

Governance mechanism in research and innovation in Ethiopian higher education institutions: The case of Mekelle University

Tsegay Girmay Hagos¹

¹*Institute of Pedagogical Sciences, Mekelle University, Ethiopia,*
tsegay.hagos@edu.donau-uni.ac.at, **ORCID:** 0009-0007-7486-736X

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Abstract

The paper sets to explore the research and innovation governance mechanisms in Ethiopian higher education by taking the case of Mekelle University. The Ethiopian Higher Education (HE) system sets a legal framework to govern the academic and research missions of universities. However, evidence shows that high government interventions and poor coordination mechanisms hinder the effectiveness of the research and innovation missions of universities. The paper employed a qualitative research methodology to collect and analyse the data. As a result, the collected extensive literature review, relevant and official HE researches and innovation governance documents, institutional legal documents, and key informant interviews indicate evidence of loose coordination, fragmented governance structure, and prominent level of government intervention, as major actual features in the research and innovation governance practice of Mekelle University. Based on the empirical evidence, the paper concluded that with loosely handled governance practice and complete state dominated higher education system, where universities are completely deprived of meaningful institutional autonomy, it is unlikely to achieve their research and innovation missions. Therefore, the paper recommends for research and innovation governance overhaul to significantly improve the coordination mechanism thereby enhance relationship between the state, universities, community, and relevant stakeholders.

Keywords: governance mechanism, research and innovation, HEIs, Mekelle University

Introduction

Higher Education Institutions (HEIs) in the world have undergone though rapid structural changes over the past few decades. The changes are, including, but not limited to, high student enrolment rate and new student body, the emergence of research universities, new governance models and the changing relationship between state and universities, and the increase interest on the social role of universities (International Institute for Educational Planning- United Nations Education, Scientific and Cultural Organization [IIEP-

UNESCO], 2010). Higher education in Africa in general and in Ethiopia has not escaped from all these changes. For example, even though modern higher education in Ethiopia has only started in the 1950s, the development of the sector over the past nearly three decades has rapidly expanded. The HE system has grown from two-university system in 1991 to over 45 public universities and more than 100 private colleges and universities in 2016. The gross student's enrolment rate increased from 0.2% in 1991 to 8.1% in 2018, and the public budget allocation to education raised from 7% in 1991 to 26.5% 2018 (Federal Ministry of Education [FMoE], 2015; Hindeya & Mengistu, 2016).

Higher education in Ethiopia has undergone a number of changes since the establishment of the first university in 1950 reflecting the political and economic priorities of the country. During the Imperial regime, the HE policy focused on producing indigenous personnel to fill the bottleneck demand for trained manpower (Hindeya & Mengistu, 2016), and so driven by the elite featured education system (Mehari, 2016). The Military government's HE policy emphasized on more of socialist political and Marxism ideology, which shape the HE policy framework accordingly. Currently, the Ethiopian HE policy regime has recognized the key role of education in solving social challenges, bringing peace and democracy, and transforming the country from agriculture- to an industry-led economy (ibid). Accordingly, various HE policies, governance reforms and consecutive programmes have been initiated to achieve the missions of HEIs.

The Ethiopian Ministry of Education clearly stated that all public universities that are legally bound to the ministry should establish a governance system that inculcates the mission of research and innovation. Accordingly, research-oriented innovation function is performed as one of the three core services of the universities and structured as Technology and knowledge Transfer and University-Industry-Community services. The ministry, in its various guiding documents described that research in universities should be society's practical problem and natural resource optimization based with an intention to cultivate innovation thereby support the economic and industrial development of the country (Educational Strategic Centre/Ministry of Education [ESC/MOE], 2018; FMoE, 2015; Mekelle University/Ministry of Education [MU], 2013).

For instance, an innovation incubation centre unit is advised to set up to nurture, accelerate and grow new businesses by providing comprehensive integrated research-

based support including infrastructure, incubator space, business support services and clustering and networking opportunities at an early stage of development and change (MoSHE, 2019). Furthermore, University-Industry Linkage (UIL) means a system through which HEI and/or its academic staff interact with industry through joint research, contract research, research grants, consultancy, community engagement, staff mobility, staff externships, and capacitating of industry (MoSHE, 2019). However, there are limited studies in the governance mechanism of research and innovation functions of HEIs particularly in Mekelle University. The latest study by Gebremeskel and Feleke (2016), Weldegebriel (2018) and (Kahsay, 2012) focuses on the exploration of the governance of higher education in Ethiopia with little focus on research and innovation mission of the university. The aim of their studies highlights on the general mission of the university with main emphasis on the academic, teaching, and learning core endeavour than research and innovation missions.

Therefore, the seminar paper was aimed to explore the current governance system of HEIs in Ethiopia with Mekelle University as a case study. In so doing, the paper attempts to address the following questions:

- What is the current research and innovation governance system at Mekelle University?
- How can governance improve the research and innovation system of the university?

In order to address these research questions, the writer briefly provided perspective-based background on governance developments and typologies in HEIs and specified its focused on the current governance practice considering the research and innovation mission with reference to the selected university. Following this, the literature review (as an analytical framework) is presented based on the types and mechanisms of governance that contribute to improving higher education research and innovation. Finally, conclusions are drawn, and future research areas are suggested based on the results of the investigation from the case study.

Governance and HE Missions

Governance in HEIs - an international overview

‘Governance’ is a wide and deep theme and has caught the attention of many researchers and practitioners, however, it continues to be a highly debated issue. According to Meek and Kearney (2009), the notion of higher education governance depends on “the level of analysis-national, local, institutional, sub-unit or discipline” (p. 41). They contend that the dynamics between these levels has shaped the type and mechanism of governance in HE institutions. The promotion of higher education governance and coordination came into focus quiet recently. UNESCO celebrated the tenth anniversary of the ‘World Conference in Higher Education’ in Paris in 2009 (UNESCO forum for higher education, research, and knowledge, 2009). The forum declared that global higher education governance reform had progressed due to the rising demand for democratization followed by an ambition for efficiency and effectiveness. In this regard, Meek and Davies (2009) stated that:

While governance reform movements of the 1960s and 1970s were about democratization and the inclusion of staff and students in decision-making, from the 1980s the governance debate shifted toward issues of efficiency and accountability, accentuated by the introduction of New Public Management (NPM), which alters the structure and policy processes of public bodies in an effort to make them more efficient and effective (para. 7).

Similarly, the spread of the concept of New Public Management (NPM) in Europe has started to challenge the governance system of higher education with an intention of maximizing productivity, transparency, and efficiency. The network and collaborative approach of governance were then modalities exercised in NPM configured institutions. In the European Union (EU), network governance is assumed to be the predominant type of governance as distinguished from statism, pluralism, and corporatism (Eising and Koher-Koch, as quoted in Treib et al., 2005).

The Lisbon 2000 treaty among EU member states has marked as an igniting period for the rapid economic development supported by university research and innovation functions. Since Lisbon 2000, the European Commission has started to recognize higher

education institutions as key agents in the process of rapid and accelerated economic, employment, innovation, and social cohesion changes (Official Journal of the European Union, 2017). Subsequently, policies originating from the Commission were transferred to member state institutions as a guide to competitiveness than influence. Meek and Davies (2009) further explained the notion of governance adhered by nations in a UNESCO forum stating that:

...national systems differ substantially in the ways governance is organized and the literature features several different conceptual models of governance - such as collegial, bureaucratic, political, organized anarchy, professional and, more recently, the entrepreneurial university, service university, enterprise university, corporate-managerial university and so on (para. 5).

Thus, HEI governance has remained a central research issue with authors claiming that universities have to be recognized as unique organizations that need to be restructured or follow the features of modern corporations (Meek & Kearney, 2009). Campbell and Carayannis (2016) argue that higher education institutions that are characterized by knowledge production (research) and knowledge application (innovation) in the context of economy (firms) can be better organized if they are set up according to the following guidelines:

Epistemic governance, in combination with cross employment, should add to the organizational flexibility and creativity of universities and other higher education institutions, supporting the integration of a pluralism and diversity of knowledge production (basic research in the context of knowledge application and innovation), the formation of nonlinear innovation networks, and providing a rationale for a new type of academic career model (p. 1).

However, regardless of the dynamically evolving nature of HE governance perceptions and approaches, countries continued to adopt or customize various global governance systems into their organizational settings. Consequently, Jongbloed, who propagated Clark's work (1983), underlines that the interaction among the three sides of academic-state-market substantiate the mode of higher education governance (as cited in Gebremeskel and Feleke, 2016 p. 103). Subsequently, Clark identified three types of

models of higher education governance: the state-centred model, the self-rule model, and the market model.

The HEIs of developed countries, such as the UK, Australia, France, and Italy, whose management approach was quasi-market, resembling epistemic governance and/or NPM, have linked their knowledge production with market creation more strongly than developing countries. In developing countries, due to lack of funding and a poor linkage of the HEIs' function with industry and community services, they are using a mixture of governance approaches.

State ruling politicians have always played a significant role in managing HE as part of their administration (Maassen, 2003). The ruling party's orientations and programmes dictated most developing countries' higher education governance systems, though there have been attempts to introduce triple helixes in some African countries like Ethiopia (Saad et al., 2008). Some studies indicated that the Ethiopian HE governance is characterized by a quasi-market model (Gebremeskel and Feleke 2016). As opposed to this, Weldegebriel (2018) argued that Ethiopian HEIs have never experienced a quasi-market mode of governance during the last three regimes. Even the current governance mechanism implies an elevated level of intervention by the ruling party. In this respect, various empirical studies have described the typologies of governance mechanism based on the viewpoints underlying politics in each country. According to Treib et al. (2007), governance models need to be classified based on political views rather than using timelines, old or new, governance which does not signify into the analytical value.

Consequently, Treib et al. (2007) explained modes of governance based on political divisions, namely, using the categories of politics, polity, and policy. The authors stress that while the motive of interest and its impact on the relationship between public and private dignifies the political dimension of governance, the rule of interaction between actors distinguishes the polity dimension. The political mission-oriented control and execution based on the set of policy goal will dignify policy dimension governance (Kritzinger & Pülzl, 2008a). Nevertheless, typologies for modes of governance "in the polity and politics dimension are still missing and no systematic empirical research on the interlinkage between the three dimensions has been done" (Kritzinger & Pülzl 2008a). Beate Kohler-Koch further uphold her interpretation from the politics dimension and

process of policymaking (as cited in Oliver Treib, Holger Bähr & Gerda Falkner, 2005) as:

In essence, ‘governance’ is about the ways and means in which the divergent preferences of citizens are translated into effective policy choices, about how the plurality of societal interests are [is] transformed into unitary action and the compliance of social actors is achieved (p. 5).

Therefore, although there are various, HE governance approaches and models, the policy dimension governance model is the one that serves best as an analytical framework for the description of how Ethiopian HEIs are currently governed. Accordingly, the four models from the legality-based coordination and implementation perspective will be used to highlight in the case of Mekelle University. Treib et al. (2007) identified these factors as a typology for modes of governance in the policy dimension by considering the above-mentioned factors in a matrix. The table below illustrates how modes of governance can be typified according to the legality and implementation.

Table 1: A typology of modes of governance from policy dimension. Source: Treib et al. (2005)

<i>Implementation</i>	<i>Legal instrument</i>		
		Binding	Non-binding
	Rigid	Coercion	Targeting
Flexible	Framework regulation	Voluntarism	

The explanation for the typologies in the words of Treib et al. (2007) states that:

Coercion as a mode of governance calls for legally binding instruments that remain rigid during implementation, while Voluntarism requires non-binding instruments and uses a flexible approach to implementation as policy goals are

less narrowly defined. Targeting is based on non-binding instruments, but policy goals are explicitly given, and the implementation remains rigid. The fourth mode of governance, Framework regulation, allows more room for maneuver during implementation but is based on a legally binding instrument (p. 294).

Ethiopian HEIs governance overview

In Ethiopia, the academic, research and community service is a national level core mission that is expected to contribute to the socio-economic, political, technological, and environmental transformation of the country (FMoE, 2015). Unlike the previous proclamation Wondewosen (2012), the new proclamation of 2009 - as stipulated under Article 26 - emphasises the critical need of establishing university-industry relations. However, Wondewosen (2012) criticises the document saying that the proclamation does not offer clear details on what is it meant by university-industry relations regarding the internal structures of universities and their missions.

The revised proclamation of 2009 has granted public universities the autonomy to design and initiate relevant curriculum and research programmes, establish their own organizational structures, select, and hire academic and other staff, administer their human resources, and manage their property and funds, as stated in Article 17 (FDRE, 2009). Moreover, by the power vested in Sub-Article (2) of Article 97 of the Ethiopian Higher Education Proclamation No. 650/2009, (Ministry of Science and Higher Education [MoSHE] (2019) declared the aims for Research, Technology Transfer, University-Industry Linkage and Community Services for Higher Education Institutions in Ethiopia. The directive stated that it is mandatory to coordinate and establish a well-developed system of research, Technology Transfer (TT), University-Industry Linkage (UIL) and Community Services (CS) in Higher Education Institutions to contribute to the research and innovation development across the nation (MoSHE, 2019).

Furthermore, the perception of governance as related to the coordination and management of the research and innovation endeavours of universities is also indicated. Accordingly, governance means the way rules, norms and actions or decisions in relation to research, technology transfer, university-industry linkage, and community service at higher education institutions in Ethiopia are produced, sustained, regulated, and held accountable both at the institutional level and at the level of the Ministry. Moreover, the

conception of innovation is also stated as a new way of doing something by improving process, product/service, and strategy either incrementally or radically (ibid).

The Ministry also clearly stated that all private and public universities that are legally bound to the ministry, should establish a governance system that inculcates the structure of research and innovation within the university-industry-community services. The ministry, in its directive, explained that an innovation incubation centre is a unit set up to nurture, accelerate and grow new businesses by providing comprehensive integrated support including infrastructure, incubator space, business support services and clustering and networking opportunities at an early stage of development and change (MoSHE, 2019). Furthermore, University-Industry Linkage (UIL) means a system through which an HEI and/or its academic staff interact with industry through joint research, contract research, research grants, consultancy, community engagement, staff mobility, staff externships, and capacitating of industry. In addition, the science and technology policy also stated that HEIs can have their own research and development and innovation plans and engage in both basic and applied research that deepen understanding and stimulate innovation (MoSHE, 2019, p. 8).

The governance approach directly affects the overall structure, management, organization, and performance of an institution. However, the process of implementing these goals and targets is determined by the perception of the type of governance modalities. Hence, it is imperative to duly analyse and criticise the practice and challenges of governance approaches vis à vis the set of directives and missions. In this context, the model of governance guides the concepts and practices of planning, organizing, controlling, and steering of HEIs governance in research and innovation.

Research methods

The governance mechanisms in Ethiopian HEIs have become a concern due to the increasing complexities of their mission, research and consultation demand, and the search for new mechanisms of funding and the requirements of accountability (De Boer, Harry, Enders, Jürgen, Schimank, 2007a; Mehari, 2016). However, there is little research on the governance mechanisms in the context of higher education institutions (Altbach, 2011). Therefore, an exploratory research methodology was employed because it helps to explore research issues that have not been adequately investigated (Creswell, 2012).

Since exploring innovation-oriented research endeavours at country level is difficult, the writer has selected one university to examine its status, role, and mechanisms.

Data for this research was collected both from primary and secondary sources. Published secondary sources were used to address the research questions. These were gathered from online database sources and the websites of different universities, journals and research institutes in Ethiopia and other countries. The online databases used to collect secondary sources were JSTOR, Africa Journals online-AJOL, Ethiopian journals, and university subscribed e-library journals. These online databases were used to collect materials on government policies and strategies, proclamations, research journals and articles and established Mekelle University documents.

Accordingly, keywords or phrases used in the online data-base sources were i.e., “Ethiopia” or “Mekelle University” (+) “Higher Education, higher education governance” “Research-oriented Innovation.” These data were collected from September 02 to October 31, 2019. In addition to this, semi-structured interview with Mekelle University research and community service officers and available university research staff were conducted using purposive and available sampling methods, respectively. Both the documentary and interview data were analyzed thematically.

Mekelle University

Mekelle University was founded in 2000 by the government of Ethiopia (Reg. No. 61/19991) as an autonomous public higher education institution with its own legal entity. It is situated in Mekelle, Tigray regional state, at 783 kilometres from the Ethiopian capital city, Addis Ababa. Mekelle University caters for over 31,000 students; the total number of employees including academic and administrative staff stands at 10,000 (MU/MOE, 2013).

The university is organized at the top president with three vice president positions aligned to the core goals. The positions for vice president are academic, research and community services, and support services. The research and community service vice president will lead the postgraduate and research, knowledge, and technology transfer (KTT), and university industry linkage (UIL). The research and innovation outputs of the university will be transferred to community and industry through KTT and UIL, respectively.

Presentation and analysis

This section explores the higher education governance mechanisms in research-based innovation missions in HEIs highlighting the case of Mekelle University. The focus of the analysis and presentation is based on the literature review and some selected dimensions and modes of governance. External governance was analyzed based on the trio parties' relationship stated by Clark, while internal governance was reviewed based on Trieb et al. (2007) policy dimension-oriented model.

Governance mechanism in Ethiopian HEIs

The historical development of HEIs governance mechanism in Ethiopian has evolved from a one-man rule, the monarchy, to the military junta without a proclamation and specific policies. However, the present government, upon the drafting of the constitution, developed a written policy, a proclamation, and strategic programmes. Consequently, higher education is recognized as an important institution in supporting the core strategies of the country's development agendas. In 2018 a separate ministry of science and higher education (MoSHE) was also set up. Although the establishment of HE at a ministry level is a recent development, the mission of research and innovation as an integrated part of community services had been identified as a core mission of universities even by the former ministry of education (MoE, 2005).

However, the education system in general and the HEIs' practice were criticized for their inefficiencies and ineffectiveness in the areas of governance, leadership and management of community and industry linkage (ESC/MoSHE, 2018). Interviewees that participated in this study also criticized the fact that "the countrywide research and innovation, proposed by the science and technology ministry had only paper value, because it lacks coordination and collaboration approaches to bring different ministries into a common researchable theme of projects practically." This means that there is only loose collaboration, and poor synergy among ministries and the cluster of universities with industries. The interviewees also stated that, "Although there has been a significant increase in research grants coming from the state, there is weak research- and innovation-based relationship between the community or the industries and state universities."

Table 2: The Ethiopian HEIs Features and Status. Adapted: (ESDP III (MOE, 2005a); MOE, 2013; ESDP V (MOE, 2015); (Gebremeskel & Feleke 2016)

No	Status Indicators	Up-to-date status
1	Number of public higher education institutions	49
2	Total number of enrolled students	758,723
3	Total number of higher education teachers (full time)	> 31,269
4	Proportion of budget allocated to Education	26.5%
5	Governance structures	State
6	Number of private higher education institutions	>100
7	Market elements in HE	State
8	Funding (budgeting) mechanisms	Block grant
9	HE gross enrollment ratio of students	> 8.1 %

Data collected from the government action plan and reports show that almost all the funding of these institutions comes from the government budget (see ESDP-V 2015/16-2019/20). Research and innovation targets attached to funding are provided from the state and, consequently, the government is deeply involved in most matters of the institutions. It is, therefore, important to point out that although there is financial and legal support in the research- and innovation-based relationship among the trio parties, joint venture work is sporadic, and is dominated by the state.

In Ethiopia, HE academic activity and research are guided by legally declared proclamations and policies. The Ministry of Education is a national level governing organization established to ensure that HE institutions have the required legal bodies. Accordingly, Mekelle University is established as a legal entity and there are proclamations based on the directives and policies coming from the Ministry of Science and Higher Education. According to Treib et al. (2007), such mechanism of governance may call for legally binding instruments that remain rigid during implementation and labelled this kind of coordination transferability as the coercion mode of governance. However, the university's internal coordination practice is a mixture of the different modes of governance. In this regard, the interviewees' response was that "the research

and innovation practice at the university is legally binding in terms of the university and an individual researcher's contractual agreement." However, interviewees mentioned that "the legality and bindedness control of the university is mostly portrayed in the financial settlement process rather than in further disseminating the project output to industries and communities." This shows that the research grant process in Mekelle University is legal, but it is also rigid when it comes to financial steering mechanisms alone. However, the research outputs that are valued by the community and industry are less coercively managed in the process of sustaining and distributing them. This implies that the mode of governance at the university is flexible and non-binding, namely, it fits in with the voluntarism management mechanism as referred to above. According to Treib et al. (2007), this shows that organizations coordinate their functions in a legal basis, and a mixture of governance mechanisms can be applied such as Framework regulation, Targeting, and Voluntarism modes of governance.

Consequently, the relevant studies seem to reveal that the relationship between policy and research in Ethiopia is rhetoric. The research and innovative output of HE as a whole is inadequate for supporting the national development goals of the country. Weldselassie and Kassaw (2015) emphasize the absence of proper linkages between researchers and policymakers, ineffective communication and dissemination strategies, and the lack of relevance to industries and the local context. In confirmation of this, the interviewees stated that "the loosely structured research and community service governance mechanism at Mekelle University is causing a challenge when it comes to closely monitoring and following the development of every granted project by the University." Moreover, they also said that "the attempt to manage and control research projects that may lead to community and industry linkages appears to be fairly unsuccessful in the case of non-governmental funded projects administered within the University itself." According to Yezengaw (2003), even the few research undertakings have critical problems of transparency, accountability and their findings are not disseminated widely to the relevant community. The recently undertaken extensive and nation level survey study by Ethiopian Education Strategic Center reaffirms there are challenges of accountability because of ineffective organization and governance mechanism in the education sector. Hence, its report states that:

Though official documents talk about accountability across all levels of governance, there is a perceived gap that accountability is missed at all levels of the education governance. Inadequate accountability system; accountability along the lines of decentralized units of decision making is not clear or not practiced: who is accountable to whom, how they are held accountable and for what (educational institution accountability, teacher's accountability, leaders and managers accountability, parents and student's accountability, locality, local and international organization accountability, and private investors accountability (ESC/MoSHE, 2018, p. 9).

Although the proclamation and the directives have laid down that universities are expected to plan, organize, and develop research funding schemes in line with the management structure autonomously, in practice, due to the intervention of the government via the members of the ruling party, it has been a challenge to respond to grant calls and satisfy the evaluation criteria. The interviewees of the study also indicated that “A significant number of grant winners are practitioners, who have either had an influential position at the University or have already been awarded ones.” They also added that “Researchers focusing on innovation are in a difficult situation when wanting to get past this entire rent-seeking network of governing bodies and red tapes.” “The same amount of funding is circulating within similar bodies and disciplines.” For the above reasons, the transparency and accountability of the governance mechanism have been strongly criticized for its poor impact in the national HE development of the country (ESC/MoSHE, 2018).

Other studies further extrapolated the Ethiopian HE governance system's challenges in terms of ineffective leadership and administration, and inadequate university-industry linkages (FMoE, 2015; FDRE, 2016; World Bank, 2017; ESC/MoSHE, 2018; UNESCO, 2015). Salmi et al. reaffirm these findings by stating that:

Public universities in Ethiopia have been pressed hard to operate under centralized governance framework, limited public research fund, and overall dilapidated academic infrastructure. In today's more highly competitive market economy, colleges or universities cannot be all things to all students and are not expected to continue to serve up a one-size-fits-all experience. This is neither financially

sustainable nor competitively viable (ibid). (As cited in ESC/MoSHE, 2018, p. 17)

Subsequently, Weldegebriel (2018) concluded that ever since the 1960s Ethiopian post-secondary education has been experiencing a governance approach with high state control regarding financial, personnel, and autonomy issues. He also stresses that such a state-centred higher education governance model has created a bottleneck and makes it difficult for it to become responsive to societal demands, and even the state's own programmes and policies.

Higher education research and innovation

Several studies indicated that if a university's mission is well positioned, it can serve as a hub of knowledge and innovation in the realms of creativity, entrepreneurship, patents, and spin-offs (Etzkowitz and Leydesdorff, 2000; Campbell and Carayannis, 2006, 2009, 2012, 2013a; OECD, 2013). Moreover, Mekelle University (2015/16-2019/20), in its strategic plan, also stated that:

The policy emphasis given to technological advancement to eliminate poverty is a huge incentive for MU to adapt and/or to innovate technologies that support development endeavours. The transformation process from agriculture to industry-based economy in general and manufacturing industry is another opportunity for technology advancement, transfer, and entrepreneurial mindset as well (p. 27)

However, studies indicate that illegitimate party member intervention and loosely established research coordination at the university have created bottlenecks which are preventing the university from achieving the government's own policy goals. (Weldegebriel, 2018; Hindeya & Mengistu, 2016; Yizengaw 2003; Weldselassie & Kassaw, 2015). Those interviewed have confirmed the above-mentioned challenge by saying that "although the research and innovation policy intended to link university research themes with the community and industries throughout the country, the diversity, quantity and impact is still limited." The interviewees said that this situation was "due to poorly organized structures, the researchers' workload, lack of expertise and poor project life-cycle management skills." Other interviewees agreed on the point that "although

there is an increase in public funding, in comparison to the thematic area coverage, it is still insignificant.”

In addition to this, assorted studies pointed out the fact that a discipline prioritization procedure was against the policy of the country and the mission of the university. Weldselassie and Kassaw (2015) criticized the research grant classification and distribution between humanities and social sciences and science and technology, which is 30% and 70 % respectively, and emphasized that this is against the national development agenda. An interviewee stressed that “Staff felt unfairly treated, mainly due to the grant evaluation criteria and discipline, which were disregarding process.” In relation to this, interviewees also mentioned that “due to insufficient public and non-public research budgets, projects are few in number and longitudinal research types are almost none.” As a result, researchers are inclined to engage “in process innovation rather than product innovation research projects.”

Many would agree that the HE governance system, unlike that of the previous regimes, has brought about remarkable achievements in establishing rules and regulations; however, in actual practice, there needs to be an additional, joint effort to enhance the system (Woldegiyorgis, 2013). Others also suggest that the coordination and governance mechanism of HE should be improved in a way to add value to local communities and promote global best practice. In this regard, Marmolejo et al. argue that:

...failures of communication between regional stakeholders and higher education institutions reduce the effectiveness of their teaching, research and public service efforts and limit the understanding at the local level of their impact.... cooperation between higher education institutions, public authorities and the business sector becomes vital. Currently, many regions are characterized by an abundance of activity involving higher education in regional development in some way, but there is limited evidence of coherent action. It is also evident that there are often no proper incentives, indicators nor monitoring of the outcomes of this type of activity (as cited in Meek & Kearney, 2009, p. 54).

Woldegiyorgis (2018) strongly criticises the actual state of the universities’ research and innovation performance and recommends that the government should establish separate

research universities. The author believes that the overall transformation of the economy, from agriculture to manufacturing and industry can only be achieved through separately established research and innovation universities. Hence, after evaluating the governance system of HE as such, the European Universities Association (2019) suggested coordination mechanisms that universities could jointly apply so that innovation systems and technology transfers via multi-actor co-creation could be enhanced. These are:

- Create incentives to reward academic staff to engage in cooperation for external societal impact.
- Create joint labs with external partners.
- Establish and use advisory boards level to develop common agendas.
- Develop framework contracts for partners.
- Expand research contract support and business facilitation service.
- Develop technology transfer service.
- Develop start-up support service and spaces for students and researchers.
- Connect with external factors, such as start-up services, science parks, and investors.
- Reward engagement for social innovation symbolically and in career advancement (p. 39)

Interviewee participants of the study also suggested that “a grassroots level study in identifying the current challenges and global research and innovation benchmarks is a way out for reorganizing and improving the system.” A governance approach that fits in well with the purpose of the institutions and sub-level units requires proper benchmarking and rework.

Conclusion and summary

The Ethiopian Education and Training Policy document (ETP, 1994) states that Higher Education is the source of knowledge for economic development. Accordingly, the country’s higher education system has undergone remarkable changes about establishing legal foundations, such as distinct proclamations, policies, directives, and strategies. In this regard, the education system’s governance and leadership mechanism is set up to get aligned with the strategies of the national development agenda. The proper functioning of HEI governance can be influenced by the triangular power and authority tension among the elite, state authority and the market. The findings of this study based on Clark’s model

showed that the interaction of the three actors, namely, state, industry and university is highly dominated by the state even though some believe that there are indicators of business-like management features. There is a contradicting conclusion by various researchers regarding who dominates the HEIs governance based on Clark's trio parties' framework. While Weldegebriel (2018) came to the conclusion that since the 1960s Ethiopian post-secondary education has been experiencing a governance approach with high state control, the study by (Gebremeskel & Feleke 2016) characterised it as a quasi-market model. However, the findings from this paper demonstrate that the governance mode is state-dominated, and this is evident particularly in the external governance structure of universities, namely the way top university management, boards, and the ministry function. Saint and Yizengaw, underline that "the Ethiopian higher education system is not about the proclamations per se, but rather how these proclamations have been implemented (as cited in Mehari, 2016, p. 41)".

The HE sector is not only positioned to engage in survey-based descriptive studies that show the existing socio-economic challenges of society (see the ETP, 1994), but also to serve as a base for economic efficiency and enhancement of national development. The research output in these institutions should be linked to the process of innovation, which could lead to the development of the market, entrepreneurship, and industry. However, there are practical implementation process challenges due to the universities' inefficient internal coordination mechanisms (ESC/MoSHE, 2018). Accordingly, the policy dimension-based model of governance put forward by Treibs et al. (2007) indicates that Mekelle University is practicing a mixture of governance models featured by a combination of rigid and flexible implementation as well as binding and non-binding legal instruments. As can be seen in the matrix presented in table 1, the governance classifications based on the policy dimension are Coercion, Framework regulation, Targeting and Voluntarism. However, the application of the mixed governance mechanism should be crosschecked in relation to the mission and against its progress towards results.

Therefore, although HEI governance trends in Ethiopia have shown positive signs, the governance system practice seems unequally balanced between the internal and external governing bodies and their missions. However, studies indicate that the coordination between government, industry, and universities as well as cohesive synergies can create

ample ground and a springboard to creating a knowledge economy and, as a result, a knowledge society. Many studies do not only indicate that traditionally positioned universities hardly function in an efficient and effective way, but they will remain with the role of knowledge transmitters, linear mode and so become impact less to the nearby society.

Consequently, Etzkowitz and Leydesdorff (2000), as well as Campbell and Carayannis (2006, 2009, 2012, 2013a) have suggested mechanisms of organizing these institutions like an efficient and effective management structure, where innovation-oriented research can flow and affect the ecosystem. These authors have foreseen the nature and dynamism of research in community transformation and changing autocratic governance. Obviously, the suggestions put forward by Etzkowitz and Leydesdorff (2000) and Campbell and Carayannis (2013a) strongly fits into the developed nation contexts, however, there are also opportunities where the HEIs of developing countries can be similarly linked into the dynamic economic development of their regions (ESC/MoSHE, 2018; IIEP/UNESCO, 2013; Mehari, 2016). According to Saad et al., (2008) in some African countries like Ethiopia there have been an attempt to introduce triple helixes. Campbell and Carayannis (2013a) strongly argue in favour of the quadruple helix and quintuple helix model and emphasize that as universities continue to link up with the community, the effect is not only producing innovative products and marketable spin-offs, but it also guarantees the enhancement of democratic processes. In the opinion of these authors, universities should be business behaviour-oriented, and their cooperation and competition (co-ptitive) mechanisms should also be aligned with other similarly positioned institutions in the field of higher education.

Finally, it is important to point out some of the limitations of the present paper and set forth suggestions for further research. As this paper data relied more on secondary sources than primarily, in equal measure, the analytical framework for each domain was not discussed in-depth. Therefore, it is important to conduct further associational research on efficiency, effectiveness, and impact using the amalgamated domains of the conceptual frameworks.

Recommendations

The aim of this study was to explore the nature of governance mechanisms at Ethiopian HEIs using Mekelle University as a case study. The paper explored the organizational structure of the university and how it could best respond to policy-driven research and innovation functions. However, results show that the governance mechanism is not contributing effectively to the university's research and innovation missions. This is due to a few issues: there is a duplication in the coordination structure, the research thematic prioritization is questionable, and the grant evaluation criteria are inconsistent. Furthermore, there are only loose links between stakeholder and research and innovation-based outreach, the inter-faculty funding process is inadequate, and the entire process can be characterized by an important level of state intervention. Cognizant of this, the government authorities and the university administration should recognize the underlying issues and act on them, because the higher education sector has a crucial role to play in the fulfilling of the national development plan of the country.

It is evident that Ethiopian higher education institutions are positioned to produce research and knowledge that improve the life of the society and the economy in general. In consideration of this, there emerges an increasing demand for stakeholders (mainly the state, the community, and the industrial sector) to participate in the carrying out of the functions of the universities, particularly around research and innovation. However, research and innovation work of the university are swallowed within the university due to poor coordination between the stakeholders and the academic. Therefore, the research recommends considerable attention should be given in this regard (See prospective section below).

Evidence shows that the state intervenes in gearing the university's research activities so that it engages in preferred disciplines (see the relevant analysis section). This implies prioritizing natural science and technology disciplines and not encouraging research in social science and the humanities to the same extent. This has created a discordance between how the state intervenes in the allocation of funds and the autonomy of the university. As a result, the research coordination mechanism at the institution is inconsistent and brought about inefficient governance practices that are not in line with the original aims and objectives. Hence, the researcher recommends assessing the

external governance mechanism of the university with the state and imperative mechanisms should be taken into consideration.

Furthermore, the evidence collected also shows that the actual governance practice indicates loose structural alignment, the duplication of tasks (separate structure of public and non-public funded project coordination), and as a result, it is difficult to ensure accountability and transparency. Hence, the researcher recommends that those in charge should give due attention to the coordination process of research and innovation performance at the university with an intention of making coordination more efficient and effective so that the community and industry outreach mechanism can be enhanced and can start creating an impact. International experience indicates that even universities with a prominent level of state intervention can manage to produce impactful research combined with relevant innovation if the governance mechanism is made responsive to the imperatives of efficiency and effectiveness.

The university has to uphold research, community service, knowledge, and technology transfer, as well as university and industry linkages since these are the core services it is mandated to provide. However, evidence shows that the governance mechanism is poor about project management, the empowerment of researchers with relevant expertise, the granting criteria, and the research project monitoring process. Respondents of the study criticized the university's governance mechanism saying that the coordination mechanism focuses more on budget management than monitoring the output of the project. Accordingly, the researcher recommends that the research and innovation coordination process should be inclusive, participatory, accountable, and transparent. There should be a mechanism ensuring good governance. Researchers and innovation incubators of the university should be included in the process of thematic identification, research allocation, and the grant administration process.

Finally, the researcher believes that the overall transformation of the society and the economy, from agriculture to manufacturing and industry, as envisaged in the national and institutional documents can only be achieved through knowledge and innovation-oriented research development at HEIs in Ethiopia.

Prospective HE governance mechanisms

Ethiopia is a landlocked country located in the Horn of Africa. According to the World Bank report for 2018, the country will maintain its fast economic growth within the continent. The country has a rolling national development plan (Growth and Transformation Plan-GTP I, II), and aims to reach lower-middle-income status by 2025:

The macro-economic, national development policies and strategies implemented over the past years that have apparent implication for education sector objectives were to address the human development needs of the country, achieve the MDGs, sustainable development goals and transform the country to middle income country (ESC/MoSHE, 2018, p. 24).

Within the education sector Higher Education Institutions are granted with the core mission to support the economic development through massive production of competent work force and innovation driven research works. However, evidence collected for this paper as well as the world of literature confirm that the sector is struggling with several problems. These include loose internal structures, the duplication of resources, inefficient research theme prioritization, and poor management practices that have led to dissatisfaction of university researchers as well as to poorly designed practical research and innovation links with stakeholders. Moreover, the research function of the universities, as a determinant factor of the economic and societal development is rhetorical Weldegebriel (2018). A survey conducted in the Ethiopian Education policy and implementation indicates that:

The policy content and implementation analysis indicate in certain areas: lack of policy provisions and policy-practice gaps were apparent, while in other cases policy was set on some issues but strategy and plans that make it possible to realize the policy were not in place or not designed for it (ESC/MoSHE, 2018 p.67)

It is obvious that University mission performance contributes to the government strategic plan performance at nation level. The Ethiopian universities are dominantly using the purse of the state. Nevertheless, Universities can perform an outstanding works in research and innovation even under the state dominated relationships among the academic

oligarchy, industry, and the state itself. Evidence shows that the budget allocation as such is hardly related to performance in learning achievements and problem-solving research outputs (ESC/MoSHE, 2018; FMoE, 2015). Similarly, even though funding for HEIs in some parts of the world (i.e., Europe and China) is still to a considerable extent dependent on the government purse, remarkable results have been achieved. For instance, China's HEIs governance system though showing a noteworthy development in terms of autonomy it is still featured by centralized governance system (Li and Yang, 2014).

Therefore, the Ethiopian HEIs should consider the possibility of improving the governance mechanism of higher education research and innovation even under state dominated settings. This can be done by benchmarking experience from nations and global core organizations. For instance, the OECD's Centre for Educational Research and Innovation (CERI) uncovered elements of effective governance to help countries meet modern higher education governance challenges. The complex higher education system is challenged by classical governance practice featured by accountability, capacity building, and strategic vision and planning. Similarly, the collected evidence on the challenges of research and innovation governance in Ethiopian HE confirms to be similar with the major challenges. Therefore, based on the identified challenges, OECD has set indicators for effective governance system. Which are:

....1) focus on effective processes, not on structures; 2) are flexible as well as adaptive to change and uncertainty; 3) build capacity, engage in open dialogue and involve stakeholders, 4) pursue a whole-of-system approach; and 5) integrate evidence, knowledge, and the use of data to improve policy making and implementation. (SEG-OECD 2019 p.7)

Hence, revised dimensions and key areas in the process of improving traditional HE governance mechanism was suggested by SEG-OECD (2019) as follows.

Table 3: Domains of strategic education governance and key areas in each domain.

Source: SEG-OECD (2019)

Accountability	Capacity
<ul style="list-style-type: none"> • Enabling local discretion while limiting fragmentation • Promoting a culture of learning and improvement 	<ul style="list-style-type: none"> • Ensuring capacity for policymaking and implementation • Stimulating horizontal capacity building
Knowledge governance	Stakeholder involvement
<ul style="list-style-type: none"> • Promoting production of adequate evidence • Mobilizing produced evidence for convenient use • Stimulating a culture of evidence-use • Nurturing evidence-related capabilities 	<ul style="list-style-type: none"> • Integrating stakeholder knowledge and perspectives • Fostering support, shared responsibility, ownership, and trust
Strategic thinking	Whole-of-system perspective
<ul style="list-style-type: none"> • Crafting, sharing, and consolidating a system vision • Adapting to changing contexts and new knowledge • Balancing short-term and long-term priorities 	<ul style="list-style-type: none"> • Overcoming system inertia • Developing synergies within the system and moderating tensions

Following the accountability and stakeholder involvement perception, Ethiopian Universities have been integrating various change management tools including Business Scorecard (BSC), KAIZEN, CITIZEN CHARTER, and Peer Network Learning, though struggling to better integrate and maintain. Nevertheless, the researcher believes that this has an infrastructural establishment and so contributes to configure New Public Management in the Ethiopian university systems.

New Public Management (NPM) is an emerging HE governance perspective for education and research universities facing administrative challenges owing to the system's efficiency and effectiveness. NPM is guided by the notion of efficiency, effectiveness, accountability, and transparency (Huisman & Pausits, 2010). When NPM is accompanied by an awareness-based culture of total quality management perception, its features can bring a better working environment. Hence, literature experience shows, NPM can improve a traditional governance mechanism into more transformed and

efficient system. The following table summarizes the difference between the features of classical and NPM featured HE governance system.

Table 4: Characteristic differences of the old HE governance mode and NPM. Source: (Campbell & Carayannis, 2016; Huisman & Pausits, 2010; Ziegele, 2008)

Features of old governance model in HEIs	Features of the ideal NPM governance for HEIs
Input orientation	Output/Outcome orientation
Process intervention	Setting framework and inducing competition
Regulation of funding	Funding autonomy
Ex-ante detailed evaluation	Ex-post prioritized evaluation/steering
Government-university as hierarchy	Government-university as partners
Central, standardized decisions	Decentralized decisions
State normed report	Accountability
Only academic goals	Diverse stakeholder goals
Administration	Management
Supply orientation	Demand orientation

Tsegay Girmay Hagos began as an assistant graduate at Mekelle University. Following more than ten years of teaching and research experience along with his first masters in communication and learning in digital communication he furthered his academic rank at the university. Recently, Tsegay became an assistant professor at the Institute of Pedagogical Sciences at Mekelle University. His research interests include digitalisation, educational technology, and research and innovation management in higher education institutions.

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