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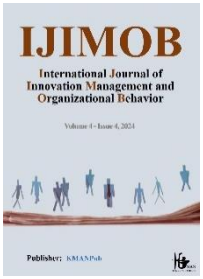

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Explaining Criteria of the Adaptive Model for Commercializing Academic Research with a Knowledge-based Employment Development Approach in the Health System

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A B S T R A C T

Objective: This study aimed to design and validate a model for commercializing academic research with an approach focused on the development of knowledge-based employment within Iran's health system.

Methodology: The research method was applied-developmental in terms of its goal and descriptive-survey in nature. The statistical population included experts in the field of academic research commercialization and faculty members from medical universities in Iran. In this phase, seven commercialization experts and senior managers from the Vice-Presidency for Science, Technology, and Knowledge-based Economy, along with five academic experts in management, were selected. Theoretical sampling was used to select participants, continuing until theoretical saturation was achieved. Data were simultaneously collected and coded.

Findings: The designed model, based on grounded theory, was formulated into a questionnaire and distributed among 400 research center managers, faculty members, and senior managers of the aforementioned universities. Data collection in the qualitative section was conducted through interviews. Grounded theory was utilized for data analysis in the qualitative section. The results indicated that the model for commercializing academic research with an approach to developing knowledge-based employment within the health system is valid and desirable.

Conclusion: Commercializing academic research in the medical and health domain plays a fundamental role in advancing economic growth and creating knowledge-based employment. By bridging the gap between academia and industry, universities can transform scientific discoveries into innovative products and services that address critical healthcare needs while stimulating economic growth.

Keywords: *Commercialization, Employment Development, Health System, Knowledge-based Economy.*

1 Introduction

In recent years, the commercialization of academic research has been recognized as a potential driver for the development of knowledge-based employment, particularly in the health and medical fields. This approach involves leveraging intellectual property developed within academic institutions to create economic value through the creation of new products, services, and companies. Traditionally focused on education and basic research, universities are increasingly recognizing the economic potential of their scientific discoveries and innovations. Consequently, there has been an increased emphasis on technology transfer and entrepreneurship programs aimed at bridging the gap between academia and industry (Wang et al., 2024).

The commercialization of academic research in the health and medical sectors holds promise due to the high demand for innovative solutions to address various healthcare challenges. From the development of new drugs and medical devices to advancements in diagnostic and therapeutic methods, university-driven innovation has the potential to significantly impact patient outcomes and healthcare delivery systems. Additionally, the interdisciplinary nature of many health-related research projects often involves collaboration among scientists, clinicians, engineers, and entrepreneurs, fostering a rich ecosystem for innovation and entrepreneurship (Baines et al., 2009; Czarnitzki et al., 2011).

A key factor in the commercialization of health and medical research is the need to translate scientific discoveries into tangible benefits for society. While academic publications are essential for disseminating knowledge within the scientific community, translating research findings into real-world applications often requires substantial investment and expertise beyond the academic realm. By partnering with industry stakeholders and leveraging their resources, universities can accelerate the development and commercialization of promising technologies, ultimately leading to improved healthcare outcomes and economic growth (DiStefano & Patel, 2019).

Moreover, the commercialization of academic research offers unique opportunities for job creation and economic development, particularly in knowledge-based industries. Start-up companies founded on university inventions have the potential not only to generate significant revenue but also to create high-quality jobs that require specialized skills and expertise. These jobs often span a wide range of roles, including research and development, manufacturing, marketing, and sales, contributing to both local and global economies (Abreu & Grinevich, 2013; Salamati et al., 2016).

In addition to creating new ventures, the commercialization of academic research can also spur innovation within existing companies active in the health and medical sectors. Collaboration between academia and industry enables the transfer of knowledge, expertise, and technology, leading to the development of new products and services that address unmet market needs. Furthermore, these partnerships can enhance the competitiveness of established companies by providing access to cutting-edge research and talent, thereby driving growth and sustainability (Fuller & Rothaermel, 2012).

However, the process of commercializing academic research is not without challenges. Managing intellectual property, financial constraints, regulatory compliance, and market uncertainties are just some of the obstacles that researchers and entrepreneurs must navigate. Additionally, cultural differences between academia and industry can sometimes hinder effective collaboration, highlighting the importance of building trust and fostering mutual understanding among stakeholders (Abreu & Grinevich, 2013; Nasiri et al., 2022; Salamati et al., 2016).

To overcome these challenges and maximize the impact of academic research commercialization in health and medicine, policymakers, academic institutions, industry partners, and funding agencies must collaborate to create an enabling ecosystem. This ecosystem should support technology transfer and entrepreneurial education, provide access to early-stage funding and infrastructure, streamline regulatory processes, and promote collaboration and knowledge exchange across sectors. By harnessing the collective strengths of academia, industry, and government, we can fully leverage the potential of academic research to drive innovation, create jobs, and improve health outcomes for individuals and communities worldwide (Bastos et al., 2021; Ford, 2020; Guerrero & Urbano, 2019).

The commercialization of academic research is a promising approach for developing knowledge-based employment in the health and medical fields. By bridging the gap between academia and industry, universities can transform scientific discoveries into innovative products and services that address critical healthcare needs while stimulating economic growth. Despite existing challenges, collaborative efforts among stakeholders can help establish an empowering ecosystem for innovation, entrepreneurship, and social impact. Moving forward, continued investment and support for the commercialization of academic research

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are essential to realizing the full potential of academic innovation in improving human health and well-being (Aparicio et al., 2023; Bastos et al., 2021; Ford, 2020; Guerrero & Urbano, 2019; Huegel et al., 2023; King, 2022; Lee, 2020; Lima, 2021; Secundo et al., 2021). This study aimed to design and validate a model for commercializing academic research with an approach focused on the development of knowledge-based employment within Iran's health system.

2 Methods and Materials

This research adopts a qualitative approach and is classified as exploratory-applied research with a descriptive-survey data collection method. The grounded theory methodology is employed for analysis. To identify the influential factors in the commercialization of academic research with a knowledge-based employment development approach in Iran's health system, a group of commercialization experts, academic experts, and senior managers from the Vice-Presidency for Science, Technology, and Knowledge-based Economy were considered the qualitative study population. Seven commercialization experts and senior managers from the Vice-Presidency for Science, Technology, and Knowledge-based Economy, along with five academic experts in management, were selected. Theoretical sampling was utilized, and this process continued until theoretical saturation was achieved. Data collection and coding were conducted simultaneously.

3 Findings and Results

In the first stage, the interview texts were carefully examined, and for each interview, a table was drawn. In this table, excerpts from the interview text related to the concept affecting the adaptive model of commercializing academic research with a knowledge-based employment development approach in the health system were written on the left side, and the assigned code was written on the right side. The first stage of the thematic analysis method involves data collection and implementation. The initial task in thematic analysis was analyzing the data and identifying different groups. Once the data and information were obtained, the researcher performed open coding of the desired textual data. At this stage, by studying the text and reflecting on it, initial labels and themes were extracted from the texts. Coding at this stage is centered on the researcher, which is considered the most crucial and time-consuming part of thematic analysis. In this process, the researcher personally determines the phrases and keywords, attaches codes and descriptors, and discusses and reviews all extracted codes. This discussion and review lead to the "discovery of new and richer themes from the studied data" and "correction of the discovered codes." By studying the obtained data and information, 208 initial concepts or basic themes were identified in the first stage. These themes and concepts were derived from the interviews, as shown in Table 1, which summarizes the extracted codes from each interview.

Table 1

Summary of Extracted Codes from Each Interview

Row	Code	Number of Extracted Codes
1	A	13
2	B	18
3	C	19
4	D	17
5	E	16
6	F	19
7	G	23
8	H	19
9	I	15
10	J	17
11	K	13
12	L	19
Total Extracted Components	208	

After comparing the coding of findings extracted from the twelfth (final) and eleventh interviews and comparing them with the findings extracted earlier, no new themes were found in the tenth, eleventh, and twelfth interviews. Given that the extraction of new themes tended to zero in the final interviews, theoretical saturation was achieved, and no

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further interviews were conducted. In total, 64 codes were extracted. In the second stage, building organizing themes, the descriptive codes obtained from the first stage were categorized into related groups, resulting in 25 themes at this stage. After identifying the initial codes, the researcher attempts to link these codes inductively and in a series of relationships based on the researcher's knowledge and theoretical literature to identify categories from the interviews, which will be used to build organizing and comprehensive themes in the subsequent sections. The organizing themes obtained from thematic analysis in this study include six themes: contextual factors, categories, strategies, outcomes, causal factors, and intervening factors. These six organizing themes comprise a total of 25 basic themes. In this study, 25 axial codes were identified. After identifying the concepts and categories, the existing categories were divided into main and sub-categories according to Strauss and Corbin's (1998) viewpoint.

Table 2

Comprehensive Themes, Organizing Themes of the Adaptive Model of Commercializing Academic Research with a Knowledge-based Employment Development Approach in the Health System

Organizing Theme	Basic Theme
Causal Factors	Intellectual property support
	Market analysis
	Industrial partnerships
	Venture capital and financing
	Regulatory compliance
	Technology readiness levels
	Academic research commercialization
Contextual Factors	Technology transfer office
	Spin-off companies
	Interdisciplinary collaboration
	Public-private partnerships
	Ethical considerations
Intervening Factors	Market trends
	Potential competitors
	Target audience
	Health economics research
	Reimbursement strategies
Strategy	Licensing
	Prototype development
	Market access strategy
	Understanding conducted research
	Strategic planning
Outcome	Clinical trials
	Entrepreneurship
	Monitoring and evaluation
	Educational development
	Quality control and assurance

By studying the data and information and extracting basic themes, these themes were repeatedly reviewed and revised by the researcher, and similar and identical themes were grouped together. As mentioned in the previous chapter, the thematic network comprises basic themes, organizing themes, and comprehensive themes. In the present study, after reviewing and revising the themes and performing various classifications, the researcher eventually reached a thematic network consisting of 25 basic themes, six organizing themes, and one comprehensive theme. Once a category is identified, the analyst can explain it based on its specific characteristics and dimensions. By defining the specific features of each category, it can be identified. The function of characteristics in grounded theory is to provide more details about each category. In grounded theory, each characteristic is dimensioned. Dimensioning a characteristic means that the researcher views the characteristic on a continuum and finds examples among the data that illustrate the two extremes of this continuum.

To confirm the validity of the identified criteria and the designed relationships in the model and achieve expert consensus, the fuzzy Delphi method was used. For this

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purpose, the proposed conceptual model along with the description of components, criteria, and sub-criteria was sent to the expert group members. Due to the limitation in the number of experts available to respond to the questionnaire, the researcher used 12 experts who participated in the qualitative section to conduct the fuzzy Delphi analysis. A five-option Likert scale was used to determine the experts' opinions.

Table 3

Fuzzy Mean of Experts' Views

Row	Component	β	α	m	Defuzzified Mean
1	Intellectual property support	0.12	0.20	0.78	0.76
2	Market analysis	0.11	0.17	0.81	0.79
3	Industrial partnerships	0.13	0.20	0.75	0.73
4	Venture capital and financing	0.08	0.21	0.85	0.81
5	Regulatory compliance	0.18	0.21	0.35	0.48
6	Technology readiness levels	0.11	0.21	0.78	0.75
7	Academic research commercialization	0.07	0.20	0.88	0.84
8	Technology transfer office	0.11	0.18	0.80	0.78
9	Spin-off companies	0.26	0.19	0.53	0.52
10	Interdisciplinary collaboration	0.11	0.18	0.80	0.78
11	Public-private partnerships	0.13	0.20	0.68	0.66
12	Ethical considerations	0.13	0.19	0.63	0.61
13	Market trends	0.17	0.20	0.61	0.60
14	Potential competitors	0.17	0.16	0.63	0.63
15	Target audience	0.10	0.17	0.79	0.77
16	Health economics research	0.11	0.20	0.77	0.74
17	Reimbursement strategies	0.67	0.09	0.20	0.31
18	Licensing	0.22	0.32	0.39	0.54
19	Prototype development	0.07	0.18	0.64	0.72
20	Market access strategy	0.12	0.18	0.82	0.75
21	Understanding conducted research	0.18	0.20	0.46	0.55
22	Strategic planning	0.23	0.41	0.54	0.76
23	Clinical trials	0.15	0.17	0.73	0.73
24	Entrepreneurship	0.12	0.15	0.80	0.76
25	Monitoring and evaluation	0.12	0.18	0.82	0.84

The defuzzified mean for the categories of regulatory compliance, spin-off companies, reimbursement strategies, understanding conducted research, and licensing is less than 0.6. Therefore, from the experts' perspective, these categories are not valid, and the remaining categories are confirmed. In the next step, the validity and reliability of the data collection instrument were evaluated.

Table 4

Construct Validity Evaluation of the Research Instrument

Organizing Theme	Basic Theme	Factor Loadings	AVE	Composite Reliability (C.R.)	Cronbach's Alpha
Causal Factors	Intellectual property support	0.537	0.742	0.712	0.812
	Market analysis	0.57			
	Industrial partnerships	0.715			
	Venture capital and financing	0.614			
	Technology readiness levels	0.556			
Category	Academic research commercialization	0.662	0.769	0.814	0.823
Contextual Factors	Technology transfer office	0.653	0.834	0.80	0.794
	Interdisciplinary collaboration	0.543			
	Public-private partnerships	0.671			
	Ethical considerations	0.763			
Intervening Factors	Market trends	0.781	0.764	0.810	0.808
	Potential competitors	0.742			
	Target audience	0.553			

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	Health economics research	0.73			
Strategy	Prototype development	0.719	0.759	0.806	0.768
	Market access strategy	0.598			
	Strategic planning	0.521			
Outcome	Clinical trials	0.743	0.784	0.794	0.776
	Entrepreneurship	0.712			
	Monitoring and evaluation	0.647			
	Educational development	0.78			
	Quality control and assurance	0.519			

In the evaluation of the data collection instrument constructs, the validity (convergent and divergent validity) and reliability were assessed. The validity of the indicators is confirmed when the standardized factor loading is above 0.4, and construct reliability is confirmed when the composite reliability coefficient is greater than 0.6 and Cronbach's alpha is greater than 0.7. As shown in Table 4, the standardized factor loadings range between 0.55 and 0.781, and the composite reliability coefficient is greater than 0.6 for all constructs. In other words, the measurement instrument is reliable. If the average variance extracted (AVE) is greater than 0.5, the convergent validity of the measurement instrument is confirmed. The results in Table 4 indicate that the AVE for all constructs is greater than 0.5, confirming the convergent validity of the measurement instrument.

4 Discussion and Conclusion

The commercialization of academic research in the medical and health fields plays a fundamental role in promoting economic growth and creating knowledge-based employment. In recent years, significant attention has been given to understanding the complex dynamics and impact of translating academic knowledge into applications that contribute to job opportunities. The convergence of academia and industry, facilitated by technology transfer offices, has become a pivotal element in this process, managing the efficient transfer of innovations from academic institutions to the commercial domain. In this context, intellectual property protection emerges as a crucial step in securing the outcomes of academic research. Patents, copyrights, and trademarks form the legal framework that protects innovative medical discoveries and technologies, thereby attracting potential investors and industrial partners. As the healthcare landscape continues to evolve, market analysis becomes essential to identify trends, assess potential competitors, and gauge target audiences. A robust understanding of market dynamics enhances the strategic positioning of academic innovations for successful commercialization (Brown & Miller, 2020).

Collaboration with industrial partners has emerged as a strategic approach that creates synergy between universities and pharmaceutical or biotechnology companies. Such partnerships not only accelerate the development and commercialization of medical innovations but also significantly contribute to creating knowledge-based job opportunities within these collaborative ecosystems (Chen et al., 2020). Licensing agreements, which specify the terms for transferring technology to external entities, have gained importance in the commercialization model. These agreements establish a framework for collaboration and subsequent commercialization of academic research outcomes (Guerrero & Urbano, 2019). Additionally, the formation of spin-off companies dedicated to commercializing academic innovations has become a common strategy, accelerating economic growth and knowledge-based job creation in the medical and health domains.

Venture capital and financing play a crucial role in enhancing the development and commercialization of medical technologies. Attracting investment attests to the perceived value and potential social impact of these innovations, contributing to the growth of the knowledge-based employment sector (Fuller & Rothaermel, 2012). Business incubators and accelerators support this growth by providing structures that foster and expedite the development of healthcare startups, guiding them towards broader commercial landscapes (Lee, 2020).

Ensuring regulatory compliance in the commercialization of healthcare innovations is paramount. Adherence to relevant regulations is essential to guarantee the safety of developed products and maintain the credibility of academic research in the eyes of regulatory authorities. This emphasis on regulatory compliance extends to conducting clinical trials, a fundamental step in demonstrating the efficacy and safety of new medical technologies before market entry. The process of prototype development, involving the creation of functional models of innovative products, acts as a tangible

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manifestation of the commitment to translating academic ideas into practical solutions. Through these prototypes, the feasibility and potential impact of medical innovations are realized and validated. Market access strategy, including planning for the introduction and distribution of products, becomes a strategic consideration. The effectiveness of this strategy influences the accessibility and adoption of medical technologies, subsequently impacting the potential for job creation in the knowledge-based sector.

Evaluating the economic impact and outcomes of healthcare interventions, known as health economics research, becomes essential for understanding the broader implications of commercialized medical technologies. This evaluation is crucial for demonstrating the social and economic value of these innovations. Similarly, developing reimbursement strategies for healthcare services or products is vital to ensure the sustainability and accessibility of these innovations within healthcare systems. Assessing technology readiness levels becomes a dynamic process that guides the evaluation of technology maturity for commercialization. Understanding the readiness of a technology ensures optimal timing and strategic planning for successful market integration. Encouraging interdisciplinary collaborations has become a strategic necessity in the commercialization model. By fostering cooperation among researchers, clinicians, and business professionals, a comprehensive approach to healthcare solutions is achieved, further enhancing the potential for social impact and job creation. Public-private partnerships exemplify collaborative efforts between universities, governments, and private sector entities. These partnerships not only provide financial support for academic research but also align efforts towards social benefits and knowledge-based job creation.

Translating research findings into practical applications, known as knowledge translation, is a critical aspect of ensuring that academic research has a tangible impact on healthcare practices. Effectively communicating research findings in an understandable and applicable manner aids in the successful integration of innovations into the healthcare landscape. Marketing and branding efforts are highly effective in creating awareness of new medical technologies or products. These efforts shape public understanding and perception, influencing the acceptance and adoption of innovations, and subsequently contributing to their commercial success. Educational development emerges as a key component, engaging educational institutions to integrate new knowledge into curricula. This collaborative approach ensures that emerging professionals are well-prepared to contribute to the dynamic and evolving medical and health fields.

Ethical considerations permeate every stage of the commercialization model, addressing concerns related to research and technology transfer. Adhering to ethical standards is not only a legal requirement but also a fundamental commitment to responsible research practices that ensure the integrity of academic contributions. Quality control and assurance measures, implemented throughout the commercialization journey, ensure the safety and efficacy of products. By adhering to stringent quality standards, trust among end-users is built, further contributing to the success of medical innovations.

Strategic planning, involving long-term plans for technology commercialization and job creation, guides the trajectory of academic research outcomes. A well-considered strategic approach is essential for maximizing the social impact and economic contribution of commercialized medical innovations. Public relations and communication efforts play a crucial role in building a positive public understanding and perception of academic innovations. Transparent communication regarding ethical considerations, quality control measures, and social benefits contributes to the overall success of the commercialization model. Continuous monitoring and evaluation processes provide ongoing assessments of the commercialization journey. This iterative approach allows for adaptation, refinement, and optimization, ensuring that the model is dynamic and responsive to the evolving medical and health landscape.

In conclusion, the commercialization of academic research in the medical and health fields is a multifaceted process that intricately weaves together various elements. From intellectual property protection to monitoring and evaluation, each stage contributes to the successful translation of academic knowledge into practical applications, thereby fostering economic growth and knowledge-based job creation in the healthcare sector. The interconnectedness of these components represents a holistic approach that not only advances scientific innovation but also has a positive impact on social welfare.

Intellectual property protection emerged as a fundamental element in the commercialization model. This finding aligns with established literature on technology transfer and commercialization, highlighting the pivotal role of patents, copyrights, and trademarks in protecting innovations (Abreu & Grinevich, 2013; Fuller & Rothaermel, 2012). Intellectual property protection not only creates a conducive

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environment for innovation but also acts as an attractive factor for potential investors and industry partners (Baines et al., 2009). Market analysis was identified as another determinant of successful commercialization. Recognizing market trends, potential competitors, and target audiences aligns with previous research highlighting the importance of market-oriented approaches in guiding the strategic positioning of academic innovations (Baines et al., 2009; Salamati et al., 2016). Emphasis on understanding market dynamics reinforces the notion that effective commercialization requires a nuanced understanding of the broader economic landscape.

Industrial partnerships emerged as a key factor in the success of the commercialization model. Collaborating with pharmaceutical companies, biotechnology firms, and related industries aligns with existing literature emphasizing the importance of cross-sector partnerships in accelerating the development and market entry of innovative products (Lee, 2020). Collaborative efforts in these partnerships not only expedite the commercialization process but also enhance the potential for knowledge-based job creation within these collaborative ecosystems. Venture capital and financing played a critical role in bolstering the development and commercialization process. This aligns with established research that underscores the role of investment in the success of technology transfer and commercialization efforts (Baines et al., 2009; Bastos et al., 2021). Attracting venture capital signifies the perceived social value and economic potential of academic innovations, thereby contributing to the growth of knowledge-based employment in the healthcare sector.

Evaluating technology readiness levels emerged as a dynamic process guiding the assessment of technology maturity for commercialization. The importance of assessing a technology's readiness aligns with existing literature, emphasizing the need for strategic planning and timing in the integration of innovations into the market (Salamati et al., 2016; Wang et al., 2024). Considering technology readiness levels reflects the pragmatic approach necessary for the successful transfer and commercialization of technology.

While the identified components align with a broader understanding of the commercialization process, it is essential to validate specific congruencies and inconsistencies with previous research. The continued emphasis on intellectual property protection, market analysis, and industrial partnerships aligns with established literature, underscoring their fundamental role in successful commercialization (Aparicio et al., 2023; Bastos et al., 2021; Ford, 2020; Guerrero & Urbano, 2019; Huegel et al., 2023; King, 2022; Lee, 2020). The recognition of venture capital and financing as significant contributors to the commercialization process aligns with existing studies that highlight the role of investment in driving innovation and economic growth (Guerrero & Urbano, 2019; Lee, 2020).

However, examining technology readiness levels as a distinct component influencing commercialization introduces a nuanced perspective. While the importance of technology readiness is acknowledged in the literature, the explicit consideration of technology readiness levels as a separate component has received less attention. The focus of the present study on technology readiness levels aligns with the broader discourse on technology transfer and innovation but introduces a more granular approach to understanding technology maturity in the context of commercialization (Huegel et al., 2023). This research enhances the comprehensiveness of the commercialization model presented in this study.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

References

Abreu, M., & Grinevich, V. (2013). The nature of academic entrepreneurship in the UK: Widening the focus on entrepreneurial activities. *Research Policy*, *42*(2), 408-422. https://doi.org/10.1016/j.respol.2012.10.005

Aparicio, G., Iturralde, T., & Rodríguez, A. V. (2023). Developments in the knowledge-based economy research field: a bibliometric literature review. *Management Review Quarterly*, *73*(1), 317-352. https://link.springer.com/article/10.1007/s11301-021-00241-w

Baines, P., Brennan, R., Gill, M., & Mortimore, R. (2009). Examining the Academic/Commercial Divide in Marketing Research. *European Journal of Marketing*, *43*(11/12), 1289-1299. https://doi.org/10.1108/03090560910989894

Bastos, E. C., Sengik, A. R., & Tello-Gamarra, J. (2021). Fifty years of University-industry collaboration: A global bibliometrics overview. *Science and Public Policy*, *48*(2), 177-199. https://academic.oup.com/spp/article-abstract/48/2/177/6163153

Czarnitzki, D., Hussinger, K., & Schneider, C. (2011). Commercializing Academic Research: The Quality of Faculty Patenting. *Industrial and Corporate Change*, *20*(5), 1403-1437. https://doi.org/10.1093/icc/dtr034

Ford, K. L. (2020). *An Exploration of Digital Health Academic-Industry Collaboration* University of Colorado at Denver]. https://search.proquest.com/openview/5c134d1ab250105e72d7b68635187970/1?pq-origsite=gscholar&cbl=18750&diss=y

Fuller, A. W., & Rothaermel, F. T. (2012). When Stars Shine: The Effects of Faculty Founders on New Technology Ventures. *Strategic Entrepreneurship Journal*, *6*(3), 220-235. https://doi.org/10.1002/sej.1140

Guerrero, M., & Urbano, D. (2019). A research agenda for entrepreneurship and innovation: the role of entrepreneurial universities. *A research agenda for entrepreneurship and innovation*, 107-133. https://www.elgaronline.com/abstract/edcoll/9781788116008/9781788116008.00012.xml

Huegel, M., Doerrenberg, P., & Kalthaus, M. (2023). *Initiation of knowledge and technology transfer from academia to industry: Opportunity recognition and transfer channel choice*. https://www.econstor.eu/handle/10419/283173

King, D. R. (2022). *Acquisitions and Corporate Strategy*. Routledge. https://api.taylorfrancis.com/content/books/mono/download?identifierName=doi&identifierValue=10.4324/9781003188308&type=googlepdf

Lee, S. W. (2020). Policy Instruments Supporting Innovation in Services: Policy Implications for Korea and V4 Countries. In. KDI School of Public Policy and Management. https://archives.kdischool.ac.kr/bitstream/11125/42189/1/Strengthening%20the%20Innovation%20Capacity%20toward%20the%20Era%20of%20Industry%204.0%20for%20the%20Visegrad%20Group%20Countries.pdf

Lima, J. C. F. (2021). Socioeconomic impacts of university-industry collaborations. https://repositorio.ufscar.br/handle/ufscar/15404

Nasiri, G., Saeedi, P., & Shojaei, S. (2022). Interpretive Structural Modeling of Effective Components on Growth of Academic Spin-Off. *Iranian Journal of Educational Society*, *8*(1), 15-28. https://doi.org/10.22034/ijes.2021.526446.1016

Salamati, T., Vaezi, E., Memarpour, M., & Rajabzadeh, A. (2016). Commercialization Model Design and Presentation of Proposed Algorithm of Knowledge Commercialization for the Higher Education. *Knowledge Retrieval and Semantic Systems*, *3*(8), 61-80. https://doi.org/10.22054/jks.2017.22386.1134

Secundo, G., Mele, G., Del Vecchio, P., & Degennaro, G. (2021). Knowledge spillover creation in university-based entrepreneurial ecosystem: the role of the Italian "Contamination Labs". *Knowledge Management Research & Practice*, *19*(1), 137-151. https://www.tandfonline.com/doi/abs/10.1080/14778238.2020.1785347

Wang, Y., Hearn, G., Mathews, S., & Hou, J. (2024). Networks, collaboration and knowledge exchange in creative industries: a comparative analysis of Brisbane and Shenzhen. *Creative Industries Journal*, *17*(1), 88-112. https://www.tandfonline.com/doi/abs/10.1080/17510694.2022.2057062

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