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STRATEGIC PLANNING OF A JOINT-STOCK COMPANY'S INNOVATIVE COMPETENCIES IN THE FIELD OF TECHNOLOGY TRANSFER

In intensifying competition, joint-stock companies urgently need to enhance their innovative competencies through effective technology transfer strategies. Traditional innovation models based primarily on internal R&D efforts can no longer address contemporary global challenges. This underscores the necessity of developing strategic approaches to planning innovation competencies that are aligned with corporate governance parameters. This study aims to develop a theoretical concept that integrates strategic planning, the advancement of innovative competencies, and technology transfer within joint-stock companies while providing practical recommendations for implementation. To achieve this objective, the research synthesizes key ideas from strategic management theory, dynamic capabilities theory, and technology transfer theory. As a result, a conceptual foundation for the technology transfer strategic planning framework has been proposed, built upon four core principles: strategic alignment, dynamic capability development, stakeholder integration, and ecosystem orchestration. The distinctiveness of the proposed model lies in its integration of dynamic capabilities with corporate governance mechanisms, setting it apart from existing approaches to innovation strategy in the technology transfer domain. The framework outlines a structured approach to strategic technology transfer management, consisting of eight key elements: strategic foundation, innovation management, competency development, technology transfer processes, ecosystem management, performance measurement, risk management, and corporate oversight. The recommended approach enables joint-stock companies to systematically plan and implement technology transfer activities in alignment with long-term strategic goals.

Keywords: *strategic planning, innovative competencies, joint-stock company, technology transfer, corporate governance, dynamic capabilities, absorptive capacity, technological capabilities, ecosystem approach, stakeholders, innovation potential.*

Fig 1. Tabl. 1. Lit. 18.

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СТРАТЕГІЧНЕ ПЛАНУВАННЯ ІННОВАЦІЙНИХ КОМПЕТЕНЦІЙ АКЦІОНЕРНОГО ТОВАРИСТВА В СФЕРІ ТРАНСФЕРУ ТЕХНОЛОГІЙ

В умовах посилення конкуренції акціонерні товариства потребують ефективного розвитку інноваційних компетенцій через трансфер технологій. Засновані переважно на внутрішніх дослідженнях і розробках підходи до інноваційної діяльності більше не відповідають сучасним глобальним викликам. Це обумовлює необхідність розроблення стратегічних підходів до планування інноваційних компетенцій з урахуванням параметрів корпоративного нагляду. Мета дослідження полягає у розробці теоретичної концепції, що поєднує стратегічне планування, розвиток інноваційних компетенцій та трансфер технологій в акціонерних товариствах, а також у обґрунтуванні практичних рекомендацій щодо її впровадження. Для досягнення поставленої мети здійснено об'єднання теоретичних концепцій стратегічного менеджменту, теорії динамічних здібностей та теорії трансферу технологій. В результаті розроблено концептуальну основу стратегічного планування трансферу технологій, що базується на чотирьох

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фундаментальних принципах: стратегічного узгодження, розвитку динамічних здібностей, інтеграції стейкхолдерів та екосистемної оркестрації. Відмінність запропонованої моделі стратегічного планування інноваційних компетенцій акціонерних товариств у сфері трансферу технологій полягає в інтеграції концепції динамічних здібностей з механізмами корпоративного управління. Розроблено структуру стратегічного управління трансфертом технологій, що включає вісім ключових елементів: стратегічний базис, управління інноваціями, розвиток компетенцій, процес трансферу технологій, управління екосистемою, вимірювання ефективності, управління ризиками та корпоративний нагляд. Запропоновані рекомендації дозволяють акціонерним товариствам системно підходити до планування та реалізації технологічного трансферу.

Ключові слова: *стратегічне планування, інноваційні компетенції, акціонерне товариство, трансфер технологій, корпоративне управління, динамічні здібності, абсорбційна спроможність, технологічні можливості, екосистемний підхід, стейкхолдери, інноваційний потенціал.*

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General statement of the problem and its connection with important scientific or practical tasks. Modern enterprises operating in technology-intensive industries face increasing pressure to develop and commercialize innovations due to the necessity to maintain a competitive advantage and support their development. One of the most common forms of business organization is a joint-stock company that typically has substantial resources and broad stakeholder expectations. That is precisely why joint-stock companies need to ensure that their innovative competencies, such as research and development (R&D) capabilities or personnel's technical skills, are continuously developed and aligned with the company's strategic goals. At the same time, a traditional approach to innovation based on internal R&D capabilities is not always suitable for today's global economy. More often, companies have to consider the technology transfer as a critical strategic capability, the management of which should fall within the competence of the supreme governing bodies of the joint-stock company. The complexity of this issue lies in the need to consider corporate governance parameters and the distribution of corporate control when determining the parameters of strategic technology transfer.

Analysis of recent research and publications. The resolution of the outlined problem lies at the intersection of several academic disciplines. The first is strategic management and strategic planning, which have been extensively examined in the works of U. Pidun [14], N. Slack [15], C. Stern [16], A. Hill [7], as well as many other authors. The next line of inquiry involves research in the field of innovation activity and the development of a company's innovative competencies. The work of P. Argoneto [1] and T. Davenport [4] could be presented as an example of this scientific field of research. The next area of scholarly focus to be considered is research directly related to technology transfer, which has been addressed, among others, by M. Guerrero [5] and S. Mancini [12]. The main problem here is that, according to the issued problem, it is necessary to have a framework that allows not only to use all of the given theoretical provisions simultaneously but also to consider technology transfer as a result of corporate development, leading to changes in corporate organization. Research in the field of corporate governance, exemplified by the works of F. Lessambo [11] and A. Knell [8], typically lacks such a focus and therefore requires further theoretical refinement.

The objective of the article is to synthesize a theoretical framework connecting strategic planning, innovative competencies, and technology transfer in joint-stock companies, and to provide practical recommendations for implementing this framework in corporate strategic management practice.

Main part. The implementation of the article's objective involves the development of the Technology Transfer Strategic Planning (TTSP) Framework, which integrates three core theoretical domains: strategic planning theory, dynamic capabilities theory, and technology transfer theory. The framework recognizes that technology transfer success depends on the dynamic interaction between strategic planning processes, innovative competency development, and technology transfer mechanisms. From given points of view the TTSP Framework operates on four fundamental principles presented on Fig. 1.

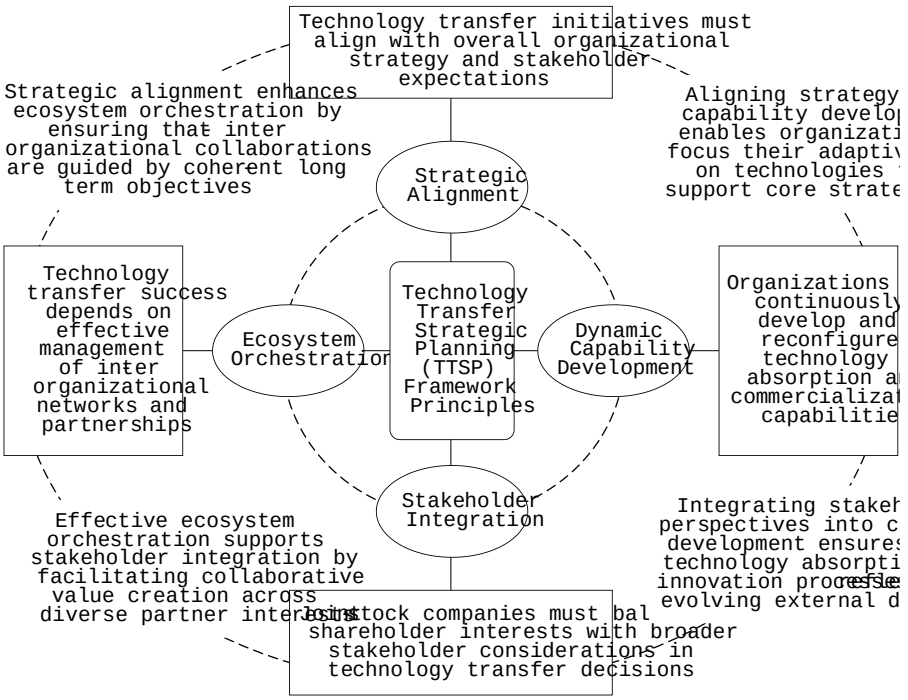

Fig 1. **The technology transfer strategic planning framework fundamental principles,** *author's development*

The combination of foundational principles presented in Figure 1 enables the generation of additional principles within the defined strategic direction and functional strategy. Firstly, we could consider requirement for technology transfer alignment with strategic goals as one of the TTSP Framework principles. According to this principle, any technology considered for transfer should support should have a clear strategic objective (market expansion, cost leadership, product differentiation, etc.). Only in this case joint-stock compony board could provide support and resource commitment for the transfer. It also means dropping or avoiding transfers that don't

fit the strategy to prevent wasted effort. The second principle could be formulated as «Advance competencies ahead of needs». According to this principle, a strategic plan should anticipate the competencies needed for future technologies and start building them proactively. For example, suppose a joint-stock company plans to implement a new manufacturing system. In that case, it should begin training personnel and acquire the necessary human capital in advance to be ready for the technology's arrival. This principle encapsulates the idea of strategic readiness when the company is prepared for tech transfer immediately after making a strategic decision.

Based on the work of C. Battistella [2], leveraging external networks and partnerships could be considered the third additional to Fig. 1 principle of the TTSP Framework. The corporate governance system should understand how the joint-stock company will interact with the broader innovation ecosystem for technology scanning and acquisition. As seen at [2], intermediaries or direct partnerships can significantly aid technology transfer for joint-stock companies; this could mean maintaining relationships with top universities (sponsoring research, tapping into their tech transfer offices) and with suppliers or startups. Strategic use of alliances can fill innovative competence gaps. To make innovation adoption and technology transfer smooth, a joint-stock company has to incorporate frameworks like Six Sigma, Lean, or other quality management techniques in the strategy planning process. Such incorporation is represented by the «Integrate quality and change management systems» principle. Indeed, quality management frameworks could systematically troubleshoot and improve processes, which is extremely useful for refining a transferred technology in its new environment. As G. Bolatan [3] research presents, the strategic quality management is a key success factor in technology transfer success.

Since the technology transfer is often based on the involvement of external experts, the strategic plan should ensure that all critical knowledge is transferred to internal staff by the end of the corporate development project. The principle «Plan for knowledge retention and growth» has to be implemented to ensure this. Beyond knowledge retention, the joint-stock company should plan to develop further transferred knowledge (e.g., by initiating an R&D project). Only such a planning leads to cumulative growth in innovative competency. As a last additional principle, the requirement to have a set of metrics and incentives for innovation competency development could be offered. A strategic plan has to provide specific key performance indicators (KPIs) around innovation competencies, such as the number of employees trained in a new skill, the time taken to implement a new technology (tech transfer cycle time), or the percentage of revenue from products introduced via external technology in the last 5 years. It also includes incentives: reward plant managers for successfully integrating new technologies or reward R&D personnel for beneficial external collaborations. These metrics and incentives drive behavior aligning with the strategic intent of strengthening innovation capability.

Also, as we can see from Fig. 1, the implementation of technology transfer is considered one of the dynamic capabilities of a joint-stock company, the development of which should be overseen by its higher management bodies as part of the strategy-making process. The literature on innovative competencies is proof of this proposition. Most of the research has been based on dynamic capabilities theory provided by D. Teece [17], which emphasizes organizational ability to integrate, build,

and reconfigure internal and external competencies. Dynamic capabilities theory proves the relevance of the TTSP Framework, which emphasizes companies' need to continuously adapt and evolve their capabilities to absorb and commercialize external technologies. In terms of innovation, this implies that a joint-stock company must develop and protect internal competencies such as skills, knowledge, and processes that are difficult for competitors to replicate. At the same time, from a given point of view, technology transfer is a key form of corporate development.

The existence of several approaches that can be considered as strategic frameworks for Technology Transfer Strategic Planning has to be mentioned. For example, P. Lai [9] has developed Technology Transfer Program Strategic Framework. In his view, this is a strategic approach that defines four key objectives at the core of technology transfer: customer orientation, collaboration, awareness-raising, and impact expansion. A wide range of approaches can also be considered strategic frameworks for Technology Transfer Strategic Planning, yet they do not incorporate corporate oversight into their structure. The proposal presented in Fig. 1 goes even further. It extends beyond corporate governance and engages broader stakeholders in the technology transfer process. In doing so, the corporate organization can evolve into an entire economic ecosystem for technology transfer, integrating the contributions of F. Nachira [13] and X. Ziouvelou [18], as presented in Fig. 1. Adopting an ecosystem-based approach to technology transfer requires a clear definition of its role within the strategic process. The author's version of the corresponding hierarchy of key concepts within the TTSP Framework, which consists of five interconnected components, is presented in Figure 2.

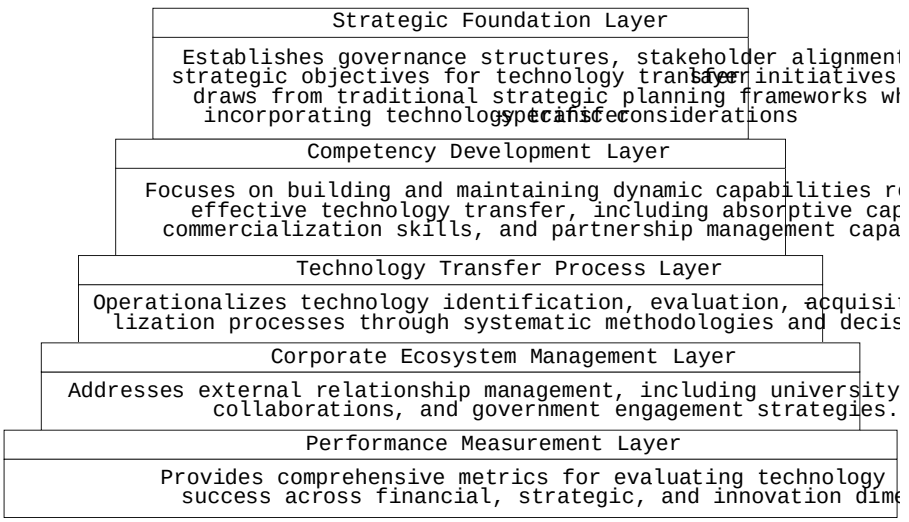

Fig 2. **The technology transfer strategic planning framework structure,** *author's development based on existing technology transfer frameworks*

The hierarchy shown in Fig. 2 illustrates that the article focuses on organizing the interaction between the second (Competency development layer) and third

(Technology transfer process layer) levels, while the first (top, strategic foundation layer) level sets the contextual foundation for this interaction. The bottom two levels, in turn, ensure the institutionalization and measurability of the second and third levels. The mentioned interaction is based on the hypothesis that innovation competence is one of the enterprise's dynamic capabilities within the scope of attention of the board of directors and the corporate governance system. The term innovative competencies refers to the combination of skills, knowledge, and abilities (at both the individual and organizational level) that enable a firm to innovate effectively. In the literature, innovative competencies are sometimes discussed in tandem with «innovation capabilities» or «technological capabilities». To clarify, we can distinguish a few related concepts: innovative competencies (described from human perspective as the abilities of a company's personnel to generate creative ideas and implement them in practice), innovative capabilities (described from organizational perspective as the firm-wide processes and routines that allow effective use of resources for innovation), innovative resources (resources that support the development of competencies and capabilities), and innovative potential that comprises resources, competencies (human capital), and capabilities (processes) geared toward innovation. This ontology of understanding innovative competencies closely aligns with V. Lavrenenko's [10] proposition, which views innovative competencies as a combination of the abilities of a company's personnel and organizational practices that transform ideas into tangible outcomes based on innovative resources and innovative potential usage.

One critically crucial innovative competency in the context of technology transfer is absorptive capacity, which is defined by A. Hafeez [6] as an organization's ability to assimilate new external knowledge and apply it for commercial use. In this context, C. Battistella [2] proposed the concept of absorptive capability, the higher level of which makes the joint-stock company a better innovator because it learn from external sources more effectively and integrates that knowledge into innovations. According to A. Hafeez [6], absorptive capacity is a strong predictor of a joint-stock company's innovation success and its ability to benefit from knowledge transfer. Considering absorptive capacity as one of the most crucial innovative competencies became a strategic priority because, without sufficient absorptive capacity, even a well-funded joint-stock company might fail to capitalize on external technology. Beyond absorptive capacity, other innovative competencies crucial for technology transfer include engineering capabilities, project management and execution skills, change management and learning culture, networking and collaboration skills intellectual property management, etc. Gathering all of them within the TTSP Framework allowed us to formulate several theoretical propositions ({TP}), presented in Fig. 3.

Presented in Fig. 3, the theoretical provisions explained how joint-stock companies can strategically plan to develop the innovative competencies that will enable successful technology transfer and, in turn, drive innovation performance. Fig. 3 provides the idea that for a company, it's not enough to be innovative or to state innovation in its strategic plan. The joint-stock company should also implement proper management systems aligned with the parameters of corporate governance. Strategic plans can only translate into concrete improvements in the joint-stock company's capacity to acquire and utilize technology under such conditions. Moreover, compa-

nies should strategically use both internal and external ideas to advance their technology or, more precisely, provide strategic planning for a mix of internal R&D and external sourcing. It is crucial to understand that even though joint-stock companies typically have large R&D budgets under globalization, even large companies can't do everything in-house. Thus, strategically planning for ecosystem engagement can be a way to ensure a pipeline of external knowledge flows into the company. Based on the given explanations, Table 1 contains the structure of the strategic management framework.

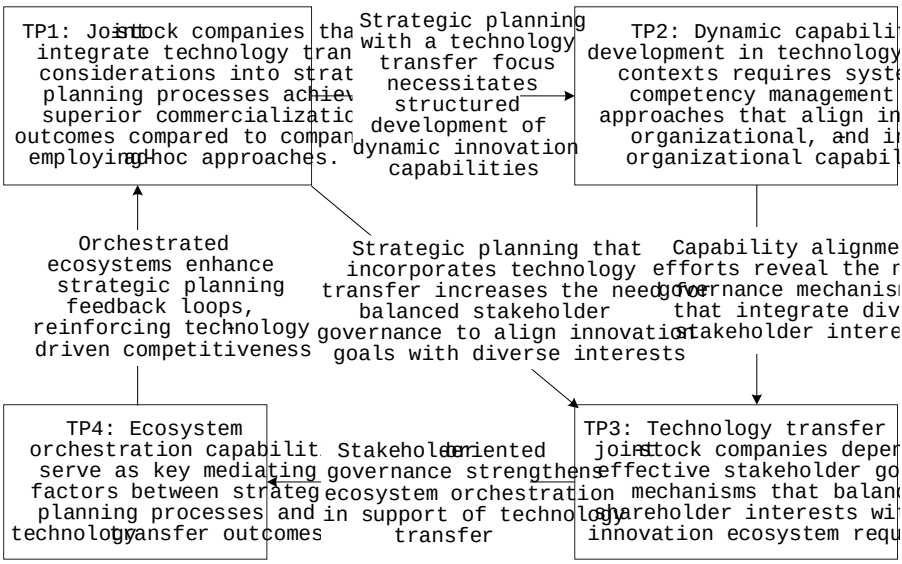

Fig. 3. **Theoretical provisions for strategic planning of a joint-stock company's innovative competencies in the field of technology transfer,** *author's development*

It should be noted that the framework presented in Table 1 adopts a hybrid approach that integrates all the aforementioned components of the defined subject area. Table 1 illustrates which models, corresponding to each component of the subject area depicted in Figure 3, may be employed by the corporate governance system and for what purpose. Given the widespread use of these models, detailed descriptions are not provided. The table also outlines specific directions for ensuring the models' coherence.

Conclusions from this study and prospects for further research in this area. Technology transfer strategic planning requires board-level attention, with regular reporting to shareholders on progress, outcomes, and risk management. The article provides four fundamental principles for technology transfer strategic planning: strategic alignment, dynamic capability development, stakeholder integration, and ecosystem orchestration. Their combination develops the corresponding methodology that is presented in the article as the TTSP Framework. It also proved that the following principles expand the mentioned framework: align technology transfer with strategic goals, advance competencies ahead of needs, leverage external networks and partnerships, integrate quality and change management systems, plan for knowledge retention and growth, set metrics and incentives for innovation competency development.

Table 1. **Strategic planning models and frameworks for technology transfer competencies in joint-stock companies,** *author's development*

Elements	Explanation for framework element filling and usage
Strategic Foundation	Combining the Balanced Scorecard System with Objectives and Key Results (OKRs) establishes a comprehensive performance measurement system that translates organizational vision into actionable objectives. Clear OKRs provide necessary transparency for shareholders and the corporate governance system
Innovation Management	A combination of open innovation and stage-gate processes enables systematic external knowledge integration considering the innovation lifecycle. The open innovation concept facilitates collaboration with external partners (such as universities or research institutions) while stage-gate processes provide structured decision points and ensure optimal resource allocation
Competency Development	Competency Development should base on 7S model that ensures innovation alignment across organizational structure, strategy, systems, shared values, skills, style, and staff to support technology transfer objectives
Technology Transfer	The selected technology transfer model (for example, Bar-Zakay model) should be aligned with the readiness assessment for such transfer (for example, the Technology Readiness Level framework could be used), based on the guidelines established by the corporate governance system. Such a condition enables informed strategic decision-making throughout the transfer lifecycle
Ecosystem Management	Under the ecosystem approach, the Triple Helix Model could provide structured approaches to stakeholders in the design of technology transfer collaboration. In addition, the network orchestration framework could enable systematic management of multiple partnerships across the innovation ecosystem
Performance Measurement Technology	An integrated measurement system should provide a comprehensive evaluation of technology transfer effectiveness. Due to the necessity to get estimation across multiple dimensions, the Technology Transfer Scorecard in combination with Portfolio Management could be used. Such a combination provides specific metrics for technology acquisition efficiency from a strategic priorities perspective
Risk Management	Risk assessment should be conducted to ensure the continuity of operations of the joint-stock company. Thus, Contingency Planning Framework usage could establish predetermined response strategies for various risk scenarios and minimize negative impacts on emerging opportunities
Governance Structure	For corporate governance purposes, it is appropriate to highlight the technology transfer committee (provides executive-level leadership and strategic direction for technology transfer activities) and the stakeholder advisory board (incorporates perspectives from shareholders to ensure comprehensive consideration of stakeholder impacts on innovative activities)

This research advances strategic management theory by demonstrating how dynamic capabilities theory can be operationalized in technology transfer contexts. The integration of stakeholder governance theory with technology transfer mechanisms provides new insights into how joint-stock companies can balance competing stakeholder interests while pursuing innovation objectives. For each element of the

developed framework, recommended models for its implementation have been provided. However, it remains necessary to determine the specific features of adapting the application parameters of these models depending on the form of corporate organization of the joint-stock company, which constitutes a promising direction for the authors' future research.

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