Evaluating the Impact of Research Produced by a Mission-Directed Emergent University

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Abstract: *The University of Technology, Jamaica (UTech) is quite young, having been granted university status in 1995, a mere 19 years ago. Nevertheless, UTech is acutely aware that it is research that sets a university apart from other post-secondary institutions. Driven by this awareness, it has developed, articulated, and implemented a coherent research agenda and established a supporting research management ecosystem. In this paper we argue that the two main traditional metrics – peer-reviewed publications and citations - which are used in evaluating research productivity and impact, respectively, of a university, while useful, are not sufficient. UTech's mission, like that of many other similar institutions, includes "service to our communities" and its research focus is on "interdisciplinary and applied research relevant to (national) economic and societal problems." By adopting a reflective inquiry method, we cite two examples of how research by UTech staff members has, in one case, had positive impacts on the university's proximate stakeholders, and in another case has the potential to generate significant impact on a particular sub-sector of the economy. We use the sense-making gleaned from these examples to propose an expanded schema of metrics for evaluating research impact. The schema we are proposing is one that includes "Fidelity-to-Mission (FTM)." The inclusion of FTM is based on the premise that an emergent university's first obligation, especially in resource-deficient contexts, must be to address through its research the needs of those it purports to serve, as expressed in its mission statement. Therefore, the extent to which it does so in objectively verifiable ways is a legitimate metric worthy of recognition.*

Keywords: *Fidelity-to-Mission, mission statement, reflective inquiry, research management, research performance metrics, University of Technology, Jamaica*

Introduction and Contextualization

Brief History of UTech

The University of Technology, Jamaica (UTech), succeeded the Jamaica Institute of Technology (JTI), which was established in 1958 and re-branded as the College of Arts, Science, and Technology (CAST) in 1959. On September 1, 1995, the Jamaican Parliament accorded CAST university status under its current name, the University of Technology, Jamaica (Sangster, 2010). The mission of the University of Technology, Jamaica is: *"To stimulate positive change in Caribbean society through the provision of high quality learning and research opportunities and service to our communities"* (University of Technology, Jamaica, Student Handbook, 2012-2013, p.1). UTech is viewed as Jamaica's National University, with a student population of more than 12,000 pursuing more than 50 programmes at certificate, diploma and undergraduate and graduate degree levels through three Colleges and five Faculties. The history of UTech and the contributions of its staff and students are intimately connected with the social and economic development of Jamaica.

UTech's Research and Innovation Management Ecosystem

It is generally agreed that research output is one of the key indicators that sets a university apart from other post-secondary institutions (Organization for Economic Cooperation and Development, 2004). Also, research is central to the very appealing idea of the university as an autonomous entity with the freedom to make its own rules (Lemann, 2014). On being accorded university status, it was important for the newly-created University of Technology, Jamaica to establish and implement a coherent research agenda and a supporting ecosystem of research management. Accordingly, the Office of Research and Graduate Studies (ORGS) was initially established (Onyefulu & Ogunrinade, 2005).

However, in 2007 with the appointment of a new president who set about establishing research and graduate studies as major thrusts at the institution, the ORGS was replaced by the School of Graduate Studies, Research, and Entrepreneurship (SGSRE) as the unit responsible for Research and Innovation Management (RIM) at UTech.

Two imperatives motivated the change from the ORGS to the SGSRE. One, an understanding that "research management" comprises a distinct suite of activities separate from the conduct of research itself (Association of Commonwealth Universities [ACU], 2004). And two, the fact that university-based research has come to be seen not merely as the catalyst of economic growth, but a vital part of the research-innovation ecosystem. Indeed, the concept of the "knowledge economy" based on the application of scientific knowledge as the key source of economic and political power, and social and individual prosperity is now one of the main paradigms across the world. This correlation is strongly promoted by the OECD, the World Bank, UNESCO, and the European Union, among others, and by many national governments (Hazelkorn, 2012).

Key Institutional Research-Related Initiatives

Directed by its mission, "To stimulate positive change in Caribbean Society through the provision of high quality learning and research opportunities and service to our communities," key institutional research-related initiatives are included in UTech's Strategic Plan (Table 1).

Table 1. Strategic research-related initiatives of the University of Technology, Jamaica.

a. Partner with other universities and tertiary institutions to develop new research opportunities;
b. Collaborate with research 'strong' units and organizations;
c. Promote benefits of publication to staff;
d. Track citations, copyright, and patents;

Source: University of Technology, Jamaica Strategic Plan.

In addition, through a consultative process led by the SGSRE, "research focus areas" have been identified reflecting the perceived strengths of the university that may be applied to address significant social and economic problems nationally (Table 2).

Table 2. Research focus areas of the University of Technology, Jamaica.

a. Alternative use of natural resources;
b. Built environment;
c. Energy;
d. Forensics;
e. Health;
f. Hospitality & foods;
g. ICT applications & information systems;
h. Land management;
i. Organizational behaviour and productivity;
j. Technical and vocational education;
k. Sport;
l. Urban space management;
m. Waste management.

Source: Ivey, et al. (2013).

The SGSRE has been designated "owner and driver" of UTech's strategic research-related initiatives and is required to provide performance status reports on them at monthly meetings of the university's executive management committee. Supporting the work of the SGSRE are College/Faculty Graduate Studies, Research and Entrepreneurship Coordinators (C/FGSRECs) serving as the critical link between the SGSRE and the various academic units within the university (University of Technology, Jamaica, Research Policy, 2009, p.3; School of Graduate Studies, Research and Entrepreneurship, 2014).

Research Management Support for Staff

Pre- and Post-Award Support Services

Recognizing the importance of research to its legitimacy as a university and the benefits that will accrue to its "proximate stakeholders" (i.e. primarily the people of Jamaica) from its research findings if it remains faithful to its mission, UTech through the SGSRE has implemented several initiatives and provides a suite of pre- and post-award support services aimed at promoting and encouraging staff involvement in research (Table 3).

Table 3. Pre- and post-award research support services provided by the SGSRE to staff at the University of Technology, Jamaica.

a. Advice and assistance with sponsored research, grants, and contracts for research and scholarly activities;
b. Identification and negotiation with potential partners and collaborators;
c. Help with interpreting and complying with university policy and procedures;
d. Capacity building workshops on grant proposal writing;
e. Provision of information regarding the interpretation and application of the university's Intellectual Property Policy, including assistance with the filing of patents and registering copyrights;

Source: Ivey, et al. (2013).

Internal Research Grant, Research Award, and Research Journal

The SGSRE also manages a competitive, internal research grant fund - the Research Development Fund (RDF). The RDF is an institutional fund, which was originally established in 1998 to stimulate a research culture and build the University's research capacity. The fund has been revised a number of times since its inception to respond to the growing needs of staff, and in keeping with the University's research agenda. The RDF provides funding for the following activities:

1. Research projects.
2. Publication fees for books, book chapters, and peer-reviewed journal papers.
3. Research capacity-building activities.
4. Protection of intellectual property.

In addition, the SGSRE is the secretariat with responsibility for selecting annually the awardee for a major cash incentive, the President's Research Initiative Award (PRIA), which is the university's most prestigious award. The purpose of the award is to stimulate research and scholarly activities by encouraging and supporting individuals who demonstrate exceptional ability through their scholarly activities, research publications, research income generation and grants secured, creative research activity and other research outputs. Since its establishment, 11 members of staff have received the PRIA.

Action is also taken by the SGSRE on an on-going basis to improve the support provided to staff, to encourage research activity among them. So, for example in 2011, the scope of activities eligible for RDF funding was expanded to include covering the costs of staff members' papers accepted for publication by peer-reviewed journals. Also, in the same year the SGSRE re-launched the University's *Journal of Arts Science and Technology (JAST)*, which publishes peer-reviewed papers in the areas covered by the three colleges, five faculties and 18 schools of the university. JAST is thus a medium through which staff members may publish the results of their research, alongside other researchers in other institutions and countries.

Research and Technology Day

The SGSRE is also the chief organizer of UTech's annual Research and Technology Day, which provides an opportunity for the university to display its research work and capabilities to stakeholders. The event facilitates interaction between the university and its various publics. In so doing, the university not only showcases the research work of its researchers, which is of value to the society, but also seeks to develop strong linkages with industry, academia, and with government. And the most recent initiative under consideration is a proposed re-organization of the SGSRE for greater effectiveness (Ivey, Streete, Henry & Oliver, 2012; Ivey, Potopsingh, Henry & Oliver, 2013; School of Graduate Studies, Research and Entrepreneurship, 2014).

Engagement with the Global Research Management Network

Beyond the provision of support services to staff researchers, the University of Technology, Jamaica, through the SGSRE, has also engaged with the Global Research Management Network (GRMN), which is managed by the Association of Commonwealth Universities (ACU) and is "dedicated to the development of international collaboration amongst the research management community" (Research Global, 2010, p.3).

In 2009, the University of Technology, Jamaica became the Caribbean partner on the EU/ACP-funded Science and Technology project, "The Improvement of Research & Innovation Management Capacity in Africa and the Caribbean for the Successful Stimulation and Dissemination of Research Results (RIMI4AC)." The RIMI4AC project, which ended in November 2013, was funded at €2.6 million under the Science and Technology Programme of the ACP with support from the European Union. The specific objective of this project was to strengthen the capacity of research institutions in the regions for sustainability, to effectively manage research and innovation activities, and to improve dialogue between researchers and

policy makers, to inform evidence based national and regional policies feeding into the regional sustainable development agendas of the five regions from which project partners were drawn.

In addition, two of UTech's Research Managers participated in the fifth biennial congress of the International Network of Research Management Societies (inorms), held in Washington DC, USA, from April 10-14, 2014. Research Managers from UTech have self-reported gaining meaningful exposure, experience, and overall building of their research management capacity from this engagement with the GRMN.

The Imperative to Evaluate Research Performance

Higher education institutions (HEIs) along with independent research organizations and industry have a significant part to play in the creation of new knowledge and in this context universities have assumed huge significance in creating value. Since higher education can be regarded as a "key enabler of the knowledge economy," the severity of the global economic crisis has re-fuelled the debate about HEIs being accountable and ensuring value-for-money and return on (taxpayer) investment (Hazelkorn, 2012). Similarly, because research output is one of the key indicators that sets it apart from other post-secondary institutions, it is of paramount importance that a university evaluates its research performance. Indeed, the measurement of research output and the ranking of universities has become somewhat of an industry in itself (Leydesdorff, 2008).

The Two Most Pervasive Traditional Research Performance Metrics

Various metrics for evaluating the research performance of universities have been used over the years. But, in terms of pervasiveness of use, the two most common, traditional metrics are: (i) counts of the number of publications ("research productivity") and (ii) counts of the number of times a particular published paper has been cited by other authors ("impact factor"). These are referred to as bibliometric measures. Measuring research performance provides a university with information that may be useful in: (i) informing decisions concerning allocation of funding to particular areas of research (ii) benchmarking itself against local and international standards of research output, that revolve around the following questions: how much research is conducted? What is its impact? How many papers are published in quality journals? What is the overall trend in the number of such of publications? (Thomson Reuters, 2008).

Beyond the Traditional Metrics, How Else Might a University Evaluate the Impact of its Research Output?

While taking note of these questions, and being aware that the main global university ranking schemes accord significant weight to the traditional metrics used to measure research output and impact, the main question being posed in this paper is: beyond the traditional metrics, how else might an emergent university evaluate the impact of its research output? This issue began to exercise our minds when we participated in the Association of Commonwealth Universities' (ACU) Conference of Executive Heads held in Kingston, Jamaica, in November 2012. The theme of the conference was "University rankings and benchmarking: do they really matter? In a presentation made at the conference, we argued that, for emergent universities, "contextually

impactful outcomes are important versus prescriptive ranking criteria." We also adopted the position that "emergent universities should perhaps not seek to hop onto the 'rankings treadmill' just for the sake of following mainstream trends or values, but seek to be faithful to their missions" (Ivey & Oliver, 2012). We made a further presentation on the topic "Measuring excellence in research (Within the context of a mission-directed emergent university)" at the 5th biennial congress of the International Network of Research Management Societies (inorms), held in Washington DC, USA, in April 2014 (Ivey & Oliver, 2014). In this paper, we are proposing a schema reflecting our views.

Mission Statements as Institutional Guides

Ideally, an institution's mission reflects self-imposed expectations and those of its proximate stakeholders (taxpayers, in the case of publicly-funded institutions), rather than prescriptive global rankings criteria. Of course, this is not to say the pursuit of knowledge and understanding without immediate practical applicability or the various global universities ranking schemes (such as the Times Higher Education/Thomson Reuters World University Rankings) are without merit, or that a university should be entirely parochial in its activities, outlook, and influence.

However, we note that, in recognizing the limitations of the leading global universities ranking schemes, UNESCO promulgated the "Berlin principles on ranking of HEIs" to ensure that those producing rankings and league tables hold themselves accountable for quality in their own data collection, methodology and dissemination. The Berlin Principles comprise five categories and 16 good ranking practice statements, one of which is that rankings should recognize the diversity of institutions and take account of their different missions and goals. In addition, UNESCO does not advocate the pursuit by universities of 'world-class' status or high rankings as goals in themselves (UNESCO, 1996; 2013). We think the main thrust of this paper is consistent with UNESCO's position on rankings.

The Merits of Fidelity-to-Mission as a Metric for Evaluating Research Impact

We define "proximate stakeholders" of UTech broadly as the people of Jamaica, given that the university is publicly funded as a national university. It is necessary to restate here that the research focus areas of UTech represent the strengths of the university that are aligned with the needs of the Jamaican society in particular.

Moreover, UTech is commonly referred to as the 'Peoples' University' and seen as one of the vehicles that must contribute to the realization of Vision 2030 Jamaica. Vision 2030 Jamaica is Jamaica's first long-term National Development Plan, which is aimed at the achievement of developed country status by the year 2030. The plan is based on a comprehensive vision: "Jamaica, the place of choice to live, work, raise families, and do business" (Planning Institute of Jamaica, 2009, p.XXI).

Our attraction to the mission statement of an organization as a meaningful reference point is that such a statement embodies the organization's purpose and in some situations its identity (Ellis & Miller, 2014). More fulsomely, Pearce (1982) states that a mission statement is a "broadly defined

but enduring statement of purpose that distinguishes the organization from others of its type and identifies the scope of its operations…" (p. 15).

Therefore, seeking to relate a university's research performance with its mission is both objectively and intuitively logical. Indeed, according to Dickeson (2010), "the mission statement of an education institution is the academic grid against which it will be measured" (p.37). So then, when the focus is placed on university's mission, the essential question to be answered now becomes: to what extent is an university, through its research, exhibiting fidelity to its mission and, by extension, doing right by its proximate stakeholders? The schema we are proposing that includes *"Fidelity-to-Mission (FTM)"* as a metric for evaluating research impact is shown in Figure 1.

Fidelity-to-Mission may be susceptible to being regarded as a nebulous, amorphous idea. However, when supported by objectively verifiable evidence, its utility and merits as a metric for evaluating the impact of a university's research are appropriate for several reasons, more so for emergent universities operating in resource-deficient contexts in which selective excellence may be a prudent strategy.

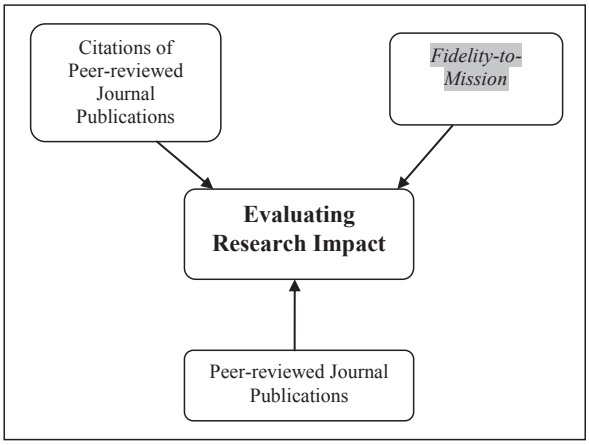

Figure 1. Schema showing *Fidelity-to-Mission* as an additional metric for evaluating research impact.

First, according to Hazelkorn (2012), academic research output, as measured by peer-reviewed-publications, and its impact, as judged by citations, reflects peer accountability rather than social accountability. Second, Weidman and Delgado (2009), while noting that the number of scientific publications and patents from Latin American and Caribbean countries was low, asserted that these countries should commit to social, economic and cultural development, not only the measurement of publication or research studies divorced from their realities.

In a similar vein, Mohamedbhai (2012), with specific reference to African Universities, argued that, given resource constraints, only a few are likely to appear under any of the various global rankings or league tables, as these rankings are based on research, publications in international journals, and citations. He argued that these universities should focus instead on their countries' development and problems because in the rankings race, the playing field is decidedly not level. This is why although not ignoring the role and importance of rankings, UTech has chosen instead to make as its priority research that may be applied to address significant local social and economic problems.

Gnolek, Falciano & Kuncl (2014), noted that it would take hundreds of millions of dollars to be among *U.S. News & World Report*'s top 20 national universities; many universities in developing

countries may not readily have this kind of money. Besides, even if they did, in our view, chasing global rankings is hardly the most prudent way to spend such financial resources. In addition, Lemann (2014) asserted that integrating the research life of universities more fully into the way society understands and experiences these institutions is the best way of maximizing their benefit, and of securing their future. Additionally, Price (2010) asserted that an inappropriate fixation on global ranking schemes may encourage institutions to change strategy just to score better rankings rather than doing what is right for their local settings. We wholeheartedly agree.

Examples of the Impact of UTech's Research on Proximate Stakeholders

Research Councils UK (2007) defines research impact as "the demonstrable contribution that excellent research makes to society and the economy; research impact embraces all the diverse ways that research-related skills benefit individuals, organizations and nations" (p.14). In addition, Research Councils UK cites the following areas where evidence of the translation of research into impacts is usually manifested: human capital, business and commercial, policy, and quality of life.

With specific reference to *quality of life and business and commercial*, we now cite in this section two examples of how the research work of the University of Technology, Jamaica, resulted in tremendous local impact:

1. *Carron Hall Solar-Powered Water Pump, Storage & Treatment Facility*
2. *Celebrating the Culinary Wonders of Cassava*

Carron Hall Solar-Powered Water Pump, Storage & Treatment Facility

Carron Hall is a rural, agricultural community located in the northern region of Jamaica. For many years, the only source of water for residents' domestic use was a natural spring sited more than 300 feet below the level of the nearby roadway. Daily, adults and children alike scrambled up and down the precarious slope with assorted containers, to collect water.

The University of Technology, Jamaica, was approached by local political representatives and community leaders to improve the residents' access to potable water. Approaching UTech for help was not a random act. Rather, it was driven by the political representatives' reasonable and strongly-held expectation that bettering the lives of Jamaicans was among the main reasons for the existence of the university, which is supported by public funds.

In response to the request, Engineers from the Renewable Energy Research Group of UTech's Faculty of Engineering and Computing (FENC) researched the problem and designed and implemented a solar-powered pump and water storage and treatment facility for this community. The project has had the positive impact of improving the *quality of life* of the approximately 2,000 residents of Carron Hall by providing clean piped water. Like many developing countries, Jamaica has challenges meeting the basic needs of many citizens for potable water.

According to the 2011 Population and Housing Census conducted by the Statistical Institute of Jamaica (STATIN), Jamaica had a population of 2,704,133. However, only 16% of Jamaican households or 141,835 persons have access to treated piped water for drinking. Another 68,839

households reported having access to treated drinking water, but it is not piped. STATIN found that 503,411 households or a significant 57.1% have access to piped water used for drinking, but said it is not treated. Another 85,392 households or 9.7% have access to water for drinking from other sources not specifically identified, but it is also not treated (Statistical Institute of Jamaica, 2012).

Access to safe drinking-water is important as a health, basic human right, and development issue at a national, regional and local level (World Health Organization [WHO], 2006). The WHO estimates that 1.4 billion people globally lack access to safe drinking water. The WHO also estimates that 80% of human illness results from insufficient water supplies and poor water quality caused by lack of sanitation. Additionally, the WHO notes that interventions in improving access to safe water favour the poor in particular, whether in rural or urban areas, and can be an effective part of poverty alleviation strategies (World Health Organization, 2006). For those of us who work as research managers, this data underscores the significant impact of the Carron Hall project on the quality of life of the immediate beneficiaries.

Reflecting further on this project, we have learnt that it has had other positive impactful outcomes. For example, another less obvious but no less important positive impact of the Carron Hall intervention is the heightened technological awareness that such a project, which has received good publicity in the local print and electronic media, brings to Jamaica; it demonstrates that the application of science can solve local problems. This is a very important "by-product" of this project in a country where the routine use of science-based solutions to local problems is not the norm. However, this project demonstrates concretely how this is possible.

It is not unreasonable to assume, we believe, that still another positive impact from the Carron Hall solar-powered water storage and treatment research project is that UTech's image was burnished in the minds of the beneficiaries – a set of our university's proximate stakeholders. University research managers should therefore be vigilant in identifying and documenting the non-obvious, but no less important, positive impacts that flow from the research work done by staff.

What is more, the Government of Jamaica (GOJ), through its Rural Water Supply Company, has requested the replication of the Carron Hall project in another area towards a country-wide deployment in similar community settings experiencing similar problems accessing potable water. In this regard, after the project was reported on widely in the local print and electronic media, the Managing Director of the Rural Water Supply Company made direct contact with the Manager of Projects and Operations in the SGSRE, to arrange a meeting. Here we see one of the further benefits to a university of having a dedicated Research Management Office with which interested persons may engage in order to obtain information about the research work of the institution. We attribute the GOJ's strong interest in the Carron Hall project to its clear potential to positively impact the quality of life of a large number of Jamaican citizens. At the time of writing, discussions are continuing with the GOJ to agree a framework for country-wide deployment of projects similar to the Carron Hall one in other communities.

Celebrating the Culinary Wonders of Cassava

We now turn to the second example. Jamaica has an annual food import bill of US$1 billion and authorities believe this can be reduced by up to US$300 million. Among the initiatives being

pursued to contribute to this reduction is a campaign dubbed "Eat what we grow, grow what we eat," which is aimed at encouraging increased consumption of locally-produced agricultural commodities. One of the crops specifically identified as having high potential is Cassava *(Manihot esculenta)*.

Following the launch of the "Eat what we grow, grow what we eat" campaign, a team of researchers from UTech published the book, *Celebrating the Culinary Wonders of Cassava* (McNish, Eyre & Rowe-Campbell, 2013). Although it could be mistaken as a recipe book, it is definitely more. It is a fine research publication, compiled by a three-member cross-disciplinary, cross-faculty research group. Two members are lecturers from UTech's School of Hospitality and Tourism Management (SHTM) and the other is a registered nutritionist and lecturer in the School of Allied Health and Wellness.

The nutritionist contributed *"critical nutritional analyses"* to the formulations of the two culinary innovators. The authors note that the book was published *"to promote the consumption of cassava and cassava value-added products..."*. The authors and the book are focused on nutrition for wellness based on local foods, and the publication contains innovative lab-tested cassava products which now need to be marketed.

In reflecting on the publication of *Celebrating the Culinary Wonders of Cassava*, we see that, through the research of its staff, UTech is placed at the centre of another important local issue; in fact, no less a person than the Minister of Agriculture was guest speaker at the launch of the book. By offering nutritious and creatively presented cassava products, the publication has the potential to exert significant impact on the "Eat what we grow, grow what we eat" initiative by triggering a consumer-led (demand-driven) increase in the production and utilization of cassava.

In his foreword to the book, the president of University of Technology, Jamaica noted that, *"UTech is committed to fostering development through the contribution of our research output in a number of relevant areas that can drive national and regional advancement. Our indigenous foods clearly represent an important area of comparative advantage ... that has significant potential for not only boosting brand Jamaica, but for earning foreign exchange and reducing our food import bill"* (p. i).

Of course, the launch of the book was a public event. But what of the "invisible" research management interventions that made it a reality? To begin with, one of the authors emphasized to the audience at the launch that the team was initially encouraged by one of the institution's research managers to "go for it." One sees here that research managers can motivate researchers and build their confidence to work on their nascent ideas. As in the example cited here, meaningful outcomes can result from such interventions. The team of researchers was also supported by another research manager in protecting their intellectual property rights (IPR) in the work. Researchers need to be supported by skilled, high-quality professional colleagues (Research Africa, 2013).

In addition, the university's research management office contacted the leading commercial producer of cassava to initiate a collaborative arrangement aimed at jointly promoting the consumption of cassava. Basically, the partnership will be based on the premise that promoting use by consumers of the recipes in the UTech publication will result in increased demand for the company's cassava, thereby setting up a virtuous cycle.

Conclusion

Traditional metrics - peer publications and citations - are not ignored in measuring UTech's research productivity and influence. However, the university's mission includes "service to our communities" and its research focus is on "interdisciplinary and applied research relevant to economic and societal problems." Therefore, *fidelity-to-its-mission* is also given significant weight and is measured by the extent to which the university's research output benefits proximate stakeholders, which can be broadly viewed as the people of Jamaica, given that UTech is a publicly funded as a national university.

In the first case study, *Carron Hall Solar-Powered Water Pump, Storage & Treatment Facility,* we cited the impact of UTech's research on proximate stakeholders. The quality of life for approximately 2,000 local residents was significantly enhanced through securing easy access to potable water as a consequence of the intervention of researchers from UTech's Renewable Energy Research Group, Faculty of Engineering and Computing. It was also noted that the project has attracted strong Government of Jamaica interest towards country-wide deployment of projects similar to the Carron Hall one in other communities.

With respect to the second case study, *Celebrating the Culinary Wonders of Cassava,* we have demonstrated that the publication in popular form of applied research with high social and economic utility placed the university at the centre of another important local issue - encouraging the increased consumption of locally-produced agricultural commodities as public policy.

More generally, we posit that emergent universities in Jamaica, the wider Caribbean, and elsewhere should regard themselves as critical tools, not only for traditional "scholarship," but also for social & economic empowerment of the communities they serve. This posture is consistent with that of Weidman and Delgado (2009) and Mohamedbhai (2012), who asserted, with respect to universities in Latin American and African countries, that the emphasis should be placed on research aimed at their countries' development and solving proximate (or local) problems. Implicitly, the extent to which these objectives are achieved is the extent to which the research performance of these institutions has been impactful.

Interestingly, in their analysis of the mission statements of seven HEIs in Jamaica, Ellis & Miller (2014) found that only UTech and the University of the West Indies (UWI) mentioned "research" in their mission statements. This being the case, we believe it further underscores our view that research conducted by these institutions must benefit their proximate stakeholders. Moreover, "service to our communities" is also explicitly stated in UTech's mission statement.

Finally, we believe that the main thrust of this paper is consistent with one of the "good ranking practice" statements promulgated by UNECSO in its "Berlin principles on ranking of HEIs," which is that rankings should recognize the diversity of institutions and take account of their different missions and goals (UNESCO, 2006).

Author Note

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