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Shaheer Muhammad, Vilko Jyri

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Organizational capability building in transformation with university-company collaboration.

Muhammad Shaheer[1] and Jyri Vilko[1]*

LUT University, Kouvola Unit, 45100 Kouvola, Finland
jyri.vilko@lut.fi

Abstract. Transformation in the modern developed societies challenges the companies in them, where especially the smaller companies acting in traditional and rigid fields are experiencing difficulties. There are companies that do not have the experience of drastic changes or have rather aimed their efforts in resisting or shielding themselves against change are now back against the wall in face of the megatrends of digital and green transformation. In order to cope with the change, organizations have to expand and heterogenize their value production, which requires developing their capabilities but also developing a change-positive organizational culture. The capability development can be done by educating the current personnel or hiring new skilled professionals. In a highly competitive labour market, where most of the companies are looking for new people, the recruitment is challenging, especially when field- and company-specific tailored skillset are sought after. University-company collaboration with tailored learning and internship can provide new focused capabilities for the organizations, but the culture for such collaboration needs development and planning. This paper studies the opportunities and challenges in a university-collaboration in a tailored internship-course development for organizations challenged by changes in the field. The study focuses on a case of an international master's programme on a regional context.

Keywords: Organizational Capability Building, Collaboration, Digital Transformation, Green Transformation, Tailored Learning Programmes, Professional Association, Generational Differences, Sustainable Development Goals, Industry Partnerships, Practical Learning, Curriculum Development, Internship Programmes.

1 Introduction

In the contemporary business environment, evolving digital and green initiatives are rapidly disrupting industries and these megatrends pose significant challenges to small companies that are associated with traditional and rigid sectors (Linthorst and de Waal, 2020). Firms that have in the past either avoided change or did not know how to innovate and manage drastic shifts are now experiencing the necessity of rapid change to survive in the markets. To manage these transformations, companies need to expand and diversify value generating processes, which means that they not only have to develop new capabilities but also provide a culture that supports change (Stouten et al., 2018).

Organizational capability dictates an organization to integrate and adapt competencies and skills to deliver organization's goals and meet emerging needs (Andrews et al., 2016). This capability can be developed by training and developing existing staff or by employing competent staff with proper skills and knowledge. However, recruitment can be very difficult in a competitive labour market especially when candidates with specialized skills are required in certain fields and organizations (Reman, 2022). Tailored learning facilitated through academia-company collaboration can become a feasible solution for developing these specific learning needs (Turunen, 2024).

University-company partnerships have a rich background and theoretical rationale and serve as a bridge between the academic research and the practical industry applications (S. Fraser and D. Mancl, 2021). These partnerships not only generate value for universities and companies but also provide invaluable real-world experience to the students (S. Fraser and D. Mancl, 2021). The inclusion of professional associations as intermediaries strengthens these partnerships through curriculum mapping that aligns academic programmes with industrial requirements and facilitate transfer of knowledge. Through conventions, workshops, and internships, professional associations can create opportunities for the students connect directly with professionals and apply their academic learning in practical settings (Research, 2005).

This paper seeks to identify the opportunities and challenges of collaboration involving academia, industry, and professional associations in building organizational capabilities. To achieve that aim, we will investigate "How can firms, academic institutions, and professional associations effectively collaborate to develop tailored training programmes that improve organizational capacities, cater to industry-specific requirements, and benefit all stakeholders involved?". It focuses on a case study involving an International Master's programme, exploring how tailored curriculum involving courses of case studies and projects-based curriculum can help organisations facing specific industry transformations and how it can improve students' skillset. Therefore, the study will offer insights by providing some recommendations suitable for future cooperation between involved stakeholders.

The literature review examines prior findings about challenges and benefits of collaborations between academia, industries, and professional organizations and the impact of generational gaps on these collaborations. Subsequently, the research design section describes the steps involved in the research process, methodology and strategies involving stakeholders' engagement. The empirical case and data collection section outlines the case study and qualitative data collection techniques. The analysis and results section then analyses the data collected to identify key findings. Lastly, the discussion and conclusion section sum up the conclusion of the study to highlight the theoretical and practical implications of the identified findings and formulates recommendations for future research and collaborations.

2 Literature Review

2.1 Organizing the collaboration between Academia, Industry and Professional Associations:

Collaborations between universities, organizations and companies have an important place in society as facilitators of technological spillovers and as a source of addressing innovation market failures and these interactions range from patenting and spin-offs to joint research, consultancy, and training (Kauppila et al., 2015). Developing large-scale research infrastructures requires robust partnerships, where universities should ensure strategic alignment and provide leadership in relation to both organizations and smaller companies (Kohn Rådberg and Löfsten, 2023). The collaborations between the academic and the professional associations are essential in the research and practical applications in entrepreneurship (Song et al., 2019). Such partnerships facilitate the sharing of knowledge and innovation, not only enhancing research quality but also translating the academic research directly into economic gains in the fastest way possible to the benefit of both academia and industry. (Song et al., 2019). In such collaborations the research findings must be effectively collected, documented, and disseminated to make sure effective knowledge sharing and use of knowledge for learning and innovation across the sectors (Kettunen et al., 2022). Collaboration is an essential component in sustainable development research, and highly contributes to the achievement of the United Nations Sustainable Development Goals (SDGs) (Payumo et al., 2021).

2.2 Challenges in building the collaboration:

Academia-industry collaboration channels face certain challenges in their applicability and effectives and one of the reasons can be that academia lacks entrepreneurship aspects such as absence of technology transfer offices and career centres which encourage innovation and partnerships (Mkhitaryan, 2018). Another constraint in the establishment of co-operative relationship between small enterprises and universities is that small enterprises have comparatively little awareness about the university programmes that are available and how to access them, thus need communication channels that can help improve the sharing of opportunities for co-operation (Pereira and Franco, 2022). Also, there are a variety of interaction channels in university-industry collaborations with traditional and formal two-way channels being dominant over those involving commercial transactions which were perceived to be less significant by both academics and industry professionals (Nsanzumuhire and Groot, 2020).

One key challenge that might occur while developing collaboration between professional associations and academia can be a risk of biasness in scientific communication and so can cause impartiality of educational content leading to concerns about the influence of commercial interests (Komajda et al., 2012). While developing collaboration between academia and professional associations communication gap can occur which can then cause difficulties in task distributions with in large and diverse teams, so efficient communication is very important to prevent misunderstandings and ensure cohesive progress (Leogrande and Nicassio, 2021). Professional organizations can face

difficulties when collaborating with academia and companies' terms of potential misalignment of objectives and expectations of all stakeholders involved which can lead to misaligned goals (Arinaitwe, 2021. Students mentioned that during project-based learning facilitated by organizations, guidance from professionals should be more consistent and structured otherwise it poses difficulties (Ashruf et al., 2021).

2.3 Opportunities and benefits of collaboration for organizational capability:

One of the collaborative barriers between universities' research and development and organizations can be reduced by beginning with smaller initiatives that can be expanded and greater complexity in the future (Rossoni et al., 2023). There are seven key factors that enable successful collaborative innovation between universities and industries: resources, organizational structure, boundary spanning roles, intergroup relations, cultural diversity, status differentiation, and environmental factors (Sjöö and Hellström, 2019). Professional associations can play vital role in promoting and maintaining ethical standards and developing industry collaborations, which ensures scientific research, educational programmes to be solely geared towards promoting knowledge and professional development (Komajda et al., 2012). Structured collaboration between associations and academia in scientific research requires proper distributed responsibilities, efficient communication systems, and teamwork to produce informed progress (Leogrande and Nicassio, 2021). Professional societies increase cross-disciplinary interactions through initiatives such as publishing journals, organizing workshops, and symposiums, thus addressing complex problems, and enhancing innovation across disciplines (Research, 2005). These bodies also provide awards and recognitions which also encourages these interdisciplinary efforts (Research, 2005). The benefits from synergy focus on the efficiency in leveraging joint resources and knowledge in coordinating and executing large scale research projects (Leogrande and Nicassio, 2021). At the institutional level, a growth trend has been observed in context of collaborative efforts over time across different fields which suggests that that core institutions have the ability to sustain research collaborations in the long run (Payumo et al., 2021).

Professional associations can help connecting the academia and firms by organizing conventions, events, conferences, and workshops to share experiences and develop networks, creating opportunities for project courses and internships for students, and setting up collaborations between academics and companies (Arinaitwe, 2021). They can promote cooperation between the academic community and industry through implementing project-based educational activities that involve students solving business tasks in cooperation with employers under the supervision of industry professionals (Ashruf et al., 2021).They can perform middleman roles and can facilitate matching of educational programmes with industry requirements to the extent that both parties gain and maintain long-term partnership (Arinaitwe, 2021). Students can get practical experience through this structured approach, such as "Professional Practice" programme; firms can obtain innovative solutions; and universities can also ensure that they incorporate the right programmes to meet the industry needs (Ashruf et al., 2021). Academia-Industry Collaboration Plan is a design model that aligns academic and industrial needs

to accomplish shared objectives while facilitating internships and other cooperative projects (Ahmed et al., 2022).

2.4 Collaborations and Generational Differences:

Understanding the viewpoint and expectations of gen z is very important while onboarding them in any collaborative setting. And indirectly they are the major stakeholders in university collaborations as young researchers and students (Chillakuri, 2020). Understanding the differences in motivation between Gen Y and Gen Z is valuable as people from these generations have varying traits due to generational difference and greatly influence their behaviors, work values and attitudes. Thus, in all such collaboration students' preferences and requirements should be considered and this information can be taken from academic research and data from industries where gen z is mostly employed (Kuzhabekova and Temerbayeva, 2018). One of the barriers in these collaborations can be generational differences and these influence the dynamics of research and development environments in work values and motivations and thus necessitates the tailored approaches to engage new generation and integrate them with older generation (Güngör1, 2019). To better understand it," kaleidoscope career model" provides a lens through which impact of generational differences on individuals' career trajectories can be explored. This model can help understand that how varying perspectives on authenticity, balance and challenge can influence collaborative dynamics between universities, organizations, and companies (Bulgur and Esen, 2022).

3 Research Design:

3.1 Research Process:

In this research context, a mixed method of Reflexive thematic analysis and Coding reliability thematic analysis was used as we took an inductive approach to produce codes and themes (Walsh et al., 2019). Since major source of data was primary so Teams platform was chosen to conduct the interviews. Questionnaires were made beforehand and communicated with interviewees before the interviews for the appropriate preparation. All interviews were recorded and transcript, so the nature of data was unstructured. Average duration of each interview was 35 – 40 minutes. In the following picture we have given visual representation of our research process.

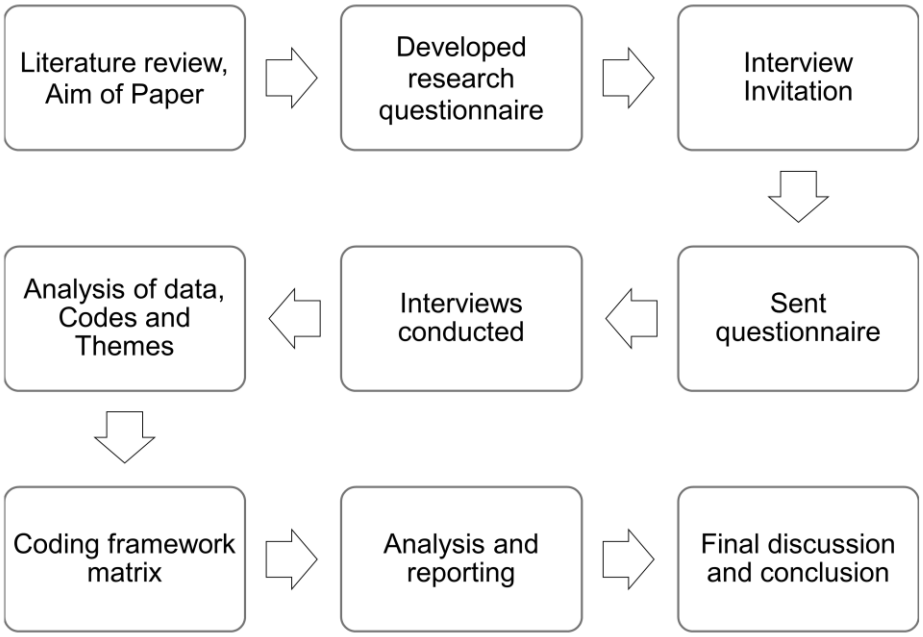

Fig. 1. Research Process

3.2 Methodology and data collection:

In the methodology section we discussed the research paradigm which we used for this study. The suggested research onion model created by Saunders provides a clear illustration of the various processes required in our research process. Research technique will follow a methodical, logical, step-by-step strategy that proceeds from the outer to the inner layer (Saunders et al., 2019).

In our case Inductive technique was most appropriate, since it is qualitative research conducted under the Interpretivism research philosophy (Thomas, 2006). For the second layer, this research utilized the Inductive technique and for the third layer 'Mono method Qualitative' approach was utilized. This approach involved solely relying on interviews conducted with different stakeholders as the primary source of data for analysis. It is important to highlight that in the third layer, the interview questionnaire was created by the authors of this study using the empirical data collected during the literature review. Subsequently, the interviews were done independently, and the modified interview transcript served as the major data source for this research.

The fourth layer discussed the employed research approach, which is a 'Case Study'. This strategy was chosen due to the tiny sample size, consisting of a single case. Utilizing a single case allowed for a comprehensive and detailed investigation of a specific event, as opposed to making broader generalizations. The fifth layer discussed that the

duration of time, and the considerations are cross-sectional, meaning that the interview information is provided as of the date of the interview. In the final layer, the topic of data analysis was addressed, specifically focusing on the application of Thematic Analysis for this qualitative investigation.

3.3 Empirical Case Selection:

In this study, we used information-oriented selection strategy that allowed to obtain data from a limited number of carefully selected cases (Flyvbjerg, 2006). This approach was applied to give qualitative and valuable insights to analyze the nature of university-company partnership in capability development. Based on the objectives of the current study, we found Critical Case approach to be the most appropriate (Flyvbjerg, 2006). The selected stakeholders were diverse and covered individuals from various sectors in academia, industry, and other professional organizations. They presented different perspectives of the cooperative processes involved in organizational capability development. Our goals were to achieve comprehensive insights that allowed making logical conclusions about the generalizability of the findings in related settings. In doing so, this approach was well-suited to addressing our objective of tailored educational curriculum to better address industry-specific needs and support long-term partnerships.

For this research, we had selected four key stakeholders from Finland:

- Master's Programme at Finland University X: This master's degree offer specialization in "Innovation and Logistics" and is a center point of our case study. This programme is being offered at Leading University in Finland which is the world´s top 15th university for sustainable consumption and production and is among the world's top 11 small universities.
- Company A: A worldwide company specialized in offering technologies, automation, and services for the pulp, paper, and energy sectors. Its presence brought a viewpoint of a major industrial corporations that are involved in partnerships with educational institutions.
- Company B: An organization of regional development and innovation. Its participation gave geographic perspective and elucidated the position of the middleman organizations in the university-industry cooperation.
- Association C: The Finnish Association of Purchasing and Logistics, which is actively involved in bridging academia and industry through conventions; workshops; and networking. It has over 4000 individual members and over 300 corporate members. Its angle of view was valuable for revealing the overall professional and organizational contexts in which these partnerships occur.

Table 1 Informants

Informants	Current Role in Organization	Current role in the collaboration network	Total Experience
Informant 1	Post Doctoral Researcher	Course Lecturer	10 years

Informant 2	Communication and Marketing Manager	Main Contact / Coordinator in the Organization	18 years
Informant 3	Executive Director	Main contact person in Association	25 years
Informant 4	Project Management, Funding Applications, University Collaboration, and Teaching & Development	Programme Coordinator	3 Years
Informant 5	Sourcing Engineer	Main contact member in company and board member in association	7 years

4 Analysis and Results

After collecting primary qualitative data from respondents, we derived themes and codes as shown below:

Table 2 Themes and codes applied

No	Themes	Codes
1	Nature of current collaborations	1. Limited Effectiveness in terms of current course 2. Current successes 3. Improvement areas 4. Lacking big success
2	Role of Professional Associations	1. Facilitation 2. Support Functions 3. Resources Limitation 4. Long Term Engagement
3	Student Engagement and Benefits	1. Practical Experience 2. Skill Development 3. Gen Z preferences
4	Challenges in Collaboration	1. Communication Gaps 2. Resources Constraints 3. Misalignment of Goals 4. Consistency in guidance
5	Opportunities for Improvement	1. Tailored Programmes 2. Long term sustainability 3. Curriculum Integration
6	Contribution to SDGs	1. Alignment with SDGs 2. Support from Collaboration 3. Strategic Importance
7	Addressing Generational Gaps	1. Diverse work preferences 2. Integration Strategies 3. Organizational Adaptation.

4.1 Nature of current collaborations

Current university-industry partnerships and particularly under studied International Master's programme have demonstrated a moderate success. Respondents also stated that these collaborations have offered practical learning opportunities for their students and valuable industry connections. Focusing on the case study and project courses one participant pointed out that these courses help in solving real world challenges of industry. Despite this, there are many possibilities for expansion and the improvement of future cooperative initiatives, which are already evidenced by numerous ongoing cooperative projects, including those funded by the EU. Given these first experiences, further development and enhancement of such partnerships offer great promise for increasing organizational capabilities and for meeting sector-specific needs more adequately.

4.2 Role of Professional Associations

Professional associations can play a very important role in form of bridging the gap between academia and industry, however there are certain challenges they face. Some of them we found are the resource limitations in terms of staff, time, and money and prioritization issues. Another issue is the extensive list of activities in their agendas which hinder the effectiveness of these associations for such kinds of collaborations. These associations can play their role in networking, serve support functions, and ensure that the academic programmes offered match the job market needs. One of the respondents had the vision about the professional associations to become the service or platform models, giving the continuous support to the academic – industry collaborations. This highlights the important but limited role that these professional associations have in facilitating sustainable cooperation that can strengthen organizational capacity and address issues unique to different sectors.

4.3 Student Engagement and Benefits

Strategic collaborations between Universities and Industries provide numerous advantages aimed at the enhancement of students' effective learning within academic and professional context to meet evolving needs of modern industries. Many of related initiatives, especially the case studies and project courses, are beneficial to the students as they offer a chance to solve industry specific challenges but there is a further need of improvement. During the interview, some of the participants addressed the needs of the students of Generation Z, whose work attitudes and requirements are different and should be incorporated into the programmes. Thus, involving students into collaborative projects and asking their opinions, organizations can better align their goals and initiatives with the preferences of younger students. This engagement is critical in availing students for the future roles and ensuring that they have gained adequate skills and experience, which will incrementally develop the organizational capabilities especially in the light of digital and green transformations.

4.4 Challenges in Collaboration

This paper identifies some key challenges that affect the university-industry collaboration and hampers their capacity to improve organizational capabilities. These challenges include lack of effective communication, as it results in misunderstandings and misaligned expectations and resource constraints to support collaborative initiatives. The problem of misalignment of goals and objectives of academic institutions and industries is another major challenge, which results in ineffective partnerships. Survey respondents pointed out that students enrolled in project-based learning require more consistent and structured guidance from industry professionals and lack of this approach causes a time loss of all stakeholders which ultimately affects these partnerships. To sum up, these challenges should be solved with the help of better communication, optimal distribution of resources, and the desired objectives alignment for creating the effective and lasting partnerships that will enable organizational capabilities building.

4.5 Opportunities for Improvement

Opportunities for enhancing university-association-industry collaborations lie in strategies such as customizing the programmes, achieving appropriate longevity of their sustainability, and incorporating these collaboration efforts into curricula. All stakeholders should be adaptable to achieve long term sustainability in their partnerships. Programmes designed to meet specific industry requirements could enhance the effectiveness of such collaborative efforts. Through a process of curriculum mapping and by developing specific interdisciplinary internship courses that incorporate the partnerships with the professional associations, benefits for the students as well as the industry partners can be optimized. These opportunities demonstrate some of the possible ways of enhancing the development and sustainability of the university-industry relations, which would improve the organizational competencies to address the requirements of the technology and environmental shifts.

4.6 Contribution to SDGs

The respondents stressed that integrating business strategies with SDGs is one of the most important strategic priorities of organizations. An industry university partnership can contribute to the achievement of specific SDGs through specific intervention programmes or projects. One respondent mentioned that currently through this master's programme they are achieving Goal 4, Goal 7, and Goal 9 namely as Quality Education, Affordable and Clean Energy, and Industry, Innovation and Infrastructure. All interviewees had a unanimous view that sustainable development goals should be considered as central to the goals of cooperation, increasing its significance and applicability for the participants. This alignment also benefits global sustainability initiatives and enhances organizational capacities to address the dynamics of digital and green transitions.

4.7 Addressing Generational Gaps

One respondent stressed that addressing the expectations of different generations and diverse work preferences is essential for the success of such collaborative projects. The differences in work values of Generation Y and Generation Z require certain strategies to involve students in the development process and gather their feedback. Companies need to address new trends in the work environment, develop diverse and motivating work environments for the younger generations. Flexible workplaces that provide options for environments beyond the traditional corporate office can appeal to and foster Generation Z employees. According to one other view, some of the organizations are now getting adaptable and already started accommodating these differences. These strategies are important because they help to create a solid and effective collaborative atmosphere among the representatives of different generations and meet organizational capabilities needed in accordance with emerging requirements required for digital and green evolution.

5 Discussion and conclusions

This study is done to explore the opportunities and challenges in university-industry collaborations with professional associations as a major stakeholder between them in the context of developing organizational capability to address digital and green transformations. The findings of our research show the importance of these partnerships in developing practical and up-to-date skills among students, aligning curriculum development with industrial needs, and addressing generational differences in the workplace. However, there are numerous challenges that reduce the effectiveness of these collaborative measures which includes communication gaps, resource constraints, and misalignment of goals. Addressing these challenges through strategic communication, resource allocation, and alignment of goals can enhance the effectiveness of these partnerships, benefiting all stakeholders involved.

5.1 Scientific implications

This research contributes to the extant literature by showing that academic programmes can be made more relevant to the requirements of specific industries: by modifying curriculum and introducing practical value-added internships. This synergy is crucial for promoting creativity and creating the specific competencies that are needed for the industry today (Song et al., 2019; Kauppila et al., 2015). Based on the emphasis of the practical usage of academic findings, this research aligns with the concept of the significant contribution of universities to the formation of workforce competencies (Turunen, 2024).

This research is useful in providing insights on the prospects and difficulties of cooperation between universities and industries. It added some contribution to solve previously raised challenges including the lack of effective communication, inadequate resources, and mismatched goals (Nsanzumuhire and Groot, 2020; Pereira and Franco, 2022). The study also presents recommendations that can be implemented to enhance

the outcomes of future collaborations between education and business through strategies aimed at enhancing the alignment of the educational expectations with industry requirements and expectations. This aligns with the previous studies on the need for well-structured coordination in order to facilitate the sharing of knowledge and innovation (Leogrande and Nicassio, 2021; Komajda et al., 2012). To the current body of knowledge, the study brings additional perspective that reveals how generational differences affect collaboration. Evaluating motivational dissimilarities between Generation Y and Generation Z is essential for engaging young students in collaborative settings (Alp et al., 2020; Chillakuri, 2020). The results and suggestions by this study can be used as a starting point for future research that aims to build on these partnership approaches.

5.2 Managerial implications

From a managerial point of view, the study offers insights for both academic institutions and the industrial partners interested in collaboration. To improve effectiveness of collaborations, robust communication channels and alignment of goals between all stakeholders should be prioritized. This can be achieved by feedback mechanism and frequent communication to align educational outcomes with industry expectations.

In this ecosystem, professional associations are critically important. They can offer connections, materials, and services that help reduce the divide between academia and industrial practice. Managers should capitalize on these associations in order to ensure that academic programmes remain current and useful in the ever-evolving market place. Additionally, the study highlights the importance of considering intergenerational relations in the context of partnerships. The managers should ensure that he or she formulates policies and plans of working that accommodate the members of the Generation Z, making them to work under conditions that suit them. Not only it will help in attracting and retaining young talents, but it will also promote culture of innovation and learning in organizations.

5.3 Limitations and suggestion for further research

There are some limitations that need to be acknowledged in this study. First, the study was confined to a few companies, one association and was based on a specific master's programme. Thus, the results cannot be necessarily generalized to all other settings or educational fields. Future studies should preferably involve a larger number of participants across diverse geographical locations and incorporate several academic courses to improve the study's external validity. Secondly, the study had qualitative data from the interviews conducted on a few stakeholders only. Although this approach brought about richness to the study, further research could employ a comparative methodology that incorporates quantitative data to complement the qualitative results.

Lastly, the research uncovered various challenges and opportunities in University-Industry partnership but did not investigate the in-depth approaches to tackle these challenges. Rather the findings were limited to the data obtained from interviews. Future research should focus detailed practical strategies for bridging communication

breakdowns, limited availability of resources, and lack of purpose congruity. It should also explore the long-term impact of these collaborations on organizational capabilities and their contribution to sustainable development goals.

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