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Revisiting the National Ranking Methodology of Higher Education Institution in Pakistan: A Societal and Entrepreneurial Perspective

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The notion of third mission (3M) activities is becoming increasingly important to exploit universities' knowledge and capabilities in society. Besides, there is an emerging need of reflection of these activities in ranking methodologies of universities. In Pakistan, national ranking of universities is conducted by HEI statutory body. The purpose of this study is to assess the methodology of national ranking of HEIs in Pakistan for the reflection of third mission activities i.e., entrepreneurial and societal engagement. Content analysis was performed on the national ranking methodology based on Third Mission Model by Molas-Gallart, Salter, Patel, Scott and Duran (2002). The findings of this study revealed that only 1.03% of the third mission activities are reflected in the methodology of the national ranking system of HEI statutory body i.e., Patents (0.52%), ORICs (0.17%), Grant (0.17%) and Exchange (0.17%).This study will provide a critical base to HEI policy makers, to incorporate third mission activities in ranking methodology to address the emerging economic and social challenges faced by the country.

1. Introduction

HEIs are the hub and source of educated strata of any country (Katsinas et al., 2022) and due to their fundamental and crucial role in the development of societies at large (Chankseliani & McCowan, 2021) , the need to primarily focus on supply of entrepreneurial youth and technological transfer i.e., third mission activities is growing in recent years (Compagnucci & Spigarelli, 2020; Lopatina et al., 2023; Marzocchi et al., 2023; Spânu et al., 2024). With the passage of time, there is an emerging trend of ranking of HEIs at national and international level across the globe (Reymert & Thune, 2023; Strait & Lima, 2023; De Wit & Altbach, 2021; Knight, 2018). However, greater weight given to research output tend to lead the universities to work on the counts of research publication rather than on the practical advancement delivered to society (Burmann et al., 2021; Çakır et al., 2015). Moreover, as identified by Bhalerao et al. (2023), universities tend to focus more on research-based activities rather than the teaching quality i.e., isomorphism. Current study addresses this gap by setting forth a positive debate on inculcating third mission activities in the ranking methodology of HEI's statutory body.

With the context of globalization and higher educational growth in international market, universities have been indulged in robust comparison with other institutes (Buela-Casal et al., 2007). In this way, there has been a widespread change in the objectives and goals of universities to get their representation. University administrators perceive university rankings as proxies of improvement in their quality (Vernon et al., 2018).

More emphasis given by universities to the ranking methodologies thus leads to the notion that ranking criteria should be representative of the true performance of university and its contribution to industry and society as well (Pausits, 2015). Stakeholders like parents, students, administrative staff and faculty consider ranking for their further decision making (Dahlin-Brown, 2006) and tend to change their policies to get aligned with the ranking criteria (Urdari et al., 2017). So in order to cope up diverse stakeholder needs, the ranking methodology should incorporate wider factors of societal and entrepreneurial engagement as identified by the model of Molas-Gallart et al.(2002) used in this study.

The rationale of current study is to to set forth a positive debate on the inculcation of third stream activities in the ranking criteria of HEI statutory body ranking methodology. The emphasis of the current study stems from the reason that national ranking of universities in Pakistan is conducted by HEI statutory body according to its self-designed parameters which gives more weight to research and projects i.e., 41% and only 4% weight is given to social integration keeping in track of foreign exchange of faculty and students. So, present study intends to highlight the key areas of ranking methodology upon which more weightage be given by HEI regulatory authority in Pakistan.

This paper is further organized as follows. In section 2, we have summarized the evolution of university missions. In section 3, we have mentioned the methodology to achieve our research objective. Section 4 deals with a review of third mission activities reflected in national ranking methodology. In section 5, we have discussed the findings of this study.

2. Literature Review

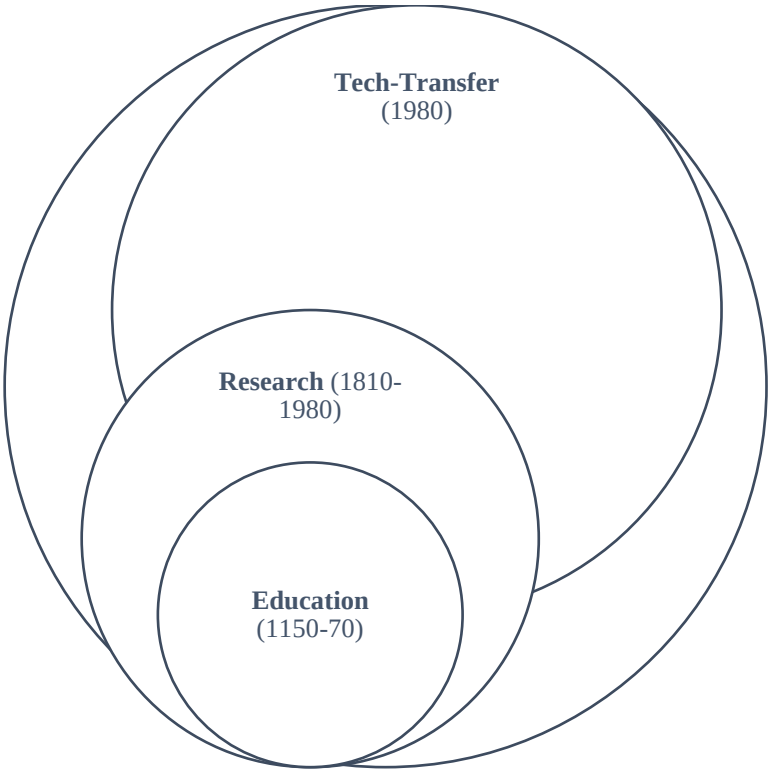
University is meant to be the supplier of knowledge and practice to the society. HEIs were created as a reaction to particular societal requirements of various societies and their mission was to prepare a knowledgeable and skillful workforce (Urdari et al., 2017) and to foster the social and economic cultures of societies.

2.1 Evolution of Universities Missions

The universities are founded with the purpose of teaching to baccalaureate and masters students (Rubens et al., 2017). During the nineteenth century, 'first academic revolution' took place, in which research has been integrated into university core teaching activities. In this way, research became the second mission of the university.

Etzkowitz (1998) identified that in the 1980s there has been an emergence of third mission of universities. This focus has been termed as 'second academic revolution'. According to Molas- Gallart et al. (2002), third stream/ mission activities encompass the activities to generate, use and apply universities capabilities and facilities to the non-academic environment and society. Grimaldi et al. (2011) identified the promotion of entrepreneurial activities in universities by setting up spins offs, licensing and patent. Boyer (1990) was of the view that universities should be indulged in community outreach programs rather than involved in the generation of knowledge solely. Rubens et al., (2017) while suggesting universities to become entrepreneurial universities emphasized the importance of joining hands with the community in order to foster sustainable development.

Figure No 1: Evolution of University Missions, Source: Trencher et al (2013)



As shown in figure 1, university mission started from the emergence of education in a period of 1150-70. While maintaining this core mission, there has been an evolution of second mission in the period of 1810-1980.After the 1980s, tech-transfer i.e., development of the economy has been emphasized a lot. The recent evolution in the university mission is that of fourth mission i.e., sustainability and sustainable development through co-creation (Trencher et al., 2013; Contreras & Abid, 2022; Rank et al., 2022).

The third mission is dated back to 1980s when US government encouraged universities to contribute towards economy, whereby giving universities the right to earn money by selling their patents. Recent studies highlight the emerging interest of HEIs in societal engagement besides stressing the importance of economic autonomy provided to universities (Ali et al., 2021; Langrafe et al., 2020; Roper & Hirth, 2005; Ruiz-Mallén & Heras, 2020; Symaco & Tee, 2019). Despite the worldwide recognition of university rankings, it is however emphasized that major rankings must be analyzed for the manifestation of societal aspects of universities (Urdari et al., 2017).

There has been an emerging trend for the engagement of universities in the community, therefore, coming out of their internal environment (El-Jardali et al., 2018; Koekkoek et al., 2021; Mbah, 2019). Grimaldi et al. (2011) viewed the application of third mission universities as entrepreneurial universities and are assessed through the indicators like licensing, patents and spin-offs. Cook (1992) has identified that universities have to be a central source to the innovation of the region. On contrary, Boyer (1990) while presenting the more participative role of universities, proposed that universities focus should move from only the knowledge generating role to active engagement in the community.

The prevailing university ranking indicators addressed the general approach of looking at universities societal engagements and lack the ability to assess the role of universities in more comprehensive and operational manner.

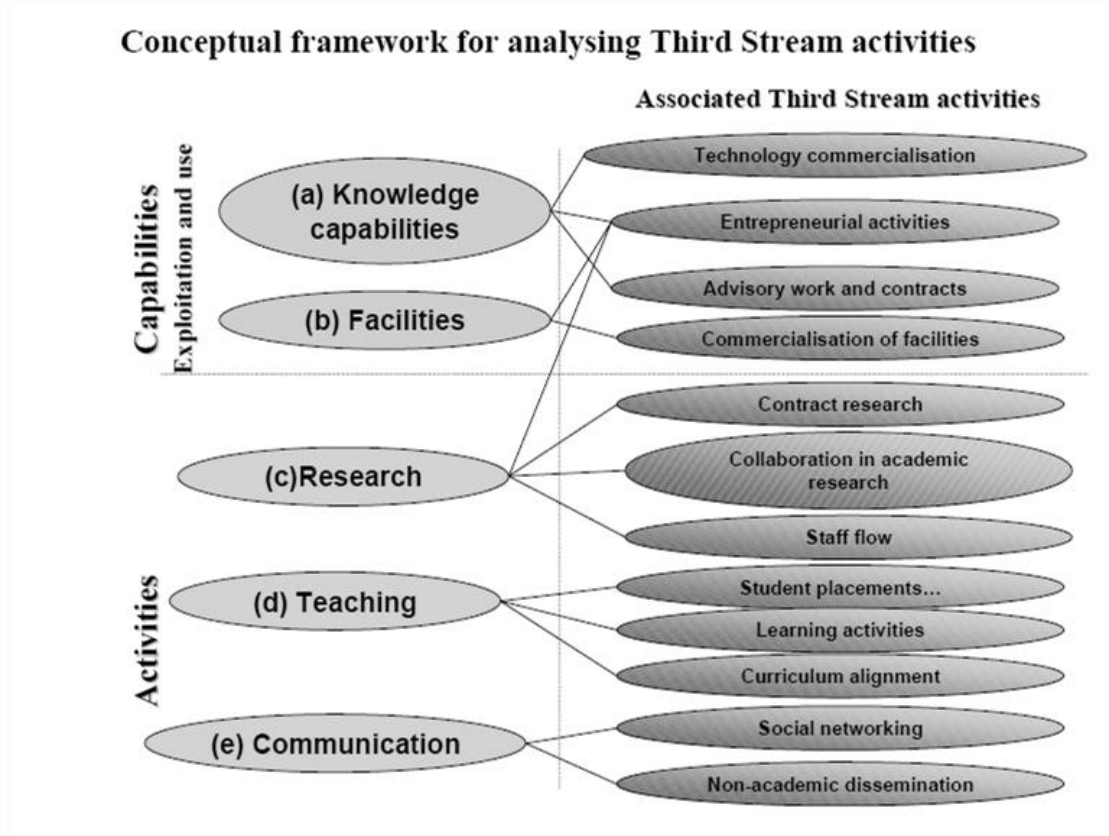
Due to the emergence of concept of society 5.0 and industry 5.0, the universities have been emphasizing to integrate their traditional educational perspectives with social and innovative capacity building (Carayannis & Morawska-Jancelewicz, 2022). Moreover, it has been claimed in the past studies that universities have to contribute towards the socio-economic development and cultural improvement (Martin, 2012). Alshuwaikhat and Abubakar (2008) were of the view that universities should be environmentally responsible thus leading to the fourth objective of campus sustainability.

Although there has been the emergence of the fourth mission of universities, there must be the presence of third mission to complement the fourth mission (Trencher et al., 2013). This, however, leads to the notion of revisiting universities rankings both in terms of societal and entrepreneurial activities.

3. Research Methodology

This study uses the Third Stream Activities model by Molas-Gallart et al., (2002) exhibited in figure 2. This model, however, enlists third stream activities of universities more broadly and in an operational manner that is much feasible.

Figure No 2: Indicators of Third-Stream Activities, Source: Molas-Gallart et al., (2002); Final Report to Russell Group of Universities



In order to fulfill the purpose of this study i.e. assessing the national ranking criteria (HEI statutory body) for the representation of societal factors through the content analysis is performed on the ranking methodology of HEI statutory body. According to Neuendorf (2016) content analysis is an effective approach in analyzing the text for specific context. Dade and Hassenzahl (2013) have employed this method to assess the websites of higher education for the extent of sustainability communication. In order to perform the content analysis, the current study checked for the third mission indicators proposed by Molas-Gallart et al., (2002) in national university ranking of Pakistan and checked for the extent of keywords revealed. Further, supplementary analysis was performed by conducting word frequency analysis through NVIVO software.

The results of content analysis through observation and through the frequency of keywords are discussed in next section:

4. Analysis & Results

In order to assess the presence of 3M activities in the ranking criteria of HEI statutory body content analysis was performed. Urdari et al. (2017) have also employed this technique for analyzing the third mission activities across nine well-known international and European rankings of 2014. The results are discussed below:

4.1. Third Mission Indicators Revealed in National University Ranking

Technology Commercialization is said to be included partially in HEI statutory body ranking. The parameters that up to some extent under the criteria of research by the name of "Number of registered Patents/Varieties/Technologies/Breeds and Creative Work at national level per full time faculty" and "Number of registered Patents/Varieties/Technologies/Breeds and Creative Work at international level per full time faculty" and "Commercialization of registered Patents/Varieties/Technologies/Breeds and Creative Work". By analyzing the criteria of ranking currently opted in Pakistan, it is however observed that Number of university industrial linkages through (ORICs) has been included in the methodology.

Entrepreneurial Activities are very important in providing the practical innovation and adaptation of knowledge by setting up new firms, incubators, and joint ventures. Despite its importance, HEI statutory body rankings lack the explicit representation of this indicator, however, through ORIC such activities are encouraged.

Advisory Works and contracts are in fact the flow of academic capabilities to the users belonging to the non-academic field that is also not reflected in the ranking criteria of HEI statutory body.

Commercialization of facilities refers to renting and letting out university facilities like labs, libraries, building, and land to the industrial as well as non-academic users. This indicator is not given any weight in the HEI statutory body ranking criteria.

Contract Research is deemed to be the research being initiated by the industry and is pointed to solve the problem of industry. But despite its importance, these activities are not included in the ranking system

Non-academic collaboration in academic research refers to the research being funded by the industry thus deemed to be a collaborative research. Such academic research are funded by non-academic organizations. Assessing the national ranking criteria, this third stream activity is measured through one indicator i.e., Amount of external research grants won/obtained by HEIs (grant>=0.6 million).

The flow of academic staff, scientists and technicians refer to two-way interaction within universities and industry so as to foster knowledge to industry and practical exposure to universities. There is lack of indication of this parameter too in national university ranking.

Student placement and other links with potential employees can be measured through one indicator primarily focusing on students only, whereas, the national ranking that is analyzed for the purpose of the study is focusing on the placement of both faculty and students.

Active alignment of teaching to economic and societal needs related indicators emphasize that teaching being the primary mission of universities will become the third mission stream when it is directed towards teaching the non-academic users. There has not been given any weight to this type of teaching in the ranking methodology at the national level.

Learning activities would entail workshops and teachings delivered to the industry. The national ranking has not focused on measuring the involvement of HEIs departments in non-degree awarding programs designed for industry and professionals.

Social Networking activities are entitled as the third stream because of the professional and customized courses designed for the industry needs. These activities are not being given any weight in national ranking and not being reflected in any criteria of national ranking in Pakistan. Although social networking cannot be easily measured in a holistic manner due to informal setting and loose association even then participation in professional meetings and conferences can somehow measure the extent of social networking of HEIs.

Non-academic publications and media appearances activities are focused on dissemination of research results to the industry and non-academic researchers. By analyzing the national ranking methodology, it has been found that these indicators are also not being given any weight.

The aforementioned debate upon analyzing the parameters of national ranking of Pakistan for the reflection of societal and entrepreneurial activities is summarized in Table 1:

Table No 1: Authors' Analysis of Manifestation of Third Stream by Molas- Gallart et al. (2002) in National University Ranking

Ranking/Associated third mission activities	**National University Ranking (HEI statutory body)**
Technology commercialization	Revealed through following keywords: 1. Registered patents/ breeds/ technologies etc. at both national and international level per full time faculty 2. Commercialization of the registered patents/ breeds/ technologies etc. 3. Number of industrial linkages of universities through ORIC
Entrepreneurial Activities	*
Advisory work and contracts	*
Commercialization of facilities	*
Contract research with non-academic clients	*
Non-academic collaboration in academic research	Revealed through following keywords: Amount of external research grants
Flow of academic staff, scientists and technicians	*
Student placement and other links with potential employees	Number of exchange programs

Active alignment of teaching to economic and societal needs	*
Learning activities	*
Social Networking	*
Non-academic publications and media appearances	*

*Note: * 'not revealed'*

4.2. Word Frequency Analysis (Supplementary Analysis)

To further get insight into the extent of 3M activities reflected in national ranking methodology by HEI statutory body, word frequency analysis was performed through NVIVO v. 11. Word frequency analysis was also performed by Deus and Silva (2016) in order to calculate the frequency of sustainability keywords in the mission statement of 30 leading national universities in Brazil. The keywords identified for this study against each parameter has been extracted after analyzing the National Ranking for the presence of third mission activities. The word frequency analysis of the similar words identified in this study is mentioned in Table 2:

Table No 2: Word Frequency Analysis

Third Stream Measurement Indicators by Mollas-Gallart et al. (2002)		**Word frequency Analysis**		
Parameters	**Keywords**	**Count/ Occurrences**	**Weighted percentage (%)**	**Reference(HEI statutory body)**
Commercialization of Technology	Patents	3	0.52%	C(1) C(2) C(3)
	Licenses/ commercialization/ ORICs/ Industrial Linkages	1	0.17%	C(4)
	Royalty	Not found	--	--
Entrepreneurial activities	Spin-offs	Not found	--	--
	start-ups	Not found	--	--
	incubators	Not found	--	--

	Business plan competition	Not found	--	--
Advisory work	invited speeches and lectures	Not found	--	--
	Non-academic audiences	Not found	--	--
Commercialization and use of facilities of university	Renting/ testing/ letting/ leasing	Not found	--	--
	Laboratorie facilities	Not found	--	--
	Industrial users	Not found	--	--
Contract research with non-academic clients	Contact research	Not found	--	--
Non-academic collaboration in academic research	External research grant/ collaborative research	1	0.17%	C(6)
Flow of academic staff, scientists and technicians	Temporary faculty position	Not found	--	--
	Non-academic	Not found	--	--
	Employees	Not found	--	--
	Temporary teaching position	Not found	--	--
	Temporary research position	Not found	--	--
Student placements	exchange program	1	0.17%	E(2)
Active alignment of teaching to economic and societal needs	graduates	Not found	--	--
	Sponsored	Not found	--	--
	Industry	Not found	--	--
Learning activities	Non-credit bearing courses	Not found	--	--
Social networking	participation	Not found	--	--
Non-academic dissemination	Media	Not found	--	--
	broadsheet	Not found	--	--
	TV/radio	Not found	--	--
Total		**6**	**1.03%**	

4.3 Discussion

After assessing the national ranking of HEIs for the manifestations of third stream activities through applying content analysis, it has been observed that percentage of third stream activities reflected in the national ranking system in Pakistan is very low i.e., only 1.03 %. The greater portion of which is devoted to commercialization of technological activities i.e., 0.52% but it is limited only to the number of patents and licenses. Keeping in view the importance of commercialization of technology there must be weight given to the funds/royalty income generated by universities in Pakistan. In this way, in developing economy like that of Pakistan with economic volatility and budget deficit, these activities when inculcated in the university functionaries and mission, will enable the universities to derive their funds through the industry. Thus, universities would be relying less on government and rather serve as an engine to the economic growth of the country. On the contrary, the industry would also get benefits from the technology and innovation of universities.

Moreover, the findings of the study revealed that the national ranking methodology gives low weight to the entrepreneurial activities and communication with the industry and non-professionals. Despite the economic health of Pakistan, there is the opportunity of growth at both macro and micro level i.e., industry and small businesses, entrepreneurial behavior is of paramount importance that would consequently improve the well being of industry and society as indicated by Thurik and Wennekers (2004).

Besides, advisory works and contracts, commercialization of facilities, contract research and flow of academic staff, scientists and technicians are also ignored by national ranking by HEI statutory body. The existing parameter of social integration (4%) is, however, focusing only on the collaboration and foreign exchange programs that have an impact on the quality of HEIs. In order to take further initiatives, the next step should be third stream activities of universities by extending its facilities, knowledge and capabilities to industry and society.

In order to make 3M activities feasible for universities and not to affect the first two streams i.e., teaching and research, there must be the provision of faculty and staff expert in recognizing these activities external to universities as proposed by Rubens et al. (2017).

5. Conclusion

It is emphasized in the current study that HEI statutory body should revisit its ranking methodology by incorporating the third mission activities, so as to foster an innovative culture in institutions and to catch up the global debate of sustainability and co-creation of universities. The current study will provide future implications for policy makers, academicians and higher education institution in the quality engagement of universities with society at large in Pakistan. Future research should focus on a comparative study to assess as to how much weight is given to third mission activities in the national rankings across the continent and the global level. Moreover, the future direction of this research is to highlight the emerging need for fourth mission activities i.e., co-creation and sustainability for universities as well.

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