

DOI: <https://doi.org/10.32782/2524-0072/2024-63-104>

UDC 330.341.1:378.4

COMMERCIALIZATION AND ACADEMIC FREEDOM IN THE ENTREPRENEURIAL UNIVERSITY: BALANCING INTERESTS IN AN UNCERTAIN ENVIRONMENT

КОМЕРЦІАЛІЗАЦІЯ ТА АКАДЕМІЧНА СВОБОДА В ПІДПРИЄМНИЦЬКОМУ УНІВЕРСИТЕТІ: БАЛАНС ІНТЕРЕСІВ ЗА УМОВ НЕВИЗНАЧЕНОСТІ

Dzhus Vladyslav

Postgraduate Student,

Taras Shevchenko National University of Kyiv

ORCID: <https://orcid.org/0009-0006-9243-2362>**Джус Владислав**

Київський національний університет імені Тараса Шевченка

The paper investigates the impact of a growing trend in universities: the focus on commercialization and generating revenue. While this approach attracts resources and fuels innovation, it raises concerns about the long-term health of fundamental research, the kind that lays the groundwork for future breakthroughs. Additionally, the study explores potential ethical dilemmas that might arise from partnerships with industry partners. These collaborations could restrict research freedom and limit the open exchange of knowledge crucial for scientific progress. Overall, the research highlights the need for a balanced approach within universities, one that fosters innovation while safeguarding the core values of academic freedom and the pursuit of knowledge across all disciplines.

Key words: entrepreneurial university, fundamental and applied research, balance of interests, technology transfer, research ethics, commercialization, innovation creation.

Стаття присвячена дослідженню співвідношення між зростаючим трендом на комерціалізацію досліджень, які проводяться закладами вищої освіти, та академічною свободою, що є принципово важливою рисою останніх. Особливої ваги дана проблема набуває в умовах поширення університетів підприємницького типу, котрі поєднують 3 функції в своїй діяльності: освітньо-навчальну, дослідницьку та підприємницьку (створення інновацій). Цей підхід, хоча й несе в собі значні переваги та вважається перспективною моделлю для співробітництва системи освіти з державними інституціями та бізнесом, викликає занепокоєння щодо його довгострокового впливу на фундаментальні дослідження та академічну свободу. У ході дослідження використано методи аналізу впливу комерціалізації університетів на різні аспекти академічного життя. Зокрема, пояснено ефекти довгострокового впливу орієнтації університетів в напрямі комерціалізації на процес здійснення фундаментальних досліджень. За допомогою методів систематизації і класифікування розкрито етичні дилеми і природу конфліктів інтересів, пов'язаних з партнерством системи вищої освіти та промисловості. Виявлено, що комерціалізація університетів може мати як позитивні, так і негативні наслідки для академічної свободи. З одного боку, комерціалізація сприяє залученню ресурсів та стимулює інновації, що може прискорити науково-технічний прогрес та призвести до створення нових продуктів і технологій. Університети, які успішно комерціалізують свої дослідження, спроможні отримати значні фінансові надходження, які потенційно будуть використані для розвитку інфраструктури, залучення талановитих науковців та підтримки дослідницьких програм. Натомість акцент на короткостроковій комерційній вигоді може призвести до скорочення фундаментальних досліджень, які є основою для майбутніх наукових проривів. При цьому, дослідження, орієнтовані на комерційні потреби, можуть обмежувати свободу науковців у виборі тем досліджень та публікації результатів, а партнерство з приватним сектором може призвести до конфліктів інтересів, за яких науковці ставлять комерційні потреби своїх партнерів вище за наукову об'єктивність та етичні принципи. Задля ефективного врегулювання процесу реалізації економічної компоненти досліджень й отримання у результаті прибутку університетами і їх суб'єктами у статті запропоновано комплекс етичних засад та правил, що запобігають втраті академічної свободи. Результати даного дослідження є актуальними для адміністрації університетів, науковців, представників органів державної влади, що дотичні до реалізації політики у галузі освіти, науки та інновацій, адже в статті висвітлено механізми поєднання в університетах підприємницького типу як осередків технологічного прогресу, так і ядра критичного мислення та інтелектуального розвитку.

Ключові слова: підприємницький університет, фундаментальні та прикладні дослідження, баланс інтересів, трансфер технологій, етичність науки, комерціалізація, створення інновацій.

Statement of the problem. Universities have always walked a tightrope, balancing the pursuit of knowledge for its own sake with the need for resources and societal impact. This tightrope act becomes particularly precarious in the modern «entrepreneurial university», where the aim to generate revenue through patents and spin-offs can clash with the core principle of academic freedom.

Universities striving for an entrepreneurial model, like MIT with its famed innovation ecosystem, might prioritize commercially viable research, potentially diverting resources from fundamental, curiosity-driven inquiries that could lead to ground-breaking discoveries. Faculty members, under pressure to secure funding from organizations like the National Research Foundation of Ukraine (NRFU) in Ukraine, National Science Foundation (NSF) in the United States, National Innovation Foundation (NIF) in India, or venture capitalists, might self-censor their research or gravitate towards topics with greater market potential. The very nature of knowledge production within universities could be at stake, with a narrowing focus on commercially applicable research potentially neglecting areas of immense social or scientific value but lacking immediate financial returns.

Understanding this scientific problem is crucial for several reasons. First, it's vital to ensure universities don't lose sight of their core mission – the pursuit of knowledge for its own sake. Second, a balanced approach can maximize the overall impact of university research. Both fundamental and commercially-oriented research are valuable, and navigating their coexistence is key. Third, the commercialization drive raises ethical concerns around ownership of research outputs, faculty conflicts of interest, and potential biases impacting research directions. Examining these issues helps ensure research integrity. By informing policy decisions, attracting top talent, and fostering intellectual creativity, a balanced approach to academic freedom and commercialization can benefit not just the university but society as a whole.

Analysis of recent research and publications. The concept of the «entrepreneurial university» has gained significant traction in recent years, with universities increasingly emphasizing technology transfer, commercialization of research, and fostering student startups. However, this shift has sparked a wave of research exploring the potential downsides and complexities of this model. A major concern is the potential for commercialization to stifle academic

freedom. Research by Etzkowitz highlights this tension, suggesting universities might prioritize commercially viable projects over fundamental research [1]. Maribel Guerrero argues that the emphasis on industry collaboration can lead to faculty prioritizing research with clear commercial applications [2]. To her mind this can stifle fundamental research and limit the pursuit of open knowledge.

David Audretsch also examines the impact of entrepreneurial university on industry collaboration and social good. Scientist argues universities should equip students for the entrepreneurial society, not just focus on technology transfer [3]. Thomas Clauss *et al.* emphasize the role of different stakeholders within the entrepreneurial university model and the need to consider not just universities and faculty, but also students, firms, entrepreneurship support services and the broader society [4, p. 7]. Lawrence Dooley examines the potential for commercialization to pressure faculty to self-censor their research or avoid topics that might be deemed controversial by industry partners. The study argues that the faculty is «less supportive of the entrepreneurial university ideal, if promoted through a structured top-down push by university management» [5, p. 166]. Kathleen Lynch & Mariya Ivancheva focus on the ethical dilemmas faced by faculty navigating commercialization pressures. Their study reveals the individualized character of academic freedom and emphasizes the need for universities to establish a free research area, especially in not market led spheres, «develop clear policies and procedures» to address these ethical complexities [6, p. 76]. Shuiyun Liu & Peter C. van der Sijde point in their study that entrepreneurial university activities, including commercialization, are very dependable on external demand and must fulfil the formal requirement to comply the entrepreneurial mission [7, p. 2].

Unresolved parts of the problem. While the entrepreneurial university model offers possibilities for innovation and societal impact, it presents a complex challenge: balancing academic freedom with the pursuit of commercialization. Recent research has highlighted the potential for commercialization pressures to stifle fundamental research, influence faculty behaviour, and create ethical dilemmas. However, several key questions remain unanswered.

The long-term impact of prioritizing commercially viable research on the overall quality and breadth of academic inquiry requires

further investigation. Additionally, the ethical complexities surrounding conflicts of interest within entrepreneurial universities necessitate exploration. Universities often lack clear frameworks to address these issues, leaving faculty vulnerable to ethical lapses. This study will explore the prevalence of such conflicts and propose strategies for mitigation. The findings will inform the development of practical solutions that allow universities to embrace the benefits of commercialization while protecting the core principles of academic freedom that fuel ground-breaking discoveries and a thriving academic environment.

The purpose of the article is to contribute to a more comprehensive understanding of the entrepreneurial university model and inform the development of solutions that foster responsible innovation while safeguarding academic freedom by focusing on long-term impact on academic inquiry, examining the prevalence of ethical conflicts, finding solutions to address the gap between commercialization opportunities and open knowledge spread.

Summary of the main research material.

The rise of the entrepreneurial university model, with its emphasis on technology transfer and commercially viable research, presents a fascinating paradox. While it promises a future brimming with innovation and economic prosperity, it also raises concerns about the potential decline of a cornerstone of scientific progress – fundamental research.

Fundamental research, often lacking immediate commercial applications, explores basic scientific phenomena and principles. Consider the field of genetics – basic research on fruit flies in the early 20th century, funded by the Rockefeller Foundation (not for any immediate commercial gain), paved the way for the Human Genome Project [8] and countless advancements in medicine. However, the pressure to generate commercially viable research within the entrepreneurial university model might lead to a decline in funding for fundamental research, potentially jeopardizing the long-term health and vitality of scientific inquiry.

Measuring the precise impact of commercialization on fundamental research remains a challenge. Many universities lack clear metrics to differentiate between commercially oriented and fundamental research projects. Additionally, the value of fundamental research often becomes evident only years, even decades, later. For example, the foundational work on transistors in the 1940s [9], with no

immediate commercial application, ultimately led to the silicon chip revolution and the foundation of modern computing.

While commercially oriented research can be valuable, neglecting fundamental research could have long-term consequences for the overall quality and scope of academic inquiry. A 2020 study by the group of Chinese scientists led by Xia Pan suggests a positive correlation between university patenting activity and firm innovation. However, the study acknowledges that a focus on patenting might not fully capture the broader societal impact of fundamental research [10]. A lack of fundamental research corresponding with cutting-edge society features shifts the focus of modern students only on narrow job categories and majors, as highlighted by the Association of American Universities (AAU) [11].

Table 1 explores these potential consequences, highlighting how a shift toward commercially viable research could lead to a cascade of negative effects. One major concern is a slower pace of scientific discovery. Ground-breaking discoveries like vaccines often rely on foundational research in immunology, a field that might receive less emphasis if immediate commercial applications aren't readily apparent. Perhaps most concerning is the potential erosion of intellectual curiosity and creativity within the academic environment. Fundamental research, driven by a desire to understand the universe and its basic laws, might be stifled by an overemphasis on commercial applications. This could ultimately lead to a diminished pool of future scientists who are passionate about exploration and discovery for its own sake.

The commercialization focus might also lead to a narrowing of research priorities. Short-term gains could overshadow long-term fundamental research with potentially ground-breaking discoveries, such as investigations into plant biology that could lead to more sustainable and adaptable agricultural practices in the future.

The potential decline in fundamental research due to the commercialization focus within universities isn't just a scientific concern, but also an ethical one. If the pressure to secure funding or generate commercially relevant results overshadows the pursuit of basic knowledge, it could create a breeding ground for misconduct. Researchers facing these pressures might be tempted to cut corners or manipulate data to get their work published, ultimately eroding public trust in scientific inquiry and hindering the very progress the entrepreneurial university model aims to achieve.

Table 1

The long-term implications of universities prioritizing commercial goals

Consequence	Description	Example
Slowed pace of scientific discovery	Fundamental research often lays the groundwork for future breakthroughs. Reduced funding could lead to a decline in the rate of scientific advancement.	Development of vaccines often relies on foundational research in immunology.
Limited understanding of basic phenomena	Fundamental research explores foundational principles. De-emphasis could hinder our comprehension of the natural world and constrain future applied research efforts.	Research on the fundamental properties of materials is crucial for developing new technologies like solar cells or advanced batteries.
Erosion of intellectual curiosity and creativity	The pursuit of fundamental knowledge is driven by intrinsic motivation and curiosity. An overemphasis on commercialization could stifle these qualities within the academic environment.	Fundamental research in areas like astronomy or mathematics often arises from a desire to understand the universe and its basic laws.
Reduced pipeline for future technological innovation	Fundamental research feeds into applied research, ultimately leading to technological advancements. A decline in fundamental research could disrupt this pipeline.	The discovery of transistors, with no immediate commercial application, ultimately led to the silicon chip revolution and the foundation of modern computing.
Increased focus on short-term gains over long-term benefits	The pressure to generate commercially viable research might prioritize short-term projects with quicker financial returns, neglecting long-term fundamental research with potentially ground-breaking discoveries.	Research on developing a new type of fertilizer for a specific crop might overshadow investigations into fundamental plant biology that could lead to more sustainable and adaptable agricultural practices in the future.
Potential for research misconduct due to pressure to publish	The emphasis on generating publishable results to secure funding or attract industry partnerships could incentivize researchers to fabricate or manipulate data.	Cases of scientific fraud, where researchers have falsified data to get their findings published in prestigious journals.
Discouragement of interdisciplinary research that may not have immediate commercial applications	Interdisciplinary research that combines multiple fields can lead to significant discoveries. However, the commercial focus might discourage such endeavors if they lack a clear path to immediate profit.	Research collaborations between physicists and engineers could lead to breakthroughs in clean energy technologies, but such interdisciplinary efforts may not be prioritized under a purely commercialized model.

Source: suggested by the author

The entrepreneurial university model's emphasis on commercialization can create a complex web of ethical dilemmas for faculty members. These dilemmas often center around conflicts of interest, where a faculty member's personal or financial interests could potentially influence their research activities. Faculty might face pressure to:

Prioritize research with clear commercial applications over fundamental research or topics deemed less commercially viable. The rise of university spin-off companies and faculty

involvement in startups raises ethical concerns.

Engage in consulting work with industry partners. Universities often encourage faculty to consult with industry partners to bridge the gap between research and practical applications. However, this can create conflicts when a faculty member's consulting work aligns with their research interests. They might be pressured to tailor their research findings to benefit the industry partner or withhold negative results that could damage the company's reputation [12].

Seek intellectual property rights for their research outputs. While this can incentivize innovation and technology transfer, it can also limit the dissemination of knowledge. Faculty might be hesitant to publish research freely if it could hinder future commercialization opportunities.

These pressures can compromise academic integrity and erode public trust in universities. Universities have a responsibility to establish clear ethical guidelines and conflict of interest policies to mitigate these risks.

Christopher L. Atkinson emphasizes the need for universities to develop robust conflict of interest disclosure procedures and foster a culture of academic transparency, proposing the following ways to rebalance the academic freedom and the role of commercialization: establishing hybrid functioning models (as «entrepreneurial university» itself), developing governance and

policy frameworks, diversifying funding sources, implementing alternative educational models, fostering community engagement and social responsibility [13, p. 8–9].

Table 2 explores ways and mechanisms to avoid conflicts when universities become more commercial:

- funding for research should come from a mix of sources, including government grants for both commercial and fundamental research;
- universities should consider the societal impact of research, not just how much money it might make;
- there should be clear rules about professors consulting with companies and firewalls between their consulting work and research;
- universities can partner with companies to develop inventions while still sharing knowledge with the public.

Table 2

Measures for ensuring ethical conduct during research commercialization

Conflict of Interest Area	Potential Solutions	Explanation
Prioritizing Research with Clear Commercial Applications	Balanced Funding Streams	Universities can leverage a mix of government grants (consider earmarks for fundamental research), industry funding (with safeguards), and philanthropic donations.
	Mission-Driven Research Allocation	Allocation criteria can consider potential societal impact alongside commercial viability, with a focus on the university's core mission [14].
	Internal Grant Programs	Internal grant programs can be dedicated to high-risk, fundamental research or areas not readily aligned with commercial interests.
Engaging in Consulting Work with Industry Partners	Robust Conflict of Interest Disclosure Policies	Disclosure policies should require detailed information about: the nature of the consulting work; potential financial ties to industry partners; any potential conflicts with ongoing research projects.
	Independent Review Boards	Review boards should have diverse expertise (scientific, legal, ethical) to provide objective assessments of potential conflicts.
	«Firewalls» Between Research and Consulting	Firewalls can include restrictions on: data sharing between research projects and consulting work; use of university resources for consulting, limitations on involving students in consulting projects related to their research.
Seeking Intellectual Property Rights	Open Access and Knowledge Sharing	Explore open access publication models (delayed open access, specific embargo periods) or creative commons licensing to balance commercialization with knowledge dissemination.
	University-Industry Partnerships for IP Development	Partner with industry leaders for expertise in: IP development; commercialization, ensuring the university receives fair financial benefits.
	Focus on Societal Impact, Not Just Commercial Gain	Consider the broader societal impact of research findings when making IP decisions, prioritizing public good alongside potential profit.

Source: suggested by the author

Conclusions. The rise of commercial universities presents a complex societal challenge. While it promises a surge in innovation and practical applications, it risks undermining the very foundation of scientific progress: fundamental, curiosity-driven research. This could lead to a future where short-term gains are prioritized over long-term breakthroughs with the potential to revolutionize entire fields. Furthermore, the influence of industry partners can create ethical dilemmas, potentially restricting the free exchange of knowledge vital for scientific advancement. Ultimately, universities must strive for a balanced approach. They need to embrace innovation while safeguarding academic freedom and its role in fostering critical thinking, ethical reasoning, and a well-rounded citizenry. Only then can universities ensure a future where technological progress goes hand-in-hand with a deep understanding of the human condition and the pursuit of knowledge for the greater good.

The initial study explored the tension between entrepreneurial universities and

academic freedom, but there's more to discover. We need to investigate further to quantify the exact impact on academic freedom across different disciplines. This means analyzing faculty choices, publication restrictions due to industry partnerships, and the overall climate of open inquiry within universities. Studying models where commercially-driven and non-commercial disciplines work together can inform future partnerships that encourage innovation while safeguarding academic freedom across the board. Additionally, alternative funding models are crucial for research outside the commercial sphere. Finally, developing a more well-rounded approach to measuring research success is important. Current metrics might not capture the broader societal impact of some research.

By addressing these limitations through further research, we can gain a clearer picture of how entrepreneurial universities and academic freedom interact. This knowledge will be essential for ensuring universities can embrace innovation while nurturing all forms of academic inquiry, ultimately serving society in the best possible way.

REFERENCES:

1. Etzkowitz, H., Webster, A., Gebhardt, C., & Terra, B. R. C. (2000). The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm. *Research Policy*, vol. 29(2), pp. 313–330. DOI: [https://doi.org/10.1016/S0048-7333\(99\)00069-4](https://doi.org/10.1016/S0048-7333(99)00069-4)
2. Guerrero, M., Fayolle, A., Di Guardo, M. C., Lamine, W., & Mian, S. (2023). Re-viewing the entrepreneurial university: strategic challenges and theory building opportunities. *Small Business Economics*. DOI: <https://doi.org/10.1007/s11187-023-00858-z>
3. Audretsch, David B. (2014) From the entrepreneurial university to the university for the entrepreneurial society. *The Journal of Technology Transfer*, vol. 39(3), pp. 313–321. DOI: <https://doi.org/10.1007/s10961-012-9288-1>
4. Clauss, T., Moussa, A., & Kesting, T. (2018). Entrepreneurial university: a stakeholder-based conceptualisation of the current state and an agenda for future research. *International Journal of Technology Management*, vol. 77(1/2/3), pp. 109–144. DOI: <https://doi.org/10.1504/ijtm.2018.091726>
5. Philpott, K., Dooley, L., O'Reilly, C. & Lupton, G. (2011). The entrepreneurial university: Examining the underlying academic tensions. *Technovation*, vol. 31, pp. 161–170. DOI: <https://doi.org/10.1016/j.technovation.2010.12.003>
6. Lynch, K., & Ivancheva, M. (2015). Academic freedom and the commercialisation of universities: a critical ethical analysis. *Ethics in Science and Environmental Politics*, vol. 15(1), pp. 71–85. DOI: <https://doi.org/10.3354/esep00160>
7. Liu, S., & van der Sijde, P. C. (2021). Towards the entrepreneurial university 2.0: Reaffirming the responsibility of universities in the era of accountability. *Sustainability*, vol. 13(6), pp. 1–14. DOI: <https://doi.org/10.3390/su13063073>
8. Human Genome Project Timeline. Available at: <https://www.genome.gov/human-genome-project/timeline> (accessed June 16, 2024).
9. The transistor: The most important invention of the 20th century? Available at: <https://www.computerworld.com/article/1568347/the-transistor-the-most-important-invention-of-the-20th-century.html> (accessed June 16, 2024).
10. Pan, X., Gao, Y., Guo, D., & Cheng, W. (2020). Does Higher Education Promote Firm Innovation in China? *Sustainability*, vol. 12(18), pp. 1–14. <https://doi.org/10.3390/su12187326>
11. Humphreys, D., & Davenport, A. (2005). What Really Matters in College: How Students View and Value Liberal Education. *Liberal Education & America's Promise*. *Liberal Education*, vol. 91, pp. 36–43.

12. Financial Conflict of Interest. NIH Central Resource for Grants and Funding Information. Available at: <https://grants.nih.gov/grants/policy/coi/index.htm> (accessed June 18, 2024).

13. Alibasic, H., L. Atkinson, C. & Pelcher, J. (2024). The liminal state of academic freedom: navigating corporatization in higher education. *Discover Education*, vol. 3(1). DOI: <https://doi.org/10.1007/s44217-024-00086-x>

14. Pfeifer, L., & Helming, K. (2024). Effective mission-oriented research: A new framework for systemic research impact assessment. *Research Evaluation*, 00, pp. 1–15. DOI: <https://doi.org/10.1093/reseval/rvae003>

СПИСОК ВИКОРИСТАНИХ ДЖЕРЕЛ:

1. Etzkowitz, H., Webster, A., Gebhardt, C., Terra, B. R. C. The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm. *Research Policy*. 2000. Vol. 29(2). P. 313–330.

2. Guerrero, M., Fayolle, A., Di Guardo, M. C., Lamine, W., Mian, S. Re-viewing the entrepreneurial university: strategic challenges and theory building opportunities. *Small Business Economics*. 2023.

3. Audretsch, David B. From the entrepreneurial university to the university for the entrepreneurial society. *The Journal of Technology Transfer*. 2014. Vol. 39(3). P. 313–321.

4. Clauss, T., Moussa, A., Kesting, T. Entrepreneurial university: a stakeholder-based conceptualisation of the current state and an agenda for future research. *International Journal of Technology Management*. 2018. Vol. 77(1/2/3). P. 109–144.

5. Philpott, K., Dooley, L., O'Reilly, C. Lupton, G. The entrepreneurial university: Examining the underlying academic tensions. *Technovation*. 2011. Vol. 31. P. 161–170.

6. Lynch, K., Ivancheva, M. Academic freedom and the commercialisation of universities: a critical ethical analysis. *Ethics in Science and Environmental Politics*. 2015. Vol. 15(1). P. 71–85.

7. Liu, S., van der Sijde, P. C. Towards the entrepreneurial university 2.0: Reaffirming the responsibility of universities in the era of accountability. *Sustainability*. 2021. Vol. 13(6). P. 1–14.

8. Human Genome Project Timeline. URL: <https://www.genome.gov/human-genome-project/timeline> (дата звернення: 16.06.2024).

9. The transistor: The most important invention of the 20th century? URL: <https://www.computerworld.com/article/1568347/the-transistor-the-most-important-invention-of-the-20th-century.html> (дата звернення: 16.06.2024).

10. Pan, X., Gao, Y., Guo, D., Cheng, W. Does Higher Education Promote Firm Innovation in China? *Sustainability*. 2020. Vol. 12(18). P. 1–14.

11. Humphreys, D., Davenport, A. What Really Matters in College: How Students View and Value Liberal Education. *Liberal Education & America's Promise*. *Liberal Education*. 2005. Vol. 91. P. 36–43.

12. Financial Conflict of Interest. NIH Central Resource for Grants and Funding Information. URL: <https://grants.nih.gov/grants/policy/coi/index.htm> (дата звернення: 18.06.2024).

13. Alibasic, H., L. Atkinson, C. Pelcher, J. The liminal state of academic freedom: navigating corporatization in higher education. *Discover Education*. 2024. Vol. 3(1).

14. Pfeifer, L., Helming, K. Effective mission-oriented research: A new framework for systemic research impact assessment. *Research Evaluation*. 2024. Vol. 00. P. 1–15.