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University-Industry Linkage in Ethiopia: Practices, challenges, and prospects from a university perspective

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Abstract

This analysis examines how Ethiopian universities view and engage with University-Industry Linkage (UIL). Informed by the triple helix model of university, industry, and government cooperation, this research uses a phenomenological qualitative design, drawing on evidence from policy documents and in-depth interviews with UIL directors from seven public universities. The findings highlight a growing recognition among government officials and academic leaders regarding the critical roles UIL plays in national economic development. The results also indicate that in Ethiopia, the dynamic among the three main UILs resembles a "statist" approach, with the federal government taking a leading role in UIL. However, actual governmental influence over university-industry linkages is found to be weak. University-industry linkage in Ethiopia lacks clear accountability at both institutional and partnership levels. Key challenges include institutional culture, limited commitment to partnerships, lack of ownership in guiding linkages, inadequate organizational structure and leadership support, and a shortage of faculty with industry expertise. The study underscores universities' need to demonstrate their value as reliable partners in addressing industry challenges and promoting development. It also highlights the importance of close collaboration between industries and universities, emphasizing the need for industries to invest in cultivating highly skilled human resources. Moreover, industries must better recognize the impact of research and innovation on their productivity and competitiveness.

Keywords: *challenge, Ethiopia, practice, prospect, university-industry linkage*

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Introduction

The world economy is increasingly knowledge-based (Barkhordari et al., 2019; OECD, 2019; Outamha & Belhcen, 2020), and universities' contributions to a knowledge-based economy are well recognized (Pesole & Nepelski, 2016). Universities play a pivotal role in economic advancement, viewed from three distinct perspectives: (1) producing and accumulating human capital; (2) generating, disseminating, and applying knowledge; and (3) innovating and inventing new technology (Tan & French-Arnold, 2012). However, universities, particularly in Africa, often lack the capital, infrastructure, or expertise to fully realize the economic potential of their discoveries (Dzisah, 2011). Partnering with the private sector offers universities mutually beneficial opportunities to fully capitalize on knowledge transfer to the market. As a result, the phenomenon of university-industry linkage (UIL) has become an important national and institutional policy priority (Jonbekova et al., 2020) and a central agenda in higher education policymaking (Tumuti et al., 2013).

Likewise, partnering with universities offers benefits to the private sector. Global competition compels industries to seek partners that contribute to technological advancement, thereby enhancing productivity and competitiveness. Highly skilled human capital is central to innovation (Capozza & Divella, 2019), and of course, a central function of universities is to develop talented individuals for a wide range of professions (Gibbons & Johnston, 1974). As well, university faculty and academic staff are valuable sources of knowledge with potential for market applications (Costa & Teixeira, 2005). Universities are therefore widely recognized as central industry partners in knowledge generation and application (Etzkowitz & Dzisah, 2008; Ssebuwufu et al., 2012).

Numerous studies, including those by Esangbedo et al. (2024), underscore the importance of establishing strong partnerships between universities and industries. The rationale for engaging in UIL varies across regions, countries, and universities/industries. Universities are often motivated to secure research funding, facilitate technology transfer, gain access to proprietary technology, and gain exposure to practical problems (Jonbekova et al., 2020; Ssebuwufu et al., 2012). In addition, university students can benefit from UIL by gaining practical skills, improving professional networking, and enhancing employability (Jonbekova et al., 2020). UIL benefits faculty by creating opportunities for research funds and

access to technology, enhancing technical skills, improving the applicability of research, and increasing academic publications (Harman, 2010). It also contributes to identifying labor market needs and improving the relevance and quality of higher education and universities' research outputs and reputation (Jonbekova et al., 2020; Thune, 2011).

The main rationales for industry engagement in UIL include access to external knowledge and technologies (Cudic et al., 2022; Kleiner-Schaefer & Schaefer, 2022) and improvements in innovative activity, productivity, and competitiveness (Cudic et al., 2022; Hailu, 2024; Kleiner-Schaefer & Schaefer, 2022). Industries are interested in UIL initiatives that promise tangible impacts on their processes, products, and people (Pertuze et al., 2010). Despite shared gains and growing recognition of UIL's importance for achieving the missions of both universities and industry, many universities and industries continue to struggle to establish effective partnerships (de Wit-de Vries et al., 2019).

In Africa, the establishment of UIL is a relatively recent development (Ssebuwufu et al., 2012). Historically, universities have operated independently of industry, whereas industry relies heavily on foreign innovation and technology to remain productive and competitive in global markets (Outamha & Belhcen, 2020). In recent years, establishing partnerships with industry has become a priority for many African universities. Both governments and industries now anticipate that universities will address their needs for human capital (Nwagwu, 2008), technology transfer, research and development (R&D), and innovation (Tumuti et al., 2013). Accordingly, many African universities have made efforts to strengthen UIL but are challenged by different factors, including insufficient financial and human resources (Ssebuwufu et al., 2012), absence of supportive policies (Sá, 2015; Ssebuwufu et al., 2012), underdevelopment of the industry sector, attitudes of academics (Cloete et al., 2011), weak institutional capacity, absence of strong UIL leadership, industries' lack of confidence in universities, the cultural difference between higher education and private sector, and the nature and size of national economies and research infrastructures (Sá, 2015). Generally, compared to other regions, the UIL in Africa remains relatively weak (Degaga & Senapathy, 2021; Etzkowitz & Dzisah, 2008).

In Ethiopia, there have been several instances of universities collaborating with industry to address national and institutional needs, challenges, and problems. In most cases,

the collaborations were ad hoc. UIL was first included in the national policy agenda in 2005 as part of the federal government's engineering capacity-building program, which, among others, focuses on university reform and private-sector development. Since then, UIL has attracted government attention and is considered a mechanism for enhancing research and development activities, facilitating knowledge and technology transfer, and addressing the needs of industry and the nation at large. In recent years, the Ethiopian government has placed increasing importance on promoting UIL to drive economic growth (Tamrat, 2019), technological advancement, and sustainable development. Various national policies (e.g., the national science, technology, and innovation policy; the growth and transformation plan II; and the national science policy and strategy) have been introduced to encourage partnerships between universities and industries. In 2017, a deliverology strategy was adopted to improve higher education quality and graduate career readiness, further underscoring the priority for universities to directly engage with the private sector.

The Ethiopian government has assigned various ministries roles to support innovation and technology development through UIL. Proclamation No. 1097/2018 empowers the Ministry of Trade and Industry to develop policies on technology adoption and industrial development, focusing on best practices, technology transfer, and capacity building (Federal Democratic Republic of Ethiopia [FDRE], 2018). It also mandates the Ministry of Education (MoE) to foster linkages and coordination between HEIs and industry to support technology development (FDRE, 2018).

The Ministry of Science and Higher Education (MoSHE) has also endorsed a directive on research, technology transfer, UIL, and community service in HEIs that provides, among others, detailed guidance and approaches to UIL (MoSHE, 2019). Currently, each public university in Ethiopia has an office responsible for directing engagement with employers and industry; however, this role was established only within the past decade, and little is known about its responsibilities, priorities, and effectiveness. Studies indicate that, similar to most African countries, UIL is also in its infancy (Gashahun, 2020) and relatively weak in Ethiopia (Bareke, 2018; Degaga & Senapathy, 2021; Tamrat, 2019).

Despite Ethiopia's growing policy emphasis on promoting UIL, there has been limited empirical consideration of its implementation at the individual university level. As well,

UIL's practices and challenges are likely to vary across contexts due to economic, political, and social realities. Accordingly, this inquiry examines universities' perspectives on the practices and challenges of UIL in the Ethiopian context. The following basic questions guide the study: (i) How is UIL practice experienced in Ethiopia? (ii) What are the major challenges affecting the implementation of UIL, and (iii) what are the prospects of UIL in the foreseeable future?

Conceptual Framework

The study is grounded in the triple helix model, which argues that innovation and economic development are not attributable to market forces alone but result from ongoing interactions among universities, industry, and government (Etzkowitz & Leydesdorff, 1995). Academia contributes knowledge and research. Industry provides practical applications and resources. The government establishes a regulatory framework and may serve as a source of investment. The triple helix model premises that effective collaborations among these three entities contribute to a nation's economic and social progress (Dzisah & Etzkowitz, 2008). Therefore, building strong relationships across higher education, industry, and government is central to development.

More specifically, in the context of higher education, the triple helix model positions universities as active participants in discovery and human capital creation through research and teaching (Etzkowitz, 2008). Specific to scholarship, universities act as knowledge creation hubs, with faculty conducting basic as well as applied research to generate new ideas, technology, and processes. Ideally, in collaboration with private sector partners and with government support, university research findings are translated into practical applications, such as spin-off companies, licensing agreements, and other commercial ventures. The triple helix model also assumes that university leaders will work directly with national policymakers to promote academic research and development investments.

Several studies of cross-sector collaborative research from around the world demonstrate its potential private sector value. In the United States, a longitudinal analysis found that coordinated university and industry R&D spending positively affected the establishment and longevity of small businesses. However, when these investments are

piecemeal and U.S. state and federal governments separate their higher education R&D policies from those designed to support industry R&D, firms are more likely to fail (Kim et al., 2012). Similar findings, emphasizing the effectiveness of tripart industry-university-government R&D collaboration over isolated R&D initiatives, have been documented in other nations, including Spain (Hernández-Trasobares & Murillo-Luna, 2020), China (Zhou & Wang, 2023), and rural Portugal (Sa et al., 2019).

The triple helix framework also recognizes the teaching function of higher education. Universities develop human capital and prepare a skilled workforce that becomes a valuable asset for the private sector (Etzkowitz, 2008). Collaboration with industry is crucial to aligning academic programs with the evolving needs of the job market (Bermejo et al., 2022). By engaging private sector partners in research projects, internships, and cooperative programs, universities can gain valuable insights into industry requirements. Faculty can then design learning experiences that incorporate real-world problem solving, entrepreneurship, and industry-relevant needs, ensuring that students' skills are optimally aligned with the current employment landscape.

The triple helix model positions governments as primarily responsible for aligning educational initiatives with broader economic and societal goals (Etzkowitz, 2008). They set up the conditions for collaboration, rather than strictly mandating or managing cross-sector relationships. This allows UIL to be defined and driven by university and industry experts, as well as market demand, rather than politicians. Government support can be facilitative (e.g., funding for research projects, infrastructure investments) or more regulatory in nature (e.g., policies to incentivize collaboration, entrepreneurship).

The triple helix model originated from observations and trends in the Global North. Its relevance to African nations is contested due to distinctive socioeconomic, political, and cultural factors. For instance, a study in Zambia observed that "the triple helix model may not seem applicable in poor countries because universities are too 'academic,' industries too 'weak' and government too 'rigid' to play their respective roles in the model" (Konde, 2004, p. 441). As well, many African countries have inadequate infrastructure and political instability. The continent's universities often face resource constraints in providing the types of modern facilities needed for innovative research. However, while these issues may create

challenges, there is growing awareness of the potential for adapting triple helix concepts in African countries, including Ethiopia.

The triple helix model is inherently context dependent. The roles and relative influence of universities, industry, and government vary considerably across national systems. In Africa, particularly in Ethiopia, the functioning of the triple helix differs from the model's original assumptions, which were developed from observations in advanced free-market economies. In Ethiopia, the federal government plays a central role in the higher education system. Public universities are almost entirely financed by the government. Their governance structures, curricular offerings, and performance priorities are largely shaped by national policies. As a result, universities operate with less autonomy compared to their counterparts in more market-oriented economies. It stands to reason that within this context, the government would not only facilitate or regulate, as assumed in the classical triple helix framework, but would also be more directly involved in coordinating and mediating activities.

Given these structural realities, the triple helix model in Ethiopia likely operates less as a balanced, interactive system and more as a state-steered configuration, in which the government plays a disproportionate role. This study, therefore, adopts the triple helix framework as a context-sensitive analytical lens rather than a prescriptive model.

Methods

This study used a phenomenological research design. Phenomenology is a descriptive method that focuses on how individuals experience and make sense of the context in which they are situated. Phenomenology recognizes knowledge as co-constructed and socially mediated, intentionally centering subjectivity as a fundamental epistemological component of understanding lived experience rather than treating it as a limitation (Bantugan, 2025). According to Eddles-Hirsch (2015), "the focus, then, in this type of research, is not on the participants themselves or the world that they inhabit, but rather on the meaning or essence of the interrelationship between the two" (251). Given that context is so central to a phenomenological study, results from such inquiries offer insights that may be relevant to similar higher education settings through analytic transferability rather than statistical

inference (Lincoln & Guba, 1985). Transferability enables an audience to determine the applicability of the findings beyond the original context (Elo et al., 2014; Stalmeijer et al., 2024).

This study was part of a broader initiative designed to enhance Ethiopian youth employability, which involved seven public universities (Addis Ababa University, Adama Science and Technology University, Bahir Dar University, Dire Dawa University, Jigjiga University, and Wollo University) and worked closely with each institution's UIL directors. A key source of data for this analysis was interviews with these UIL directors based on their lived experiences. Consistent with a phenomenological design, their experiences are embedded within the Ethiopian public university and policy contexts, allowing for analytical insights into broader systemic dynamics. A key source of data were federal policy documents, including the Higher Education Proclamation (FDRE, 2019), the Education Development Road Map (MoE, 2018), the National Science Policy and Strategy (MoSHE, 2020), the Directive on Research, Technology Transfer, UIL, and Community Service in HEIs (MoSHE, 2019), and the Higher Education, Technical and Vocational Training and Research Institutions, and Industry Linkage Proclamation (HERTIL) (FDRE, 2023), which offer key insight into UIL in Ethiopia and the government's role.

The lead author interviewed seven UIL directors. The semi-structured in-depth interviews lasted between 35 and 60 minutes, depending on the directors' experience, interest, and capacity to explain issues in detail. Based on the analysis of relevant literature and the objective of the study, an interview guide was developed. The interview guide consisted of major topics, including (i) the objective of the UIL, (ii) the nature of the partnership with industries, (iii) the benefits and costs of the partnership, (iv) enabling factors, and (v) barriers to developing and implementing effective UIL. To protect the confidentiality of study participants and their institutions, we assigned each participant a letter and number with no discernible association with the person or institution (e.g., D1). All interviews were conducted in Amharic and subsequently translated and transcribed into English.

Reflexive thematic analysis is a useful approach for understanding people's experiences, views, opinions, and perceptions (Braun & Clarke, 2019; Terry & Hayfield, 2020). Accordingly, we employed reflexive thematic analysis to explore directors'

perceptions, views, and experiences regarding UIL in Ethiopia. We used inductive and deductive thematic analysis. Policy documents were also analyzed to triangulate and validate UIL directors' perspectives against relevant policies and contextual factors affecting their work.

Results

The study's findings are organized into three sub-sections aligned with the research questions. The first sub-section discusses themes related to the practices, structures, and systems of UIL in Ethiopian universities. The second sub-section presents the challenges of establishing and implementing partnerships between higher education and the private sector. The final sub-section focuses on the prospects of UIL in Ethiopia.

Practices, Structures, and Systems

Policies and strategies

There have been UIL components in HEIs in Ethiopia since their establishment. However, it was often on an ad-hoc basis and not well-planned. Document review indicated that UIL has received increased attention among public universities in the last ten years. Currently, all public universities have an office responsible for UIL, and its presence is essential but not sufficient to promote and facilitate UIL within the university and beyond. UIL requires policy interventions (Morrisson & Pattinson, 2020) that promote its opportunities and strategically address challenges faced by universities (e.g., funds) and industries (e.g., incentives) in collaborating for mutual and national benefits.

Several national policy documents underscore the importance of UIL. The Growth and Transformation Plan II (2015/16–2019/20) calls for creating favorable conditions to promote and strengthen UIL (National Plan Commission, 2016). The Higher Education Proclamation mandates that HEIs in Ethiopia establish and maintain partnerships with industry (FDRE, 2019). Similarly, the National Science Policy and Strategy highlights the need to strengthen research linkages and foster an environment in which industry can utilize research outputs, with the Ministry facilitating such collaborations (MoSHE, 2020).

In 2019 MoSHE also developed the directive on research, technology transfer, university-industry linkage, and community services for HEIs, among others, to "put in place

a system that develops partnership and collaboration between HEIs and industries that would enhance their capacity and help to solve basic problems of industries; and …address and solve community problems thereby enhancing national development" (MoSHE, 2019, p. 1). Participants pointed out that the directive is important but does not sufficiently "explain what kind of benefit industries are going to get by being involved in UIL in comparison with others who don't" (Int. 1); and "it is not binding and for example, industries can refuse to accept students for internships" (Int. 3). It mainly emphasizes the need for establishing a partnership with industries and a working team that facilitates UIL.

Participants acknowledged the importance of including UIL in higher education policy documents, but argued that there is a lack of national policy that compels universities and industries to collaborate toward a common goal. As some of the participants said, "There is no nationwide law or directive that paves the way for University-Industry Linkage, [and] not having a legal framework is one thing that made UILs weak" (Int. 6); "There are policies and directives, but they lack a law that is binding and could enforce industries. (Int. 3)." This significantly affected the practice of UIL in the country. A study also indicated that no strategies facilitate the implementation of UIL-related policy provisions (Degaga & Senapathy, 2021). Insufficient policy enforcement appears to have shaped the industry's perception of UIL as a voluntary undertaking.

The HERTIL Proclamation explicitly outlines the roles and responsibilities associated with UIL. However, it was endorsed after data collection for this study occurred, meaning participants were unable to consider it when providing their responses. Additionally, the proclamation's weak implementation has further reinforced the perception that UIL remains an optional activity in practice.

Partnership establishment

University-industry partnerships can be initiated by either side, with industries or universities seeking collaboration on research or training (Etzkowitz & Dzisah, 2008). Participants noted instances in Ethiopia in which industry approaches universities to address challenges, but the private sector rarely pursues long-term partnerships.

Participants also noted that universities often take the initiative to establish partnerships with industry. "In the last two years, we have started going to them [industries]

ourselves, pushing policies, making requests, and signing MoUs. You can almost call it begging" (Int. 4); "It [partnership] is a two-way thing; it should be expected of both of us. Until now, there is nothing that has come from their [industries]side. (Int. 5)". One participant indicated this is because universities have an institutional obligation to engage in UIL: "there seems to be recognition not only from the higher education sector but also from the private sector that the initiative for partnership should come from the university" (Sa, 2015).

Another key theme was the industry's limited interest in collaborating with universities, partly due to skepticism about the return on investment in technology and innovation. Similar findings from Rwanda indicate that industries place little value on such partnerships (Nsanzumuhire et al., 2023). Participants also noted that universities lack clear strategies to foster collaboration, although UIL directors agreed that universities show greater interest in these partnerships than industry.

Linkage drivers and focus

In Ethiopia, the primary motivations for universities to establish partnerships with industries include access to facilities essential for practical education and research that are not available within universities, providing students with opportunities to gain work experience through internships, and undertaking research and community services. Participants also shared why Ethiopian higher education is motivated to engage with industry.

> The first thing that drives us is that the university lacks sufficient workshops to provide practical education. ...The primary reason for linking with the industry is to expose our students to real-world, practical experience in subjects that require hands-on application. …The other reason is that there are areas that require our joint efforts in research and community service. (Int. 3)

> From the university's perspective, its [linkage] purpose is for our students to have practical internship experience and work there, to enable our teachers to have a practical experience there, to share those resources which are not available in our institution. …Sharing resources, conducting problem-solving [research], and doing community services are the main purposes. (Int. 1)

> The main thing we want from partnerships is to provide our students with better knowledge and technical skills. (Int. 5)

Research participants were not certain about industries' motivations to link with universities, but they presumed the following:

> What the industries want is for their problems to be solved. It could be a technical problem, a consultancy service, or even material support, which is available in our institution but they don't have. They may come seeking these. (Int. 1)

> If the industry provides some work for another client, the prices would be six, seven, eight, or even nine times higher. The partnership [with universities] helps them obtain high-quality work at minimal cost. (Int. 4)

These excerpts suggest that the primary drivers for industries are the need for solutions to problems and the provision of inexpensive yet high-quality services.

Universities and industries may collaborate in different areas, including research and development, consultancy, capacity development, business services, and incubation (Costa & Teixeira, 2005), and internships (Franco et al., 2019), but UIL's specific focus varies depending on institutional and national contexts. In this analysis, internships, research, training, consultancy, externship, and technology transfer all emerged as linkages between Ethiopian universities and the private sector. Although research participants did not agree on all priorities, they agreed that internships are the main current UIL activity in Ethiopia. This finding is consistent with studies that have highlighted internship as one of the three main UIL focus areas, alongside training (Yilma & Alemu, 2018) and sponsored research work (Gashahun, 2020). Participants noted that student internships are part of the curriculum in most academic programs and are mandatory. This implies that, unlike other focus areas (e.g., research and consultancy), an internship is a must for universities to establish partnerships with industry, irrespective of its quality or outcome. Participants gave less emphasis to other focus areas where their universities might benefit from partnering with the private sector to improve problem-solving, innovation, and economic development.

Role of government

The triple helix model highlights the government's role in supporting university-industry linkages (UIL) through policy frameworks. While Ethiopia has issued several policies promoting UIL in the past five years, participants felt that government efforts to ensure effective implementation remain inadequate. Regarding this research, participants said, “No, it is not enough. Not only is it inadequate, but also in my opinion, the government is not engaged at all” (Int. 5); “It doesn’t have any [role]. The partnership is based on the willingness of the two [i.e., universities and industries]” (Int. 1). The participants explained this is because the government funds public universities, and the budget they have for linkage activities is very small. Moreover, they expected the government to intervene and force industries to engage in UIL activities, which has not historically been the case.

Enabling factors

Institutional policies, dedicated UIL offices in public universities, and incubation centers were seen as key enablers of UIL. Participants also viewed the growing number of industries and the development of industrial parks in Ethiopia as favorable conditions for such partnerships. In the words of one director:

> An increasing number of industries seek professional support to address their problems, enabling them to remain competitive. For me, this represents an enabling environment and an opportunity.

The Ethiopian government has developed industrial parks, among other initiatives, to enhance the sustainability and resilience of economic growth, increase the contribution of manufacturing to the national economy, and stimulate stagnant exports and foreign direct investment (Zhang et al., 2018). There are universities located near each industrial park, which, as indicated by the research participants, provide multifaceted opportunities for both industries and universities. The endorsement of the HERTIL Proclamation is also a significant enabling factor that facilitates the implementation of UIL activities by bringing responsible stakeholders on board with clear powers, responsibilities, and incentives. Previous studies have also shown that the availability of national and institutional policies

and strategies on UIL (Ssebuwufu et al., 2012) and government support, such as tax incentives, are factors that promote effective UIL.

Challenges

Institutional culture

In Ethiopian academia, there is a presumption that universities are the sole source of knowledge and that industries are always on the receiving end. According to participants, industry representatives also underestimate the knowledge available at universities and belittle the support they receive. This result is consistent with a study that identified universities' perceived knowledge production capacity as a major limiting factor for UIL in Algeria (Saad et al., 2021). In the case of Ethiopia, as one of the participants indicated, this could be because "universities often provide free service to industries without the industry asking for their [universities] help. They think we are cheap" (Int. 7). Another participant shared, "If you develop software and give them, they think it is very simple. They don't understand how hard you worked" (Int. 1).

Commitment and interest

Stakeholders' commitment and genuine participation are imperative for the success of partnerships (Abate & Adamu, 2022). Although the degree varies, the findings suggest a clear lack of commitment among government, industries, and universities to ensure the effective implementation of UIL. The UIL offices at universities lack adequate facilities, human and financial resources, and the capacity to conduct various UIL activities. Participants indicated that the situation is even worse in the industries. They do not have a unit responsible for research and development that undertakes UIL activities. Previous studies also indicated that most industries operate with minimal or no formal R&D (Kahsay, 2017; Keraga & Araya, 2023; Selam, 2022). Most also lack experts or a budget for research and development, and they do not share their facilities for research and practical work.

Although the government of Ethiopia has emphasized the importance of UIL in various policy documents, the MoE, responsible for overseeing UIL implementation, has an unsatisfactory commitment to implementing and monitoring UIL activities. Participants noted

that government commitment is more important than that of higher education or the private sector, as it has the authority to enforce agreements between the parties.

Industries' lack of interest in partnerships may be related to their attitudes toward UIL. As participants noted, industries do not believe they would benefit from collaborating with higher education. They consider UIL as a platform that benefits universities and is a burden:

> They don't think they will benefit from it; rather, they think they are losing. This is another challenge, and I think this is a problem of awareness. … They keep moving in their own usual way and don't think they could add value through research and consultancy. These are problems from the industry side. (Int. 2)

> They see it as a burden, by the way. For instance, when you send students, they consider them as a burden. (Int. 1)

Ownership, structure, and leadership

The federal policies and directives analyzed here did not clearly describe the roles and responsibilities of each stakeholder in the partnerships. This also emerged as one of the key challenges experienced by office leaders at UIL. As a participant mentioned:

> Firstly, the ownership of the University-Industry Linkage is unknown. Is it the Ministry of Education, the Ministry of Industry, the Ministry of Innovation and Technology? Or if it's all three of them, do they have a forum? …It should have not only the structure but an owner as well. Secondly, the University and Industry should also have a sense of ownership. (Int. 6)

Previous studies conducted both in Ethiopia and elsewhere also indicated that a lack of clarity about the roles and responsibilities of each stakeholder in different partnerships led to a lack of ownership and accountability (Sloper, 2004). As indicated earlier, the HERTIL Proclamation on UIL has clearly addressed issues related to roles and responsibilities, but its feasibility and impact are still to be determined.

An organizational structure is crucial for establishing effective work relationships and facilitating efficient decision-making. Some universities lack a clear UIL structure that outlines their horizontal and vertical relationships with other directorates and colleges. This is identified as a challenge to establishing smooth internal communication and collaboration.

> "We do not have enough experts to engage in different UIL activities. At the college level, there is an associate dean for research, technology transfer, and community engagement who is answerable to the college dean, not the University UIL director. It is not structured in a way that it will have at least some functional relationship with our [UIL director] office. (Int. 7)

Leadership buy-in and support are also very crucial for implementing policies and guidelines, allocating resources, and fostering a culture conducive to partnership between universities and industry. Both academic and industry leadership are important to enhance UIL (Awasthy et al., 2020). However, some of the university leaders "do not have a positive mindset and do not believe in our capacity to engage in UIL activities and contribute to the national development and achieve our missions" (Int.7). They also lack "enough knowledge about UIL and are not supportive" (Int.6). This resonates with a previous study in Ethiopia which indicated a lack of adequate support and commitment from both academic and industry leadership (Bareke, 2018). Other studies also mentioned that it is challenging to run a successful partnership unless leaders have a collaborative mindset (Sullivan et al., 2012) and feel responsible and accountable for their poor leadership (Abate & Adamu, 2021).

Expertise and industry type

Establishing and sustaining successful collaborations with industry is not easy for universities, as industrial partners face several considerations when forming partnerships with universities, including academics' skills and expertise (Barbolla & Corredera, 2009). Therefore, universities need to have academics with expertise in both industry and academia, and potentially maintain industry networks to facilitate collaboration, thereby contributing to effective UIL. However, in most Ethiopian universities, there is a shortage of academics with industry experience and expertise. Research participants also acknowledged this limitation:

> Only a few staff are interested [in UIL activities]. Because some of them lack experience. They don't know the industry well. They don't have industry exposure. (Int. 4)

> Staff do not have industry exposure, or they haven't worked in industries. That by itself is a big problem. …They don't know the industry, and you have to know the industry's language if you want to work and collaborate with them. (Int. 7)

The education development roadmap study also identified the low potential of universities to address industry problems (MoE, 2018). This is attributed to the shortage of highly qualified experts who are involved in research and innovation. The number of PhD holders in Ethiopian public universities is 14% (MoSHE, 2021), which is far lower compared to other countries – 34% in Kenya, 46% in South Africa, and 90% in Nigeria.

Participants indicated that the absence of technology-intensive large industries is one of the reasons universities in Ethiopia establish meaningful partnerships with industries. However, a study conducted in Europe that focuses on European Commission-funded research projects indicated that the "collaboration between universities and SMEs delivers the largest share of innovations with high potential and seems to be more fruitful than the collaboration between universities and large firms" (Pesole & Nepelski, 2016, p. 48). Another study also suggested that it is beneficial to initiate partnerships with smaller projects, such as internships, which is a common practice in Ethiopia's UIL, to gain experience in partnership development and assess partners' capabilities (de Wit et al., 2019). However, universities have faced immense challenges in internships as well because many industries are not willing to accept students for internships. The Education Development Road Map also indicated that students did not have sufficient exposure to the world of work because of inadequate UIL (MoE, 2018).

What makes the internship case worse is the lack of adequate industries in cities where some of the universities are located. Regarding this, a participant said, "Currently, it is very challenging to find industries for student internships because the number of students is increasing while the number of industries is limited" (Int. 4).

Participants also indicated that most industries, particularly those owned by private or foreign entities, are not interested in a partnership. Regarding this, a research participant said:

> Industries owned by foreigners are not interested in partnering with universities. When we go to industry zones to discuss and establish partnerships with them, they are not interested. …They are working only to make a profit, and they don't think about their social responsibility or working in collaboration. They can fix problems on their own. That is how they feel. (Int. 1)

This could also be associated with industries' attitudes towards local universities' knowledge and capacity.

Prospects

Ethiopian universities are engaged in producing skilled human resources, generating new knowledge, and promoting community development through their teaching, research, and community outreach initiatives, respectively. Community outreach, referred to as the third mission, requires universities to think and act more entrepreneurially (Morisson & Pattinson, 2020) to become impactful in the process of community and national development. UIL could be one of the strategies in this regard, and the new HERTIL proclamation serves as a cornerstone for effective partnership between stakeholders to ensure the implementation of UIL.

The differentiation of universities encourages them to collaborate closely with industries. Particularly, UIL is at the center of the core mission and activities of the University of Applied Sciences (UAS). Moreover, at least 5% of the UAS teaching staff should have industry/business experience. Therefore, UAS leadership will strengthen its support for its UIL offices, which play a significant role in achieving its mission.

The HERTIL proclamation could address key UIL challenges by defining stakeholder roles and providing incentives for HEIs, industries, and researchers. It also establishes a Linkage Council to oversee activities involving members from HEIs, TVETs, research institutions, industries, and government (FDRE, 2023). This study urges the government to ratify a policy enforcing active stakeholder engagement, with the proclamation being a

suitable step. However, externally imposed partnerships often lead to low participation and weak commitment, as shown in past studies (Lasker et al., 2001).

UIL would be one strategy for income generation and investment attraction, as supported by policies. For example, the education sector development considers UIL as one of the strategies for increasing foreign direct investments (MoE, 2015). The education development roadmap also proposes that universities strengthen their UIL and use it as a means of institutional funding sources (MoE, 2018). Regarding this, a research participant also said, "UIL would be a main source of income for universities if they assign the right personnel and budget and provide". (Int. 7)

Conclusion and Implications

Around the world, policymakers and scholars increasingly recognize UIL's key role in national economic development and industry challenges. In Ethiopia, the relationship among government, universities, and industry in Ethiopia is characterized by a statist triple helix typology, in which the government plays the lead role in UIL, a model that has been found in other contexts to limit the capacity of universities and industries to initiate and develop innovative transformations through UIL (Ranga & Etzkowitz, 2013). However, despite the government's ostensible lead role in Ethiopia, the findings here suggest that in reality, the government's role in steering UIL is weak. The partnership between universities and industry in Ethiopia is often initiated by universities and pursued voluntarily, without clear accountability at both the institutional and partnership levels. While specific experiences can vary from university to university, internships are the primary focus area of UIL nationwide.

This study also offers valuable insights into several major challenges facing UIL in Ethiopia. The institutional cultures of universities and industry mutually devalue the potential of one another. Commitment to UIL is inadequate across all three components of the triple helix: UIL offices at universities dedicate minimal resources, most industries operate without formal R&D units, and the Ministry of Education has failed to effectively monitor and enforce UIL implementation. Nor has the government assigned clear responsibility for UIL to a specific ministry. Similarly, universities lack coherent UIL structures and supportive leadership. A final challenge is that most academic staff have minimal industry experience,

which limits their ability to identify partnership opportunities, conduct relevant research, and teach with practice-oriented pedagogies.

Regarding the prospects for UIL in the foreseeable future, this study suggests that the private sector's lack of interest is partly due to limitations on the university's side. Industries may be interested in collaborating with universities to support practical teaching, but teaching at Ethiopian universities remains predominantly lecture-based, with limited emphasis on applied learning. As well, research conducted by Ethiopian faculty is not typically focused on industry needs or problems. When it is, scholars focus on publishing in academic outlets and do not share findings directly with relevant industries. This is a lost opportunity to demonstrate the potential value of future partnerships. Ethiopian universities also lack academic staff with private-sector experience who could, in turn, help establish a culture of collaboration and encourage stronger relationships with industry through their networks.

Government support is crucial for UIL's success (Muscio & Vallanti, 2014) in countries like Ethiopia, where public universities and many industries are state-funded. After this study's data collection was complete, the government endorsed the HERTIL proclamation (FDRE, 2023). The proclamation contributes to institutionalizing robust UIL, as a legal body (i.e., the MoE) is assigned to coordinate partnerships among government, universities, and industry. However, the HERTIL proclamation requires universities and industries to allocate budgets for UIL but does not specify the amount. In practice, universities provide minimal funding, and industries may contribute only to meet formal requirements, limiting effective implementation. This highlights the need for the Linkage Council to focus on awareness, motivation, and adequate funding. An intermediary body, such as a UIL office, is also essential for bridging gaps and demonstrating the benefits of UIL (Alexander et al., 2022). However, based on current practices, one could argue that UIL in Ethiopia is still in its infancy, ineffective, and far from achieving its primary objectives - fostering knowledge exchange, innovation, and economic development.

Limitations

This study has limitations that should be considered when interpreting the findings. First, primary data were collected from UIL directors and relevant policy documents only. The perspectives of industry partners, government officials, academic staff, and students were

not directly captured. As a result, the findings may only reflect the institutional and managerial viewpoint of universities, rather than the full range of interactions among all triple helix actors. The exclusion of industry and government actors limits the study's ability to fully assess the dynamics, expectations, and challenges experienced from the industry side of UIL. Similarly, the absence of faculty and student perspectives limits insight into individual-level engagement, knowledge transfer, and the experiential learning processes associated with effective UIL implementation in other contexts. Despite these limitations, the study identifies key institutional and policy dimensions of UIL in Ethiopia. It also contributes to the literature by highlighting systemic challenges and opportunities from the perspective of an African university.

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No potential conflict of interest was reported by the authors.

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References

Abate, S. G. & Adamu, A. Y. (2021). Factors affecting intersectoral collaboration in the provision of adult education in Ethiopia. *Studies in the Education of Adults, 53*(1), 42–60. https://doi.org/10.1080/02660830.2021.1874707

Abate, S. G. & Adamu, A. Y. (2022). Stakeholders' participation in adult education programme development in Ethiopia. *International Journal of Lifelong Education, 41*(3), 257–276. https://doi.org/10.1080/02601370.2022.2052990

Alexandre, F., Costa, H., Faria, A. P., & Portela, M. (2022). Enhancing university–industry collaboration: The role of intermediary organizations. *The Journal of Technology Transfer,* 47(5), 1584–1611. https://doi.org/10.1007/s10961-021-09889-8

Bantugan, B. (2025). Qualitative mindset behind phenomenology: Implications to qualitative research training. *International Journal of Research and Innovation in Social Science, 9*(4), 4627-4641. https://dx.doi.org/10.47772/IJRISS.2025.90400331

Barbolla, A. M. B., & Corredera, J. R. C. (2009). Critical factors for success in university–industry research projects. *Technology Analysis & Strategic Management*, *21*(5), 599–616. https://doi.org/10.1080/09537320902969133

Bareke M. L. (2018). *Managing university-industry linkage in government universities of Ethiopia: Challenges and opportunities*. [Doctoral Dissertation, University of South Africa].

Barkhordari, S., Fattahi, M. & Azimi, N. A. (2019). The Impact of Knowledge-Based Economy on Growth Performance: Evidence from MENA Countries." *Journal of Knowledge Economy,* 10: 1168–1182. https://doi.org/10.1007/s13132-018-0522-4

Bermejo, V. M., Eynian, M., Malmsköld, L., & Scotti, A. (2022). University-industry collaboration in curriculum design and delivery: A model and its application in manufacturing engineering courses. *Industry and Higher Education, 36*(5), 615–622. https://doi.org/10.1177/095042222110642

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health, 11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Cloete, N., Bailey, T., Pillay, P., Bunting, I., & Maassen, P. (2011). *Universities and economic development in Africa*. Centre for Higher Education Transformation.

Costa, J. & Teixeira, A.A. (2005). Universities as sources of knowledge for innovation: The case of technology-intensive firms in Portugal. FEP Working Papers 181. https://files.eric.ed.gov/fulltext/EJ1199154.pdf

Cudic, B., Alesnik, P., & Hazemali, D. (2022). Factors impacting university-industry collaboration in European countries. *Journal of Innovation and Entrepreneurship, 11*(33), 1-24.

de Wit-de Vries E., Dolfsma, W. A., van der Windt, H. J. & Gerkema, M. P. (2019). Knowledge transfer in university-industry research partnerships: A review. *The Journal of Technology Transfer, 44*(4), 1236-1255.

Degaga, A. & Senapathy, M. (2021). Challenges and opportunities of university and industry nexus in Ethiopia: A systematic review. *International Journal of Management, 9*(2) 97–111.

Dzisah, J. (2011). Mobilizing for development: Putting the triple helix into action in Ghana. In M. Saad and G. Zawdie (Eds.), *Theory and practice of the triple helix model in developing countries: Issues and challenges* (pp. 146-160). Taylor and Francis Group.

Dzisah, J. & Etzkowitz, H. (2008). Triple helix circulation: the heart of innovation and development. *International Journal of Technology Management and Sustainable Development, 7*(2), 101–115.

Eddles-Hirsch, K. (2015). Phenomenology and educational research. *International Journal of Advanced Research, 3*(8), 251–260.

Elo, S., Kääriäinen, M., Kanste, O., Pölkki, T., Utriainen, K., & Kyngäs, H. (2014). Qualitative content analysis: A Focus on trustworthiness. *Sage Open*, *4*(1). https://doi.org/10.1177/2158244014522633

Esangbedo, C. O., Zhang, J., Esangbedo, M. O., Kone, S. D., & Xu, L. (2024). The role of industry-academia collaboration in enhancing educational opportunities and outcomes under the digital driven Industry 4.0. *Journal of Infrastructure, Policy and Development*, *8*(1), 2569. https://doi.org/10.24294/jipd.v8i1.25 69

Etzkowitz H (2008). *The triple helix: University–industry–government innovation and entrepreneurship*. Routledge.

Etzkowitz, H. & Dzisah, J. (2008). Rethinking development: circulation in the triple helix. *Technology Analysis and Strategic Management, 20*(6), 653–666. doi:10.1080/09537320802426309

Etzkowitz, H., & Leydesdorff, L. (1995). The triple helix--university-industry-government relations: A laboratory for knowledge based economic development. *EASST Review, 14*(1), 14–19.

Federal Democratic Republic of Ethiopia. (2018). A Proclamation to Provide for the Definition of the Powers and Duties of the Executive Organs of the Federal Democratic Republic of Ethiopia." Proclamation No. 1097/2018, *Federal Negarit Gazette* No. 8, November 29, 2018.

Federal Democratic Republic of Ethiopia. (2019). Higher education proclamation. Proclamation No. 1152/2019. *Federal Negarit Gazette* No.78, August 12, 2019.

Federal Democratic Republic of Ethiopia. (2023). Higher Education, Technical and Vocational Training and Research Institutions, and Industry Linkage Proclamation. Proclamation No. 1298/2023, *Federal Negarit Gazette* No.5, December 7, 2023.

Franco, M., Silva, R., & Rodrigues, M. (2019). Partnerships between higher education institutions and firms: The role of students' curricular internships. *Industry and Higher Education, 33*(3), 172–185.

Gashahun, A. D. (2020). University-Industry Linkage Practice in Ethiopia: A Study on Debre Markos Institute of Technology, Debre Markos University. *International Journal of Scientific and Engineering Research, 11*, 1913-1920.

Gibson, M., & Johnston, R. (1974). The role of science in technological innovation. *Research Policy, 3*(3), 220–242.

Hailu, A. T. (2024). The role of university-industry linkages in promoting technology transfer: implementation of triple helix model relations. *Journal of Innovation and Entrepreneurship, 13*(25), 1–17. https://doi.org/10.1186/s13731-024-00370-y

Hernández-Trasobares, A. & Murillo-Luna, J. L. (2020). The effect of triple helix cooperation on business innovation: The case of Spain. *Technological Forecasting and Social Change*, *161*, 120296. https://doi.org/10.1016/j.techfore.2020.120296

Jonbekova, D., Sparks, J., Hartley, M., & Kuchumova, G. (2020). Development of university–industry partnerships in Kazakhstan: Innovation under constraint. *International Journal of Education Development*, *79*. https://doi.org/10.1016/j.ijedudev.2020.102291

Kahsay, M. N. (2017). The Links between Academic Research and Economic Development in Ethiopia: The Case of Addis Ababa University. *European Journal of STEM Education*, *2*(2), 1–10. https://doi.org/10.20897/ejsteme.201705

Keraga, M. N., & Araya, M. (2023). R&D, innovations, and firms' productivity in Ethiopia. *African Journal of Science, Technology, Innovation and Development*, *15*(3), 311–324. https://doi.org/10.1080/20421338.2022.2088046

Kleiner-Schaefer, T. & Schaefer, K. J. (2022). Barriers to university–industry collaboration in an emerging market: Firm-level evidence from Turkey. *The Journal of Technology Transfer 47*(3), 872–905.

Konde, V. (2004). Internet development in Zambia: A triple helix of government-university-partners. *International Journal of Technology Management, 27*(5), 440-45.

Lasker, R. D., Weiss, E. S., & Miller, R. (2001). Partnership synergy: A practical framework for studying and strengthening the collaborative advantage. *The Milbank Quarterly, 79*(2), 179–205.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Thousand Oaks, CA: Sage.

Ministry of Education. (2015). *Education Sector Development Programme V (ESDP V) 2015/16 – 2019/20.* Addis Ababa: Author.

Ministry of Education. (2018). *Ethiopian education development road map*. Addis Ababa: Author.

Ministry of Science and Higher Education. (2019). *The directive on research, technology transfer, UIL, and community service in higher education institutions*. Addis Ababa: Author.

Ministry of Science and Higher Education. (2020). *National science policy and strategy*. Addis Ababa: Ministry of Science and Higher Education. Addis Ababa: Author.

Ministry of Science and Higher Education. (2021). *The higher education and training statistical abstract series (HETSAS-I)*.

Morisson, A. & Pattinson, M. (2020). *University-industry collaboration*. Interreg Europe Policy Learning Platform.

Muscio, A. & Vallanti, G. (2014). Perceived obstacles to university-industry collaboration: Results from a qualitative survey of Italian academic departments. *Industry and Innovation, 21*(5), 410–429.

National Plan Commission. (2016). *The Growth and Transformation Plan II (2015/16–2019/20)*.

Nsanzumuhire, S. U., Groot, W., Cabus, S. J., Ngoma, M. P. & Masengesho, J. (2023). Assessment of industry's perception of effective mechanisms to stimulate academia–industry collaboration in Sub-Saharan Africa. *Industry and Higher Education, 37*(3), 409–432.

Nwagwu, W. E. (2008). The Nigerian university and the triple helix model of innovation systems: adjusting the wellhead. *Technology Analysis and Strategic Management, 20*(6), 683–696.

OECD (2019) *University-industry collaboration: New evidence and policy options*. OECD Publishing.

Outamha, R., & Belhcen, L. (2020). What do we know about university-industry linkage in Africa? In Abu-Tair, A., Lahrech, A., Marri, K., and Abu-Hijleh, B. (Eds.), *Proceedings of the II international triple helix summit*. Vol. 43 (pp. 375–391). Springer.

Pertuze, J. A., Calder, E. S., Greitzer, E. M., & Lucas, W. A. (2010). *Best practices for university-industry collaboration*. MITSloan Management Review, June 26, 2010. Retrieved from https://sloanreview.mit.edu/article/best-practices-for-industry-university-collaboration/

Pesole, A. & Nepelski, D. (2016). *Universities and collaborative innovation in EC-funded research projects: An analysis based on Innovation Radar Data*. JRC Scientific and Policy Reports. Doi:10.2791/244949

Ranga, M., & Etzkowitz, H. (2013). The triple Helix system: An analytical framework for innovation policy and practice in the knowledge society. *Industry and higher education, 27*(3), 237–262.

Sa, C. M. (2015). *Perspective of industry's engagement with African universities*. Retrieved from https://www.heart-resources.org/wp-content/uploads/2015/09/Report-on-University-Industry-Linkages.pdf

Sa, E., Casais, B. & Silva, J. (2019). Local development through rural entrepreneurship, from the Triple Helix perspective: The case of a peripheral region in northern Portugal. *International Journal of Entrepreneurial Behavior and Research, 25*(4), 698-716.

Saad, M., Guermat, C., & Boutifour, Z. (2021). The interaction between academia and industry and its impact on national innovation capacity: The case of Algeria. *Industry and Higher Education, 35*(5), 570–580.

Selam, M. N, Abera, S., Geremew. H., Ali, E.E. (2022). Local pharmaceutical research and development capacity in a developing country: A qualitative exploration of

perspectives from key stakeholders in Ethiopia. Journal of Pharmaceutical Policy and Practice, 15(1), 1–10. doi: 10.1186/s40545-022-00491-3.

Sloper, P. (2004). Facilitators and barriers for coordinated multi-agency services. *Child care, health, and development, 30*(6), 571–580.

Ssebuwufu, J., Ludwick, T., & Bélan, M. (2012). *Strengthening university-industry linkages in Africa: A study on institutional capacities and gaps*. Association of African Universities.

Stalmeijer, R. E, Brown, M. E. L., O'Brien, B.C. (2024). How to discuss transferability of qualitative research in health professions education. *Clinical Teacher, 21*(6), 1–7. https://doi.org/10.1111/tct.13762

Sullivan, H., Williams, P. & Jeffares, S. (2012). Leadership for collaboration. *Public Management Review, 14*(1), 41–66.

Tamrat, W. (2019). University-industry ties: The need for good management. University World News, 8 June 2019. https://www.universityworldnews.com/post.php?story=201906050 94229995

Tan, L. C., & French-Arnold, E. (2012). Employability of graduates in Asia: an overview of case studies. In UNESCO (Ed.) *Graduate employability in Asia* (PP. 1–4). UNESCO.

Terry, G., & Hayfield, N. (2020). Reflexive thematic analysis. In M. R. M. Ward and S. Delamont (Eds.), *Handbook of qualitative research in education* (pp. 430–441). Edward Elgar.

Thune, T. (2011). Success factors in higher education–industry collaboration: a case study of collaboration in the engineering field. *Tertiary education and Management*, *17*(1), 31–50. 10.1080/13583883.2011.552627

Tumuti, D. W., Wanderi, P. M. & Lang'at-Thoruwa, C. (2013). Benefits of university-industry partnerships: the case of Kenyatta University and Equity Bank. *International Journal of Business and Social Science, 4*(7), 26–33.

Viennet, R. & Pont, B. (2017). *Education policy implementation: A literature review and proposed framework*. OECD Education Working Paper No. 162. Organisation for Economic Co-operation and Development. https:// tinyurl.com/4ym8ejnt

Yilma, E. & Alemu, M. (2018). Determinants of University-Industry Linkage: Evidence from Dire Dawa City. *European Journal of Business and Management, 10*(13), 11-25.

Zhang, X., Tezera, D., Zou, C., Wang, Z., Zhao, J., Gebremenfas, E. A., & Dhavle, J. (2018). *Industrial Park development in Ethiopia case study report*. Inclusive and Sustainable Industrial Development Working Paper Series 21. United Nations Industrial Development Organization.

Zhou, J. & Wang, M. (2023). The role of government-industry-academia partnership in business incubation: Evidence from new R&D institutions in China. *Technology in Society, 72*, 102194. https://doi.org/10.1016/j.techsoc.2022.102194