoročne koristi usklađenosti sa ESG standardima, uključujući poboljšanje reputacije, bolji menadžment rizika i finansijsku održivost, ukazuju na značaj ovih principa za kompanije u ovom sektoru. Ekološki aspekti predstavljaju vodeći izazov, kao što su smanjenje otpada, minimiziranje ugljeničkog otiska kroz održive lance snabdevanja i pravilno odlaganje farmaceutskih proizvoda, ostaju od suštinskog značaja.

Ključne reči: *konkurentnost kompanija, ESG, farmaceutska industrija, male otvorene ekonomije*

Introduction

The global pharmaceutical industry is undergoing significant transformations as companies increasingly incorporate Environmental, Social, and Governance (ESG) principles into their business strategies. ESG criteria, which assess a company's impact on the environment, its relationship with stakeholders, and its governance practices, have become central to how businesses are evaluated, particularly in industries with substantial social and environmental responsibilities. This paper focuses on how Serbian pharmaceutical companies, both domestic and foreign-owned, are implementing ESG practices in an emerging market context. Using semi-structured interviews and a case study approach, we aim to analyze the current state of ESG adoption in Serbia's pharmaceutical industry and identify key challenges and opportunities.

ESG adoption has become a global priority due to growing regulatory frameworks, investor demands, and societal pressures. The pharmaceutical sector is no exception, as it faces significant scrutiny regarding its environmental impact, ethical labor practices, and governance structures [12]. Globally, ESG reporting is becoming more standardized, particularly in sectors like pharmaceuticals, which are subject to stringent regulatory requirements related to product safety, supply chain transparency, and corporate governance [16]. Many multinational pharmaceutical companies have set ambitious sustainability goals, such as achieving carbon neutrality, reducing water consumption, and ensuring ethical sourcing of raw materials [26].

Emerging markets, such as Serbia, present unique challenges and opportunities for ESG integration. Serbia, as a small open economy, is heavily influenced by global market trends but faces internal constraints such as limited financial resources, less mature regulatory environments, and lower public awareness of sustainability issues [14]. In the pharmaceutical sector, these challenges are compounded by the industry's high regulatory burden and capital intensity, which can make the integration of ESG principles more complex [9].

Despite these challenges, the integration of ESG principles into the Serbian pharmaceutical sector is becoming

increasingly important as Serbia aligns its regulatory framework with the European Union's sustainability directives [11]. Serbian companies are now being held to higher standards of corporate governance, environmental responsibility, and social impact. For instance, the country's focus on harmonizing its regulatory standards with the EU has led to stricter environmental regulations, impacting how pharmaceutical companies manage waste, water usage, and emissions [8].

Pharmaceutical companies in Serbia are divided between domestically owned firms and subsidiaries of multinational corporations. Domestic companies often face resource constraints that limit their ability to fully integrate ESG principles, while foreign-owned subsidiaries are subject to both local regulations and global sustainability mandates from their parent companies [9]. As a result, the level of ESG adoption within the sector is inconsistent, with some firms actively pursuing sustainability initiatives and others struggling to meet even basic compliance requirements.

The relationship between small open economies and ESG adoption is complex. In Serbia, as in many emerging markets, businesses are highly integrated into global markets but must also contend with domestic regulatory and financial challenges [1]. Small economies are particularly vulnerable to external shocks, and ESG principles can help build resilience by promoting long-term sustainability and stability [29]. However, companies in these markets often prioritize short-term financial stability over long-term sustainability goals, leading to slower ESG adoption.

The pharmaceutical industry in Serbia is a critical component of the country's economy, with both domestic and foreign-owned companies playing a significant role in meeting healthcare needs. However, this sector is also highly regulated, with strict requirements related to product safety, environmental impact, and governance. The adoption of ESG principles in the pharmaceutical sector is therefore not only a matter of corporate social responsibility but also a necessity for maintaining compliance with both local and international regulations [8].

The research question in this paper is *'How are ESG principles being implemented in the pharmaceutical*

industry in Serbia, and what are the key challenges and opportunities for advancing sustainability and innovation in both domestic and foreign-owned companies within an emerging market context? In order to give an answer on it the paper employs a dual-methodology approach to investigate how ESG principles are being implemented in the Serbian pharmaceutical sector. First, semi-structured interviews with decision-makers from both domestic and foreign-owned pharmaceutical companies will provide insights into the perceived importance of ESG principles and the challenges they face in implementing them. Second, a case study approach will examine specific instances of ESG adoption within the sector, focusing on how companies navigate the complex regulatory and financial landscape in Serbia.

The following chapters of this paper will include: Literature Review, which provides an overview of global and local ESG trends, particularly in the pharmaceutical industry; Research Question and Methodology, which outlines the research design; Results, Discussion, and Recommendations, where we analyze the findings from interviews and case studies; and **Conclusion**, summarizing the key insights and offering recommendations for improving ESG adoption in Serbia's pharmaceutical sector.

Through this analysis, we aim to contribute to the growing body of research on ESG adoption in emerging markets, particularly in small and open economies like Serbia. As global pressures to adopt sustainable practices increase, Serbian pharmaceutical companies must find ways to integrate ESG principles into their operations to remain competitive in both domestic and international markets.

Literature review

Importance of ESG in the Pharmaceutical Industry

Environmental, Social, and Governance (ESG) principles have become increasingly vital for companies across industries, but the pharmaceutical sector faces unique pressures to implement robust ESG practices due to its far-reaching societal and environmental impact. As a sector responsible for producing essential healthcare products, the pharmaceutical industry operates under

intense scrutiny from regulators, investors, and the public. ESG principles serve as a framework to guide companies toward reducing their environmental footprint, enhancing social responsibility, and ensuring good governance. ESG considerations in pharmaceuticals range from managing carbon emissions and water usage in production processes to ensuring equitable access to medicine and maintaining ethical standards throughout the supply chain [4].

The pharmaceutical sector's environmental responsibilities are profound. Production processes often involve substantial energy and resource consumption, contributing to greenhouse gas emissions and pollution [10]. As such, leading pharmaceutical companies have begun adopting measures to reduce their carbon footprints, with initiatives ranging from energy efficiency improvements to utilizing renewable energy sources [28]. Moreover, water scarcity is a critical issue, particularly in regions where pharmaceutical production is concentrated. Effective water management strategies, such as water recycling and reducing water consumption in manufacturing processes, are increasingly becoming central to ESG efforts within the industry [13]. In addition, integrating the principles of circular economy [23] into pharmaceutical operations can minimize waste, enhance resource efficiency, and promote the reuse of materials, thereby reducing the industry's environmental footprint. By adopting both ESG and circular economy models, pharmaceutical companies can achieve long-term sustainability while meeting growing regulatory and stakeholder expectations.

Social responsibility is another major pillar of ESG in the pharmaceutical sector. Companies are expected to ensure that their operations not only provide safe and effective products but also contribute positively to the communities they serve [32]. This involves addressing issues like affordable access to medication, ethical marketing practices, and maintaining transparency in research and development, especially regarding clinical trials [15]. Furthermore, companies are being called upon to improve labor conditions throughout their supply chains, particularly in emerging markets where labor rights may be less rigorously enforced [25].

Governance, the third pillar of ESG, is essential for ensuring transparency, accountability, and ethical

behavior in pharmaceutical companies. This is particularly important in an industry prone to controversies related to drug pricing, intellectual property rights, and the transparency of clinical trial results [5]. Strong governance structures that include diverse boards, clear accountability mechanisms, and transparent reporting are increasingly being demanded by investors and regulators alike [7].

Finally, innovation is critical in driving the adoption of ESG principles, particularly in industries as complex and regulated as pharmaceuticals. Innovation not only drives economic growth but also fosters the development of sustainable practices by enabling companies to improve resource efficiency, reduce environmental impacts, and adapt to evolving regulatory environments [35], [36], [6]. In the pharmaceutical industry, innovation is essential for addressing challenges related to ESG integration, including the development of green chemistry, renewable energy use, and sustainable supply chain management [35]. In Serbia, where access to advanced technologies and capital is often limited, innovation plays a crucial role in enabling companies to adopt ESG practices despite these constraints.

Small Open Economies: Characteristics and Pharmaceutical Industries

Small open economies (SOEs) like Serbia are characterized by their high degree of integration into global markets, their dependence on international trade, and their vulnerability to external economic shocks [30], [20]. These economies often face significant challenges in maintaining sustainable economic growth due to their limited domestic markets and their reliance on foreign investment and exports. In the context of the pharmaceutical industry, SOEs are particularly exposed to shifts in global supply chains, regulatory changes in major markets, and fluctuations in demand for pharmaceutical products [2].

The pharmaceutical industry in SOEs plays a crucial role in ensuring public health while also serving as a significant contributor to the economy through job creation, innovation, and exports. However, pharmaceutical companies in these economies often operate under different constraints compared to those in larger, more developed markets. For instance, limited access to capital

can restrict the ability of SOE-based pharmaceutical companies to invest in advanced technologies, which are necessary for improving production efficiency and meeting international environmental standards [22]. Moreover, SOEs frequently face challenges related to regulatory alignment with larger markets such as the European Union (EU), which can complicate their ability to compete internationally.

One of the major difficulties for pharmaceutical companies in small open economies is adapting to the stringent ESG requirements imposed by foreign investors and regulators, particularly those in the EU and the United States. These companies must balance compliance with international ESG standards while navigating the local regulatory landscape, which may be less stringent or not fully aligned with global best practices [31]. This creates a complex operating environment in which companies are pressured to innovate and adopt sustainable practices, even when such investments may strain their limited financial resources [24].

Moreover, the pharmaceutical industries in SOEs must address both local and global ESG concerns. Locally, companies are often expected to contribute to public health initiatives, ensure affordable access to essential medicines, and adhere to national environmental regulations. Globally, they are expected to meet the expectations of foreign investors and customers regarding sustainability and ethical governance [17]. This dual burden can be particularly challenging for smaller companies with limited resources, but it also presents opportunities for innovation and growth in sustainable business practices.

Current Situation of ESG in the Serbian Corporate Sector

Serbia, like many emerging markets, is in the early stages of adopting ESG principles across its corporate sector. While there is growing awareness of the importance of sustainability and corporate governance, many Serbian companies are still struggling to fully integrate ESG practices into their operations. This is particularly true in industries such as pharmaceuticals, where companies face a range of challenges related to environmental impact, social responsibility, and governance.

The Serbian government has begun aligning its regulatory framework with European standards, particularly as the country moves toward EU accession. This has led to a gradual tightening of environmental regulations, increased scrutiny of corporate governance practices, and growing expectations for social responsibility from companies operating in Serbia. However, the enforcement of these regulations remains inconsistent, and many companies lack the resources or expertise to meet these evolving standards.

In the pharmaceutical sector, ESG adoption has been uneven. While multinational corporations operating in Serbia are generally more advanced in their implementation of ESG practices, domestic companies often lag behind, largely due to financial constraints and limited access to technology and expertise. Foreign-owned pharmaceutical companies in Serbia are typically held to the global ESG standards set by their parent corporations, which include stringent environmental management systems, robust governance structures, and comprehensive social responsibility initiatives.

However, domestic companies face a different set of challenges. For these firms, the adoption of ESG principles is often hampered by a lack of access to capital, which limits their ability to invest in the technologies and processes needed to reduce environmental impact and improve governance. Moreover, public awareness of ESG issues in Serbia remains relatively low compared to more developed markets, reducing the pressure on companies to adopt these practices.

Despite these challenges, there are signs that ESG adoption in Serbia's corporate sector is gaining momentum. The country's move towards EU accession is creating both regulatory and market-based incentives for companies to adopt sustainable practices. Moreover, Serbian companies are beginning to recognize the competitive advantages of ESG integration, particularly in terms of attracting foreign investment and accessing new markets.

In the pharmaceutical sector, the adoption of ESG principles is increasingly seen as a necessity for companies seeking to compete in the global marketplace. Companies that fail to align with international ESG standards risk being excluded from key markets, particularly in the EU,

where regulatory requirements related to environmental impact and governance are becoming more stringent. As a result, there is growing recognition among Serbian pharmaceutical companies of the need to invest in ESG initiatives, despite the financial, operational and labor challenges they may face [27].

Research Question and Methodology

Building on the previously conducted literature review, the research question for this paper is: *'How are ESG principles being implemented in the pharmaceutical industry in Serbia, and what are the key challenges and opportunities for advancing sustainability and innovation in both domestic and foreign-owned companies within an emerging market context?'*

This research employed a qualitative approach, utilizing two complementary methods: semi-structured interviews and a structured focus group discussion. These methods were chosen to provide an in-depth understanding of the implementation of Environmental, Social, and Governance (ESG) principles in the Serbian pharmaceutical sector. The combination of one-on-one interviews and group discussion allows for both individual insights and collective validation of the key challenges and opportunities in adopting ESG practices.

Semi-Structured Interviews

Semi-structured interviews were conducted in 2024 with ten decision-makers from both foreign and domestic pharmaceutical companies operating in Serbia. This methodology was selected to gather detailed and nuanced insights while allowing flexibility in exploring various topics related to ESG implementation. Semi-structured interviews are a common qualitative research technique that enables researchers to ask open-ended questions while maintaining a structure that ensures all key themes are addressed [18]. By allowing the interviewees to elaborate on their experiences, the researcher can gather rich, qualitative data that are essential for understanding the complex processes of ESG integration.

A standardized semi-structured questionnaire was used during the interviews, consisting of six semi-

structured questions. These questions focused on the companies' current ESG practices, challenges in implementing ESG standards, and potential opportunities for future sustainability initiatives. The interviews lasted approximately one hour, with each participant given the opportunity to share their thoughts and insights freely. Interviews were conducted one-on-one, allowing for confidential and open discussions, which often leads to more candid and in-depth responses.

After each interview transcripts were prepared to ensure accuracy and provide a comprehensive record of the responses. Transcription of interviews is crucial for maintaining the integrity of the qualitative data and enabling further analysis [33]. The transcripts were subsequently analyzed using thematic analysis, a method often employed in qualitative research to identify patterns, themes, and recurring issues in the data [19]. This allowed the researcher to systematically categorize the responses and extract key insights into the implementation of ESG principles in Serbia's pharmaceutical industry.

Focus Group Discussion

In addition to the semi-structured interviews, a focus group was organized to complement and validate the findings from the interviews. Focus groups are a powerful qualitative research tool, particularly effective when exploring shared experiences or when interaction among participants can stimulate new ideas or clarify complex topics [21]. The focus group was conducted by NALED¹ in May 2024. While the focus group included participants from industries beyond the pharmaceutical sector, the findings were deemed applicable to the pharmaceutical industry as well, given the cross-sectoral relevance of ESG practices.

The focus group was structured and moderated to ensure that all participants had the opportunity to share their views and contribute to the discussion. A structured approach in focus group facilitation ensures that the conversation remains focused on the research objectives while allowing

participants to freely engage in discussion [3]. The main topics covered in the focus group were the challenges and opportunities associated with ESG implementation, the regulatory environment, and strategies for improving ESG adoption across industries. The interactive nature of the focus group allowed participants to discuss and build upon each other's ideas, leading to a more dynamic and comprehensive exploration of the subject.

The findings from the focus group reinforced the insights gained from the semi-structured interviews. While the group discussion involved participants from a range of industries, the issues raised—such as limited access to ESG-related financing, the need for clearer regulatory guidelines, and the importance of innovation in driving ESG adoption—were highly relevant to the pharmaceutical sector. Moreover, the focus group provided a broader perspective on how cross-industry collaboration could enhance the implementation of ESG principles in Serbia, highlighting the importance of collective action and regulatory support.

The data gathered from the semi-structured interviews and the focus group were analyzed using thematic analysis. This method was chosen to identify, analyze, and report patterns within the data [33]. Thematic analysis is particularly suited for research that seeks to uncover underlying themes or issues in qualitative data, as it allows the researcher to organize and describe data in rich detail. In this study, thematic analysis enabled the identification of key themes related to the implementation of ESG principles, including the challenges faced by pharmaceutical companies, the opportunities for innovation, and the role of regulatory frameworks in shaping ESG adoption.

Ethical considerations were of utmost importance throughout the research process. All interviewees provided informed consent, ensuring they understood the purpose of the study, how the data would be used, and their right to withdraw at any point. Confidentiality was maintained, and the identities of participants were anonymized to protect their privacy. The focus group participants were similarly informed about the study's objectives and gave consent to share their insights within the scope of the research.

By combining semi-structured interviews and a structured focus group discussion, this research provides

¹ National Alliance for Local Economic Development (NALED) is an independent, non-profit and non-partisan association advocating better business environment in Serbia and the region, <https://naled.rs/en/upoznajte-naled>

a comprehensive view of ESG implementation in Serbia's pharmaceutical sector. The semi-structured interviews allowed for deep, individualized exploration of how decision-makers in the pharmaceutical industry view and approach ESG practices, while the focus group provided a collective industry perspective, validating and expanding upon the interview findings. This methodological approach ensured that the research captured both personal insights and broader industry trends, contributing to a holistic understanding of the challenges and opportunities associated with ESG integration in the Serbian pharmaceutical industry.

Results and discussion

The results from the semi-structured interviews conducted with decision-makers from both foreign -classified as Group A, and domestic pharmaceutical companies - classified as Group B, operating in Serbia reveal varying levels of Environmental, Social, and Governance (ESG) adoption across the industry.

ESG Adoption by Foreign-Owned Companies

Companies classified as Group A represent foreign-owned entities with strong ties to multinational corporations. These companies demonstrate a higher level of ESG integration, primarily driven by corporate policies and global sustainability strategies. Interviews with decision-makers from these companies reveal that their adherence to ESG principles is largely aligned with global standards, including the use of renewable energy, comprehensive waste management systems, and stringent health and safety protocols.

A recurring theme among Group A companies is the emphasis on compliance with international frameworks such as ISO certifications and the United Nations Sustainable Development Goals (SDGs). For example, one company highlighted its efforts to reduce carbon emissions by transitioning to electric vehicles in its supply chain, an initiative mandated by its global headquarters. Similarly, companies in this group regularly conduct environmental impact assessments and actively engage in corporate social responsibility (CSR) programs that benefit the local communities where they operate.

The adoption of these practices is not only driven by corporate policies but also by the need to meet the expectations of international customers and investors, who are increasingly prioritizing sustainability in their decision-making processes.

ESG Practices Among Domestic Companies

In contrast, Group B companies, which represent domestically owned pharmaceutical firms, display a more limited approach to ESG integration. These companies tend to focus primarily on compliance with local environmental and health regulations, with less emphasis on broader sustainability initiatives. Interviews with decision-makers from Group B companies reveal that their ESG efforts are often reactive, driven by legal requirements rather than proactive sustainability strategies.

For instance, one company in Group B noted that while it adheres to national health and safety standards and complies with environmental regulations, it has not implemented any formal ESG policies beyond these basic requirements. This company acknowledged the growing importance of ESG in the global market but cited a lack of resources and expertise as key barriers to further integration. The absence of formal ESG training programs and limited access to financing for sustainability initiatives were also mentioned as significant challenges.

However, despite these limitations, some companies in Group B are beginning to recognize the potential benefits of ESG adoption, particularly in terms of enhancing their competitive advantage in international markets. For example, one firm expressed interest in exploring renewable energy options and improving waste management practices, although it noted that such initiatives would require substantial investment and external support.

Key Challenges in ESG Implementation

The results from both Group A and Group B companies point to several common challenges in the implementation of ESG principles within Serbia's pharmaceutical sector. One of the most frequently cited challenges is the difficulty of integrating high ESG standards within the local business environment. Many companies noted that while they are willing to adopt more sustainable practices, they often

face barriers such as limited access to financing for green projects, a lack of skilled professionals with expertise in ESG, and the absence of clear regulatory guidelines from the Serbian government.

Another significant challenge is the supply chain. Both, Group A and Group B companies reported difficulties in ensuring that their local suppliers meet the same ESG standards as their own operations. For foreign-owned companies, in particular, this poses a challenge, as they are required to maintain compliance with global sustainability policies while working with suppliers that may not have the resources or capabilities to meet these expectations. This gap in supply chain sustainability was seen as a major barrier to full ESG integration, with several companies expressing concerns about the potential reputational risks associated with working with non-compliant suppliers.

Drivers of ESG Adoption

Despite the challenges, the interviews reveal several drivers that are pushing companies toward greater ESG adoption. For Group A companies, the primary driver is alignment with corporate policies and global sustainability strategies. These companies are motivated by the need to maintain their standing in international markets, where ESG compliance is becoming increasingly important to investors and customers. The decision-makers interviewed from these companies emphasized that failure to adhere to ESG principles could result in lost business opportunities and diminished access to capital from sustainability-focused investors.

For Group B companies, the drivers of ESG adoption are more varied. While compliance with local regulations is the main motivator for most domestic firms, some

companies are beginning to recognize the potential market advantages of adopting ESG practices. As Serbia moves toward EU accession and aligns its regulatory framework with European standards, domestic companies are increasingly aware that ESG compliance will be necessary to compete in both domestic and international markets. Additionally, some firms in Group B have identified ESG as a way to attract international partners and investors, who are increasingly prioritizing sustainability in their decision-making processes.

Industry-Wide Implications

The findings from this research suggest that ESG adoption in Serbia's pharmaceutical sector is highly dependent on a company's ownership structure and access to resources. Foreign-owned companies (Group A) are generally more advanced in their implementation of ESG principles, driven by corporate policies and global market pressures. In contrast, domestic companies (Group B) are at an earlier stage of ESG adoption, with most firms focusing on compliance with local regulations rather than proactive sustainability strategies.

However, the interviews indicate that both groups face significant challenges in fully integrating ESG principles, particularly with regard to supply chain sustainability and access to financing. The growing importance of ESG in the global market, coupled with Serbia's ongoing alignment with EU standards, suggests that companies in both groups will need to invest more heavily in sustainability initiatives to remain competitive.

The results of this study highlight the need for greater support from the Serbian government and financial institutions to help companies overcome the barriers to

Table 1. Summary of semi structured interviews

Interview Number	Company Ownership	ESG Integration Level	Main ESG Driver	Challenges
Interview 1	Foreign	High	Corporate Policy	Supplier Non-compliance
Interview 2	Domestic	Low	Regulatory Compliance	Limited Resources
Interview 3	Foreign	Moderate	Market Demand	Financing
Interview 4	Domestic	Low	Regulatory Compliance	Limited Resources
Interview 5	Foreign	High	Corporate Policy	Supplier Non-compliance
Interview 6	Domestic	Moderate	Customer Demand	Knowledge Gap
Interview 7	Foreign	High	Corporate Policy	Supply Chain Management
Interview 8	Domestic	Low	Regulatory Compliance	Financing
Interview 9	Foreign	Moderate	Market Demand	Supplier Non-compliance
Interview 10	Domestic	Moderate	Customer Demand	Knowledge Gap

ESG adoption. This could include providing incentives for green projects, offering training programs to build ESG expertise, and developing clearer regulatory guidelines for sustainability. By addressing these challenges, Serbia's pharmaceutical sector can move toward more comprehensive ESG integration, enhancing both its competitiveness and its contribution to sustainable development.

This section provides an analysis of the key themes that emerged from the interviews, offering insights into how different types of pharmaceutical companies in Serbia are approaching ESG implementation and the challenges they face in doing so. Table 1 captures the ownership type, the level of ESG integration, the primary driver for ESG practices, and the key challenges faced by each company based on the interviews.

Results and Discussion of the Focus Group

The focus group discussion, centered on ESG principles in Serbia's economic landscape, offered valuable insights into the challenges and opportunities specific to the pharmaceutical industry. Although the participants came from diverse sectors, the findings reveal several key themes that are highly relevant to the Serbian pharmaceutical sector's ongoing transition toward more sustainable business practices.

Focus Group - Lack of ESG Awareness and Understanding

A major challenge highlighted by the focus group participants was the general lack of awareness and understanding of ESG principles, particularly within smaller companies that are not integrated into global supply chains. This is highly applicable to many domestic pharmaceutical companies in Serbia, which tend to prioritize legal compliance over proactive ESG integration. The participants noted that while foreign-owned companies in Serbia are more familiar with ESG due to their multinational structures, local companies are still grappling with the concept. This gap in understanding highlights the need for capacity building, targeted training programs, and awareness-raising initiatives to help local pharmaceutical firms better understand the strategic importance of ESG for competitiveness and long-term sustainability.

Focus Group - Financial Constraints and the Cost of Implementation

The financial burden associated with implementing ESG practices was another critical challenge discussed during the focus group. This is particularly relevant for Serbia's pharmaceutical sector, where many companies face financial constraints that limit their ability to invest in sustainability initiatives. The participants pointed out that, while banks and financial institutions are beginning to offer green financing options, the overall intensity of support is still low. This lack of financial resources poses a significant barrier to domestic pharmaceutical companies that need to invest in technologies, processes, and infrastructure to align with international ESG standards.

In the pharmaceutical sector, which is capital-intensive and highly regulated, the cost of transitioning to more sustainable operations—such as adopting energy-efficient production processes or improving waste management—can be prohibitively high. This financial barrier may limit the ability of local pharmaceutical companies to compete on the global stage, particularly as international markets increasingly demand compliance with ESG standards.

Focus Group - Challenges in Data Collection and Reporting

The focus group participants also discussed the difficulties companies face in collecting and reporting ESG data, a challenge that resonates strongly within the pharmaceutical sector. Accurate data collection and transparent reporting are essential for demonstrating compliance with ESG standards, but the complexity of the pharmaceutical supply chain—coupled with the sector's stringent regulatory requirements—makes this a particularly challenging task.

For pharmaceutical companies in Serbia, which are often reliant on a combination of domestic and international suppliers, ensuring the traceability of raw materials and tracking the environmental impact of production processes can be difficult. Furthermore, the lack of standardized reporting mechanisms in Serbia adds to the complexity. The participants emphasized the need for investment in advanced technologies, such as artificial intelligence, to streamline data collection and reporting processes. This would help companies in the pharmaceutical sector better track their ESG performance and prepare for the

increasingly stringent reporting requirements expected in both the EU and global markets.

Focus Group - Supply Chain Sustainability

Supply chain sustainability emerged as a major concern during the focus group, particularly with regard to compliance with international ESG regulations. The participants pointed out that ensuring the sustainability of the entire supply chain is challenging, especially for companies that source materials from regions with less rigorous environmental and social governance standards. This is directly relevant to the pharmaceutical industry, where the sourcing of raw materials, packaging, and chemicals involves a complex global supply chain.

The pharmaceutical sector in Serbia, much like in other industries, struggles to ensure that its supply chain partners adhere to the same ESG standards. The introduction of EU regulations such as the Corporate Sustainability Reporting Directive (CSRD) and the Carbon Border Adjustment Mechanism (CBAM) will place further pressure on companies to demonstrate sustainability throughout their supply chains. Pharmaceutical companies operating in Serbia will need to work closely with their suppliers to ensure compliance with these regulations, particularly as the EU tightens its standards on carbon emissions and supply chain transparency.

Focus Group - Integration of ESG into Business Strategies

The discussion also touched on the need for better integration of ESG principles into corporate business strategies. For pharmaceutical companies in Serbia, this is a particularly relevant point, as many firms still view ESG as a peripheral concern rather than a core component of their long-term strategy. The participants stressed the importance of aligning ESG initiatives with business goals to ensure long-term sustainability and competitiveness. This is especially true for larger pharmaceutical companies, which have the resources and capacity to lead by example in the sector.

The focus group also identified governance as a critical area that needs attention in the pharmaceutical industry. While environmental concerns tend to dominate the ESG conversation, governance issues—such as ethical

business practices, transparency, and accountability—are equally important for building trust with stakeholders and ensuring regulatory compliance. Participants recommended that pharmaceutical companies in Serbia invest in training programs for executives and managers to help them better understand the strategic value of ESG and how to integrate these principles into their corporate governance frameworks.

Conclusion Focus Group

The focus group discussion offered significant insights into the challenges and opportunities that the pharmaceutical industry in Serbia faces in implementing ESG practices. Key issues such as a lack of ESG awareness, financial constraints, data collection challenges, supply chain sustainability, and the need for better integration of ESG into business strategies emerged as critical areas for improvement. These findings indicate that while the pharmaceutical sector is beginning to recognize the importance of ESG, significant efforts are still needed to fully integrate these principles into corporate operations and ensure long-term sustainability. Addressing these challenges will be essential as the industry prepares to meet the increasingly stringent ESG requirements of global markets and regulators.

Conclusion

The growing global emphasis on Environmental, Social, and Governance (ESG) principles represents a pivotal shift in how industries, including the pharmaceutical sector, conduct business. In the attempt to answer on the research question this paper has explored the adoption and implementation of ESG principles in the pharmaceutical industry in Serbia, highlighting the challenges and opportunities that companies, both domestic and foreign-owned, face in this context. Through a combination of semi-structured interviews and a focus group discussion, we have gained valuable insights into how pharmaceutical companies in Serbia are navigating the complexities of integrating ESG into their business practices.

The findings reveal that foreign-owned companies are generally more advanced in their implementation of

ESG principles, largely driven by corporate policies from their global headquarters. These companies benefit from access to resources, technologies, and expertise that enable them to meet international ESG standards, including environmental management, waste reduction, and adherence to the United Nations Sustainable Development Goals (SDGs). However, these companies also face significant challenges in ensuring that their local suppliers meet the same stringent ESG requirements, particularly when it comes to environmental and social sustainability within supply chains.

On the other hand, domestic pharmaceutical companies in Serbia are still in the early stages of ESG adoption, with their efforts largely focused on compliance with local regulations. These companies face a range of barriers, including limited financial resources, a lack of ESG expertise, and a lower level of awareness about the strategic value of sustainability. While there is growing recognition among domestic firms that ESG compliance will be necessary to compete in both domestic and international markets, particularly as Serbia moves toward EU accession, many companies lack the capacity to make the necessary investments in sustainability initiatives. This is compounded by the absence of strong government support or clear regulatory guidelines that could help drive ESG adoption in the sector.

A recurring theme throughout the interviews and focus group discussion was the financial burden associated with implementing ESG practices. Both foreign-owned and domestic companies noted that the cost of transitioning to more sustainable operations such as investing in renewable energy, improving waste management, and reducing carbon emissions can be prohibitively high. For domestic firms, in particular, this financial barrier limits their ability to compete on a global scale, where ESG compliance is increasingly becoming a prerequisite for doing business. There is a clear need for financial institutions and the Serbian government to offer more robust support for green financing initiatives, subsidies, and grants to encourage the adoption of ESG practices across the sector.

Another key finding from this research is the challenge of data collection and reporting, particularly with regard

to supply chain transparency. Pharmaceutical companies in Serbia face significant difficulties in ensuring that their suppliers meet international ESG standards, particularly in areas such as environmental impact and labor practices. This challenge is exacerbated by the lack of standardized ESG reporting mechanisms in Serbia, which makes it difficult for companies to track their performance and demonstrate compliance with international regulations. To address this issue, companies will need to invest in advanced technologies and develop more robust systems for collecting and reporting ESG data.

The focus group discussion also emphasized the need for better integration of ESG principles into corporate business strategies. Many pharmaceutical companies in Serbia still view ESG as a secondary concern rather than a core component of their long-term strategic planning. However, as global markets increasingly prioritize sustainability, it will be essential for companies to align their ESG initiatives with their broader business goals. This includes not only focusing on environmental sustainability but also improving governance practices, such as enhancing transparency, ensuring ethical business conduct, and maintaining accountability to stakeholders.

Looking ahead, it is clear that the pharmaceutical industry in Serbia is at a crossroads when it comes to ESG adoption. While foreign-owned companies are leading the way, domestic firms must make significant strides in integrating ESG principles into their operations if they are to remain competitive in the evolving global marketplace. To achieve this, companies will need to overcome the financial, regulatory, and operational challenges that currently hinder ESG adoption. This will require a concerted effort from both the private and public sectors, including greater support from financial institutions, clearer regulatory frameworks from the Serbian government, and increased collaboration with international partners.

In conclusion, the pharmaceutical sector in Serbia is beginning to recognize the importance of ESG, but much work remains to be done to fully integrate these principles into corporate operations. The findings from this study highlight the need for targeted financial support, capacity-building initiatives, and regulatory reforms to drive ESG adoption in the industry. By addressing these challenges,

the pharmaceutical sector in Serbia has the potential to not only meet international ESG standards but also to enhance its competitiveness, contribute to sustainable development, and play a leading role in the country's transition to a more sustainable economy.

The adoption of ESG principles in the pharmaceutical sector represents a significant opportunity for companies to build resilience, reduce their environmental footprint, and enhance their reputation in the global market. However, achieving these goals will require sustained investment, innovation, and collaboration across the industry. As the global demand for sustainability continues to grow, companies that embrace ESG as a strategic priority will be well-positioned to succeed in the future, both in Serbia and beyond.

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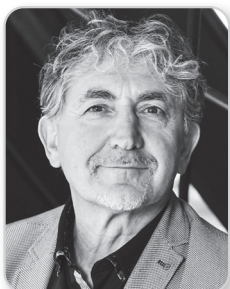
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