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THE CHALLENGES OF MANAGING CROSS-FUNCTIONAL TEAMS IN PHARMACEUTICAL PROJECTS

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Abstract. The increasing complexity of pharmaceutical projects has significantly strengthened the role of cross-functional teams in ensuring successful project implementation. Such teams integrate specialists from different departments, including quality assurance, production, regulatory affairs, and supply chain. While this structure allows organizations to combine diverse expertise, it also creates several managerial challenges.

This study aims to identify and analyze the key difficulties associated with managing cross-functional teams within a pharmaceutical company. The empirical research is based on data collected from employees of FE LLC "Nobel Pharmsanoat" using a structured questionnaire. The results show that communication gaps, conflicting priorities between departments, and issues related to documentation and data management have the strongest impact on project outcomes. At the same time, regulatory pressure, although significant, has a less direct influence on team effectiveness. The findings highlight the importance of improving coordination mechanisms, clarifying roles and responsibilities, and strengthening communication processes to enhance project performance.

Key words: cross-functional teams, pharmaceutical projects, communication, project management, coordination, regulatory environment, communication, conflicting priorities, documentation, data management.

Annotatsiya. Farmatsevtika loyihalarining tobora murakkablashib borishi loyihalarni muvaffaqiyatli amalga oshirishda kross-funksional jamoalarning rolini sezilarli darajada kuchaytirdi. Bunday jamoalar sifatini ta'minlash, ishlab chiqarish, registratsiya va logistika kabi turli bo'lim mutaxassislarini birlashtiradi. Mazkur yondashuv tashkilotlarga turli yo'nalishdagi tajribalarni uyg'unlashtirish imkonini bersa-da, u bir qator boshqaruv muammolarini ham yuzaga keltiradi.

Ushbu tadqiqotning maqsadi farmatsevtika kompaniyasida kross-funksional jamoalarni boshqarish bilan bog'liq asosiy muammolarni aniqlash va tahlil qilishdan iborat. Empirik tadqiqot "Nobel Pharmsanoat" XK MChJ xodimlari o'rtasida o'tkazilgan strukturallashtirilgan so'rovnoma natijalariga asoslangan. Tadqiqot natijalari shuni ko'rsatdiki, kommunikatsiyadagi uzilishlar, bo'limlar o'rtasidagi ustuvorliklar ziddiyati hamda hujjatlashtirish va ma'lumotlarni boshqarish bilan bog'liq muammolar loyiha natijalariga eng katta ta'sir ko'rsatadi. Shu bilan birga, regulyator bosim muhim omil bo'lsa-da, jamoa samaradorligiga nisbatan kamroq bevosita ta'sir ko'rsatadi. Olingan natijalar loyihalar samaradorligini oshirish uchun koordinatsiya mexanizmlarini takomillashtirish, rol va mas'uliyatlarni aniq belgilash hamda kommunikatsiya jarayonlarini kuchaytirish muhimligini ko'rsatadi.

Kalit so'zlar: kross-funksional jamoalar, farmatsevtika loyihalari, kommunikatsiya, loyiha boshqaruvi, koordinatsiya, regulyator muhit, kommunikatsiya, ustuvorliklarning mos kelmasligi, hujjatlashtirish, ma'lumotlarni boshqarish.

Аннотация. Возрастающая сложность фармацевтических проектов значительно усилила роль кросс-функциональных команд в обеспечении успешной реализации проектов. Такие команды объединяют специалистов различных подразделений, включая отдел обеспечения качества, производство, регуляторные вопросы и логистику. Несмотря на то, что подобная структура позволяет организациям объединять разнообразную экспертизу, она также создает ряд управленческих сложностей.

Целью данного исследования является выявление и анализ основных проблем, связанных с управлением кросс-функциональными командами в фармацевтической компании. Эмпирическое исследование основано на данных, полученных от сотрудников ИП ООО «Nobel Pharmsanoat» с использованием структурированной анкеты. Результаты показали, что наибольшее влияние на результаты проектов оказывают проблемы коммуникации, конфликт приоритетов между подразделениями, а также вопросы, связанные с документацией и управлением данными. В то же время регуляторное давление, несмотря на его значимость, оказывает менее прямое влияние на эффективность работы команды. Полученные результаты подчеркивают важность совершенствования механизмов координации, четкого распределения ролей и обязанностей, а также усиления коммуникационных процессов для повышения эффективности реализации проектов.

Ключевые слова: кросс-функциональные команды, фармацевтические проекты, коммуникация, управление проектами, координация, регуляторная среда, коммуникация, несогласованность приоритетов, документация, управление данными.



INTRODUCTION

The pharmaceutical industry is characterized by a high level of regulation, strict quality requirements, and complex project structures. The development and implementation of pharmaceutical products involve multiple stages, including research and development, production, quality control, regulatory approval, and distribution. Each of these stages is managed by different functional departments, which makes coordination between them essential. In this context, cross-functional teams have become a key mechanism for managing pharmaceutical projects. By bringing together specialists from different areas, organizations can integrate knowledge and improve decision-making. However, despite their advantages, cross-functional teams are often associated with difficulties in communication, coordination, and alignment of objectives.

In practice, departments may operate with different priorities, timelines, and performance indicators, which can create conflicts and slow down project progress. In addition, strict regulatory requirements and extensive documentation processes further complicate collaboration between team members. Although these challenges are widely recognized, there is still limited understanding of how different factors influence cross-functional teamwork within a single pharmaceutical organization. The aim of this study is to examine the challenges of managing cross-functional teams in pharmaceutical projects and to assess how key factors affect collaboration and project outcomes within FE LLC "Nobel Pharmsanoat".

LITERATURE REVIEW

Cross-functional teams are widely used in project-based organizations because many projects require the cooperation of specialists from different departments. Such teams allow organizations to combine different knowledge, experience, and professional perspectives. Ancona and Caldwell (1992) showed that functional diversity can improve team performance, especially in new product development, but only when the team is properly coordinated. Without effective coordination, diversity may lead to communication problems and difficulties in decision-making¹. In pharmaceutical projects, cross-functional collaboration is especially important because project activities involve many departments, including production, quality assurance, quality control, regulatory affairs, engineering, supply chain, and registration. Pharmaceutical projects are also strongly connected with quality, safety, documentation, and regulatory compliance. According to PMI, pharmaceutical project management requires coordination across different stages, from development to regulatory submission and preparation for distribution. Communication is one of the main factors influencing the effectiveness of cross-functional teams².

Salas, Sims, and Burke (2005) emphasize that effective teamwork depends on shared understanding, mutual trust, team leadership, and clear communication³. In pharmaceutical projects, poor communication may lead to delays, repeated work, documentation errors, and difficulties during audits. Therefore, communication is not only a general teamwork issue, but also an important condition for maintaining quality and compliance. Another challenge is the alignment of roles, responsibilities, and departmental priorities⁴. Each department in a pharmaceutical company has its own objectives: production focuses on timelines, quality assurance focuses on compliance, regulatory affairs focus on submission requirements, and supply chain focuses on material availability. If these priorities are not aligned with the overall project goal, conflicts and delays may occur⁵.

Regulatory requirements also increase the complexity of cross-functional teamwork. ICH Q10 emphasizes the importance of the pharmaceutical quality system, management responsibility, knowledge management, and continual improvement. ICH Q9(R1) highlights quality risk management as an important process that should involve communication and review across relevant areas⁶. These guidelines show that effective pharmaceutical project management requires coordinated decisions supported by documented evidence. Documentation is another important issue in pharmaceutical projects. EU GMP Chapter 4 states that documentation is an essential part of the quality assurance system. In cross-functional teams, documentation becomes more complex because several departments may prepare, review, approve, and use the same documents. Inconsistent or delayed documentation may lead to errors, repeated clarifications, and audit findings. Recent studies also show that collaboration is becoming important not only within one company, but also across the pharmaceutical industry.

- 1 Ancona, D. G., & Caldwell, D. F. (1992). Demography and design: Predictors of new product team performance. *Organization Science*, 3(3), 321–341. <https://doi.org/10.1287/orsc.3.3.321>
- 2 Project Management Institute. (2021). *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, 7th ed.
- 3 Salas, E., Sims, D. E., & Burke, C. S. (2005). Is there a "Big Five" in teamwork? *Small Group Research*, 36(5), 555–599. <https://doi.org/10.1177/1046496405277134>
- 4 Anantatmula, V. S., & Shrivastav, B. (2016). *Evolution of project teams for Generation Y workforce*. *Business Process Management Journal*, 22(1), 9–26.
- 5 International Council for Harmonisation. (2008). ICH Q10: Pharmaceutical Quality System.
- 6 International Council for Harmonisation. (2008). ICH Q10: Pharmaceutical Quality System.



Ménard et al. (2021), using the example of the IMPALA industry group, showed that pharmaceutical companies can benefit from cooperation in areas such as data quality, clinical quality, analytics, and knowledge sharing⁷. This confirms that collaboration is an important condition for improving pharmaceutical project performance.

Overall, the literature shows that cross-functional teams are necessary for pharmaceutical projects, but their effectiveness depends on communication, coordination, clear responsibilities, aligned priorities, and reliable documentation. Although many studies discuss teamwork and cross-functional collaboration in general project environments, pharmaceutical projects have specific features such as GMP requirements, quality risk management, regulatory submissions, and extensive documentation⁸. Therefore, further research in real pharmaceutical project environments remains relevant. Among domestic researchers, the works of Murodova F.⁹, Suyunov D.¹⁰, Nasibov B.¹¹ should be noted, as they address issues of management development, digital transformation, and the adaptation of modern approaches within the national context. However, despite the existing research, a comprehensive analysis of cross-functional team management in pharmaceutical projects has not been conducted. Insufficient attention is paid to the impact of regulatory requirements, documentation processes, and coordination between departments on project outcomes. This confirms the relevance of further research in this area.

RESEARCH METHODOLOGY

Quantitative research approach is used in the study to examine the factors that influence the effectiveness of cross-functional teams in pharmaceutical projects. This approach was selected because the research aims to identify measurable relationships between several organizational factors and project outcomes. In pharmaceutical companies, project implementation usually involves specialists from different departments, such as quality assurance (QA), quality control (QC), production, regulatory affairs, engineering, supply chain, and other functional units (see Fig. 1 and Fig.2). Therefore, the quantitative approach makes it possible to compare the influence of different factors and determine which of them are more closely associated with project performance. The analysis of the study was conducted within foreign enterprise LLC "Nobel Pharmsanoat", a pharmaceutical company operating in Uzbekistan. The organization was selected because pharmaceutical project activities in such companies require active cooperation between different departments and strict compliance with quality and regulatory requirements. Employees involved in project-related processes were invited to participate in the survey. The questionnaire was distributed among staff members who had practical experience in cross-functional interaction during pharmaceutical projects. The research instrument was a structured questionnaire based on the main issues identified in the literature review. The questionnaire included several groups of questions related to communication, clarity of roles and responsibilities, conflicting priorities between departments, regulatory pressure, documentation and data management, and project outcomes. These factors were selected as the measurements because they reflect the most common challenges faced by cross-functional teams in regulated project environments.

Responses were measured using a five-point Likert scale, where respondents evaluated to which extent they agreed or disagreed with each statement. The use of the Likert scale made it possible to transform employees' perceptions into numerical data suitable for further statistical analysis. A total of 60 valid responses were collected and included in the final analysis. The dependent variable of the study is project outcomes, which reflects the extent to which cross-functional challenges affect project implementation, including delays, deviations, CAPA processes, product quality, and audit readiness. The independent variables include communication, role clarity, conflicting priorities, regulatory pressure, and documentation and data management. The collected data were analyzed using descriptive statistics and correlation analysis. Descriptive statistics were used to understand the general level of responses for each factor, while correlation analysis was applied to identify the strength and direction of relationships between the selected factors and project outcomes.

ANALYSIS AND RESULTS

The results of the analysis show that cross-functional team performance in pharmaceutical projects are influenced by several organizational and process-related factors. Among the analyzed variables, communication,

7 Ménard, T., Young, K., Siegel, L., Emerson, J., Studd, R., & Sidor, L. (2021). Cross-company collaboration to leverage analytics for clinical quality and accelerate drug development: The IMPALA industry group.

8 VanDuyse, S. A. (2021). ICH Q10 Pharmaceutical Quality System Guidance.

9 Murodova F. Applying the Agile Approach to Project Management: A Case Study of a Traditional Finished Pharmaceutical Products Manufacturer // *Advanced Economics and Pedagogical Technologies*. 2025. Vol. 2, Issue 4. P. 132–136. DOI: 10.60078/3060-4842-2025-vol2-iss4-pp132-136.

10 Suyunov D.Kh., Makhmudov M.I. Benefits of Digitalization of the Economy in Uzbekistan // *Economy and Society*. 2023. P. 748–751.

11 Nasimov B.V. Development Strategies for Global Companies in Current Conditions // *Marketing Journal*. 2025. No. 3. URL: Marketing Journal.



conflicting priorities, and documentation and data management demonstrated the strongest relationship with project outcomes (see Table 1). These findings suggest that the success of pharmaceutical projects depends not only on technical knowledge or regulatory compliance, but also on the quality of coordination between departments. Communication was identified as one of the most important factors affecting project outcomes (see Fig.1). In pharmaceutical projects, information must move accurately and on time between departments such as production, quality assurance, quality control, regulatory affairs, and supply chain. When communication is ineffective, employees may receive incomplete information, decisions may be delayed, and project tasks may not be performed in the correct sequence. This is especially important in pharmaceutical environments, where even small misunderstandings may lead to deviations, repeated work, or delays in documentation approval. The findings of this study are consistent with previous research emphasizing that effective communication is a central condition for team performance and coordination. Conflicting priorities between departments were also found to have a significant effect on project efficiency (see Fig.2). In practice, each department often has its own performance indicators and operational responsibilities. For example, production may focus on meeting manufacturing schedules, quality assurance may prioritize compliance and documentation accuracy, while supply chain may focus on material availability and delivery timelines. Although each of these objectives is important, they may create difficulties when departments do not work toward a clearly defined common project goal. As a result, decision-making becomes slower, disagreements increase, and project implementation may be delayed.

Another important challenge identified in the study is documentation and data management (see Fig.3). Pharmaceutical projects require a high level of documentation because all processes must be traceable, controlled, and ready for internal or external inspection. However, when documentation practices are not consistent between departments, the risk of errors increases. Limited access to updated data, different formats of records, and lack of integration between systems may lead to inefficiencies and repeated clarification between departments. This finding is particularly relevant for pharmaceutical companies, where documentation is not only an administrative requirement but also an essential element of quality assurance and regulatory compliance. The results also show that regulatory pressure has a weaker direct relationship with project outcomes compared to internal organizational factors. This does not mean that regulatory requirements are unimportant. On the contrary, compliance with GMP and other regulatory standards remains a fundamental condition for pharmaceutical project implementation. However, the findings suggest that regulatory pressure itself may not be the main reason for poor project outcomes. The greater challenge is how the organization manages regulatory requirements internally. If communication is clear, responsibilities are properly distributed, and documentation processes are well organized, regulatory pressure can be managed more effectively.

Role clarity showed a weaker relationship with project outcomes compared to communication, conflicting priorities, and documentation. This result may indicate that formal responsibilities are generally understood by employees, but practical coordination still depends on how departments communicate and align their actions during project implementation. In other words, even when job duties are formally defined, problems may still arise if decision-making authority, deadlines, or interdepartmental expectations are not clearly coordinated in practice. Overall, the findings confirm that organizational and coordination-related factors have a considerable impact on project outcomes in pharmaceutical projects. The study shows that improving cross-functional collaboration requires more than simply assigning employees from different departments to one project. It requires a structured management approach, regular communication, shared priorities, clear escalation mechanisms, and reliable documentation practices (Table 1).

Table 1 Correlation between cross-functional factors and project outcomes¹²

Factor	Correlation with project outcomes	Interpretation
Communication	0.42	Moderate positive
Roles and Responsibilities	0.05	Very weak / negligible
Conflicting Priorities	0.47	Moderate positive
GMP and Regulatory Pressure	0.30	Weak to moderate
Documentation and Data Management	0.44	Moderate positive

¹² Source: developed by the author

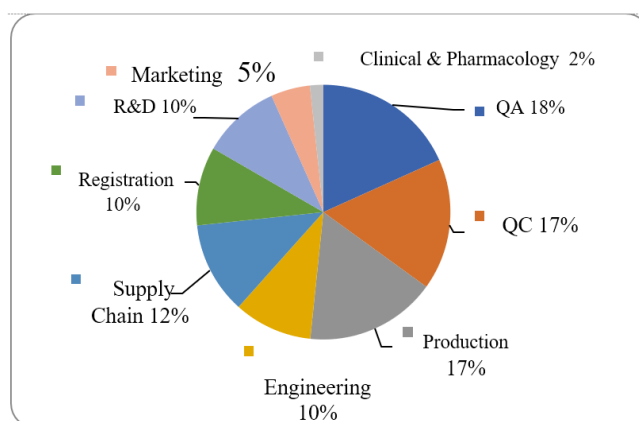
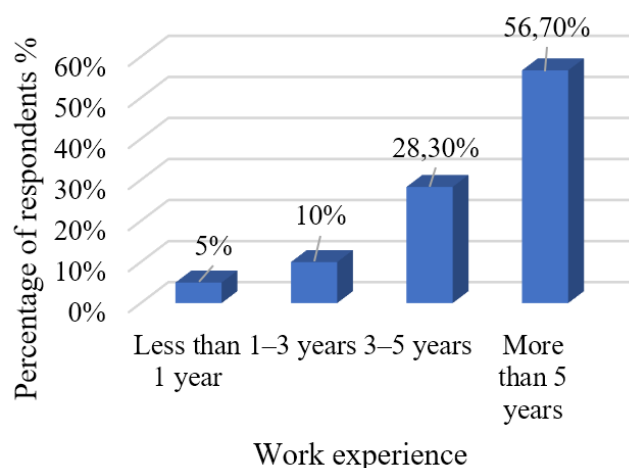


Fig.1 Distribution of respondents by work experience¹³ Fig.2 Distribution of respondents by departments¹⁴

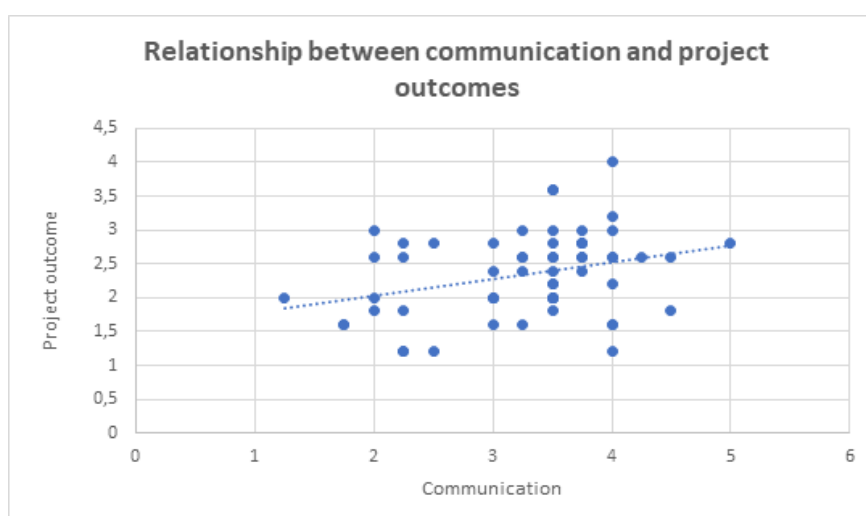


Fig.3 Relationships between communication and project outcomes in pharmaceutical projects¹⁵

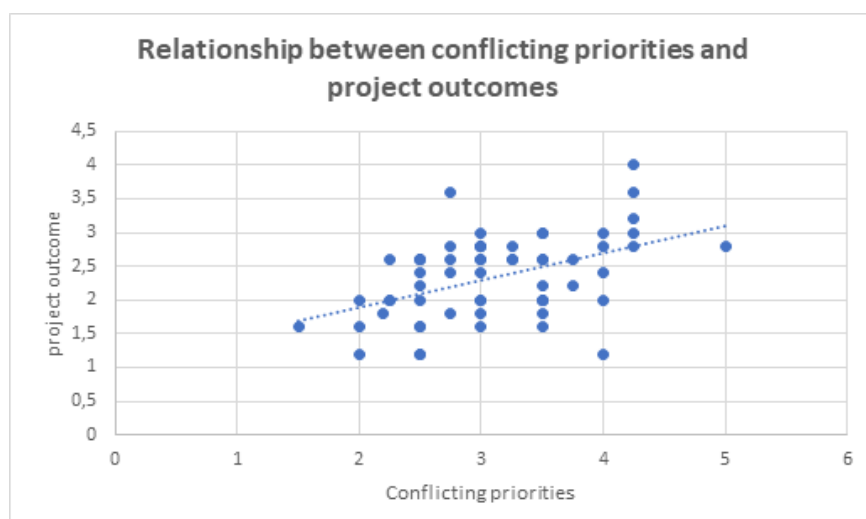


Fig.4 Relationships between conflicting priorities and project outcomes in pharmaceutical projects¹⁶

¹³ Source: developed by the author

¹⁴ Source: developed by the author

¹⁵ Source: developed by the author

¹⁶ Source: developed by the author

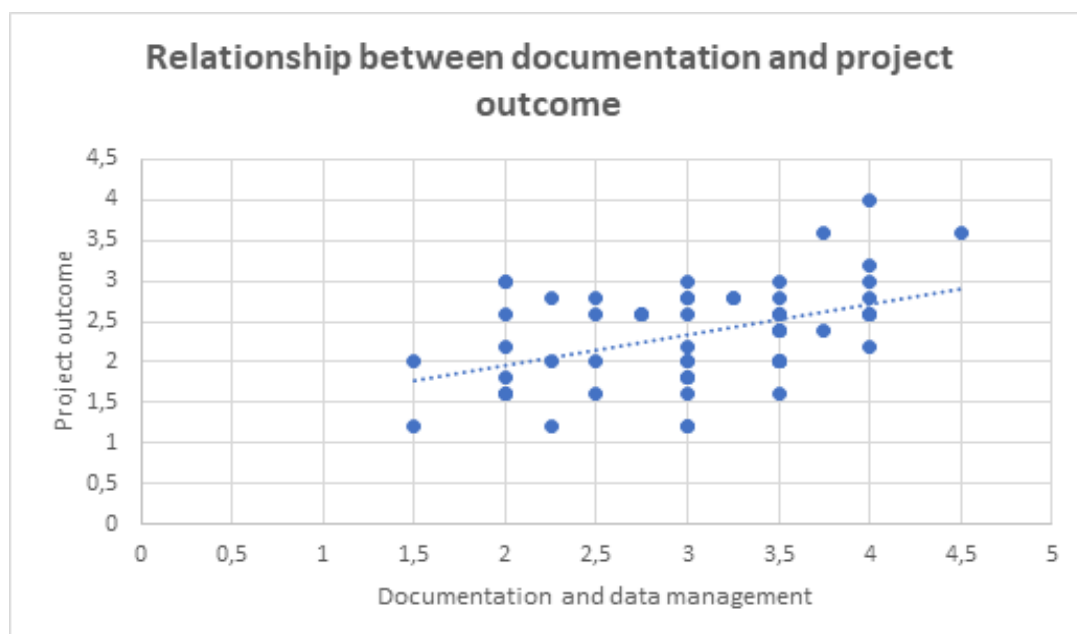


Fig.5 Relationships between documentation and project outcomes in pharmaceutical projects¹⁷

CONCLUSION AND SUGGESTIONS

The study examined the challenges of managing cross-functional teams in pharmaceutical projects, based on the data collected from employees of FE LLC "Nobel Pharmsanoat". The findings show that communication gaps, conflicting priorities between departments, and documentation and data management issues are the most influential factors affecting project outcomes. The results indicate that effective communication is essential for timely information exchange, coordination of tasks, and prevention of misunderstandings between functional departments. Conflicting priorities also represent a serious challenge, as departments may focus on their own operational objectives rather than shared project goals. In addition, documentation and data management issues can create delays, increase the risk of errors, and reduce the overall efficiency of project implementation.

The study also found that regulatory pressure has a less direct influence on project outcomes compared to internal organizational factors. This finding is important because pharmaceutical companies often consider regulatory requirements as the main source of complexity. However, the results suggest that internal coordination mechanisms play a stronger role in determining whether a project is implemented successfully. Regulatory requirements are unavoidable in the pharmaceutical industry, but their impact can be reduced through better planning, clearer communication, and more effective documentation processes. From a practical perspective, pharmaceutical companies can improve cross-functional team performance by strengthening communication channels, clearly defining responsibilities, and aligning departmental objectives with overall project goals. The use of structured tools, such as RACI matrices, regular cross-functional meetings, integrated project plans, and centralized documentation systems, may support better coordination and reduce delays. The findings of the study provide both theoretical and practical value. From a theoretical perspective, the study contributes to the understanding of cross-functional team management in a regulated pharmaceutical context. From a practical perspective, the results can be used by pharmaceutical organizations to improve project management practices, reduce coordination problems, and increase the effectiveness of project implementation.

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¹⁷ Source: developed by the author



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