BUILDING KNOWLEDGE SPILLOVER THROUGH REGIONAL INDUSTRY-ACADEMIC COLLABORATIONS: A CASE STUDY

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ABSTRACT:

Introduction

Knowledge spillover theory suggests that knowledge generated in one industry can spill over into other industries, leading to technological innovation and economic growth. It states that knowledge and innovations developed by one firm, industry, or location can positively or negatively impact other firms, industries, and locations geographically close or connected through networks. Academic institutions drive a prolific amount of fundamental research and are interconnected through knowledge spillover. However, for the knowledge spillover to succeed, strategic management in the collaboration must align. The access to knowledge based on strategic relations is an intermediary for innovative regional growth. This highlights the importance of localized knowledge and public research for innovation and regional economic development.

Innovation and knowledge-based entrepreneurship research focus on drivers of firm growth, the nature of innovation, and the different types of firm performance. Organizations that engage in knowledge spillover are more likely to develop new ideas and knowledge, leading to better products, services, or processes. By tapping into external sources of knowledge and expertise, organizational performance can be improved in various ways, such as by increasing productivity, reducing costs, and enhancing employee and customer satisfaction. Organizations collaborating with academic institutions tend to have higher rates of innovation and growth than firms that do not. This research seeks to identify key elements necessary to establish, nurture, and maintain mutually beneficial collaborations which drive innovation and knowledge spillover between industry and academic partners. Specifically, we strive to discover 1) how an effective collaboration is established, 2) why the collaboration exists, 3) the nature of communication channels within the collaboration, 4) what each party gains from the collaboration, 5) events that can put the collaboration at risk, and 6) activities that can be performed to strengthen the collaboration.

Methods

Eight interviews were conducted to evaluate the collaborative relationships between industry and academia. These data were combined with the interviews conducted in a previous study. Briefly summarizing the study methods, individuals from industry and academia representing executive and functional areas were interviewed. Data were captured through semi-structured interviews. Questions were open-ended, allowing the interviewee to contribute original ideas and details. Interviews were recorded and transcribed with all personal identifiers removed to ensure the interviewee's anonymity. A combination of inductive and deductive coding was performed. An iterative process was used where each interview informed the next, and issues raised in previous interviews could be explored.

Structural coding was utilized to systematically categorize the transcribed interview data and identify existing and emergent categories. The resulting themes were then compared to previous analyses in which themes had emerged from the data. This approach allowed for a rigorous and systematic exploration of the data while also enabling a comparison of the current findings with earlier analyses.

Results/Discussion

The findings from the new interviews were consistent with the characteristics of successful industry-academic collaborations identified in the initial study. Specifically, the interviews confirmed the importance of factors such as the benefits of collaboration, effective communication, clear documentation, well-defined expectations, efficient information flow, and positive relationships between industry and academia. The initial interviews studied collaborations during the COVID-19 pandemic, and data suggested that communication perceptions were mixed between industry and academia. Upon further analysis, feedback emerged as an important factor in communication. Industry collaborators indicate the importance of academic feedback for collaborations to be successful and correctly set expectations for student, industry, and faculty engagement. Communication is essential for project performance, student engagement, relationship development, and knowledge spillover.

In addition to confirming previous findings, the new interviews yielded additional discoveries. It was found that alumni ties between industry executives/owners and academics can facilitate the development of a more robust collaborative relationship and lead to increased industry engagement. Furthermore, when the industry decision-maker considers community impact and student opportunity as a factor of "success" in the collaboration, the industry-academic collaboration is viewed as a more strategic role for the organization.

Another important theme to emerge was the importance of peer-to-peer networks. It was learned that not only did industry partners value the connections made with the university, but engagement with the academic institution also provided opportunities to meet people at other companies. These industry-to-industry connections were often made at capstone project presentations, where dozens of industry partners collect each year to see engineering teams present their senior projects. When discussing the benefits of industry-academic performance, the concept of community impact with like-minded industry counterparts could be a positive factor for the academic institutions' brand reputation and for industry collaborators amongst industry peers. Moreover, such collaborations can facilitate knowledge spillovers between academic and industry partners and different industries. This finding supports the knowledge spillover theory, which suggests that the innovation performance of entrepreneurial firms and their regions is closely linked to their network of inter-organizational interactions and relationships. Effective knowledge collaboration that benefits industry and academia can generate new opportunities and create positive spillover effects. Thus, motivational factors exist behind collaboration intentions, mainly attitudes toward collaboration, perceived behavioral control, and are sensitive to environmental conditions.

Conclusions

This study reaffirmed the identifying characteristics that influenced industry-academic collaborations found in an earlier study. Furthermore, the additional interviews revealed new discoveries about the importance of alumni and networking that was not evident in the initial study. Inspired by these findings, we plan to continue to collect more data to improve our understanding of these complex interactions.