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SUSTAINING THE VALUE CHAIN IN HIGHER EDUCATION INSTITUTIONS: A TRIPLE BOTTOM LINE APPROACH

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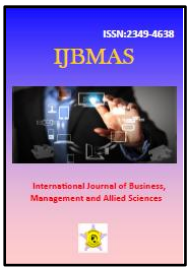

ABSTRACT
The purpose of this paper is to propose a Triple Bottom Line (TBL) approach towards sustaining the value chain in the institutions of higher education. The Triple Bottom Line approach considers the sustainability of the value chain in higher education institutions by looking at the problem in hand via three elements or the 3 Ps – Planet, People, and Profit which are synonymous with Environment, Society and Economy respectively. The value chain (primary and secondary activities) in these institutions needs to be viewed through this approach in order to ensure its sustainability. In this paper with the help of knowledge in the prevailing literature, we determine how sustainability in both the primary and support activities in the value chain of higher educational institutions can be achieved while exemplifying successful cases from around the globe.
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Introduction

Higher education has been subject to significant changes in the recent past and the concept of 'business approach of education' and 'the students as customers' is getting more desirable (Rathee & Rajain, 2013). The institutions of higher education are under immense pressure to provide value to the customers and other stakeholders (McClung & Werner, 2008; Rathee & Rajain, 2013) and sustainability of such value is challenging. (Uhl & Anderson, 2001) maintain that to address this obstacle universities are in an exclusive position since their goals are not limited to education. They further ask what is education for? if not to play an elemental role in how our society advances forward in meeting its many challenges? A new window is, however, required to look at sustainability in higher education i.e. from The Triple Bottom Line (TBL) point of view, after all, educational institutions are value adding entities and making sure such value is served using sustainable approach and that the value so served persists to remain sustainable is imperative.

The ultimate proof of the need to totally transform education is the state of the world and the tremendous initiative being made by thousands of nongovernmental organizations (NGOs) and

schools in environmental and sustainability education to "fix" the conventional educational system (Cortese, 2003)(Lewis, 2003). Sustainable development is the principal challenge to universities in the twenty- first century (Weenen, 2000). Indeed, it is the people coming out of the world's best colleges and universities that are leading us down the current unhealthy, inequitable, and unsustainable path (Glyphis, 2001). The primary need is to change from transmissive toward transformative learning, but this, in turn, requires a transformed educational paradigm. Educators for change need a clearer understanding of an ecological, participatory worldview from which a robust ecological educational paradigm and culture can be engineered (Sterling, 2001). Higher education institutions bear a profound, moral responsibility to increase the awareness, knowledge, skills, and values needed to create a just and sustainable future (Cortese & Cortese, 1997; Tilbury, 1995). A sustained, perpetual effort to transform education at all levels is required (Cortese, 2003; Fien, 2002) and because there exist belief and confidence in the role of education in powering economic and social development, if higher education does not lead the sustainability effort in society, who will? (Cortese, 2003).

Sustainability

In 1987, the terms sustainability and sustainable development came to prominence through the publication of "Our Common Future" also known as the Brundtland report by United Nations World Commission on Environment and Development (Dresner, 2002). Interactions between population, human activities, and the environment and strategies, technologies, and policies for a safe, just, and an environmentally friendly future are among the most sophisticated and interdependent issues with which society must deal (Cortese, 2003The report defines sustainability as "the capacity of the present generation to fulfil its needs without compromising the ability of future generations to meet their own needs (United Nations, 1987). The supreme objective of sustainability is the full integration of the natural, economic, and social systems, and this may be attained through the integration of these objectives (Mebratu, 1998).

The concept of sustainability calls for long-term economic growth aligned with social progression and environmental conservation (Raja & Bhat, 2016). It regards the worldly transactions from the viewpoint which is also called the triple bottom line or 3Ps – People, Planet, and Profits. It not only involves guaranteeing long-term economic viability (Profits) but also adding to the socio-economic development of the society (People) and the health and safety of the natural environment (Planet). Further to this, it may be comprehended by referring to a set of five core principles: respecting life and natural processes; living within limits; valuing the local; accounting for full costs and sharing power (Uhl & Anderson, 2001).

Value Chain in Higher Education

The value chain is a concept from business management that is described as "a representation of a firm's value-adding activities, based on its pricing strategy and cost structure" (Porter, 1985) "which are required to bring a product or service from conception, through the intermediary phases of production, delivery to final consumers, and final disposal after use" (Kaplinsky, 2000) for understanding an organization's ability to add value through its activities, and their internal and external linkages, and allows managers to identify where value is currently added in the system and where there is potential to create further value in the future by reconfiguration and enhanced coordination of activities (Stonehouse & Snowdon, 2007). A value chain exists when all the stakeholders in the chain operate in the way to maximize the generation of value along the chain involving a variety of activities performed within a firm to produce a certain output (Rathee & Rajain, 2013).

The value chain of a university can be viewed as a network of activities focused around teaching, research, and community service, and on an individualized educational package of learning opportunities and tools that enables students' acquisition of target knowledge and skills, and formation of target attitudes and values (Sison & Pablo, 2000). There is a seemingly infinite set of tasks that are performed in any modern-day university, these myriad tasks can be analyzed using the

notion of a value chain (Sison & Pablo, 2000). The figure below depicts the value chain in higher education which we have derived by reviewing the propositions of various authors like (Hutaibat, 2011; Pathak & Pathak, 2010; Sison & Pablo, 2000; Van Der Merwe & Cronje, 2004). The value chain, however, is not exhaustive.

The value chain in higher educational institutions may contain two types of activities primary activities (which contribute directly to the generation of value) and support activities (which contribute indirectly to the generation of value being assistive in nature of the primary activities). Support activities in higher education involve include Infrastructure (Hutaibat, 2011; Pathak & Pathak, 2010; Van Der Merwe & Cronje, 2004); Academic Support Services (Hutaibat, 2011; Pathak & Pathak, 2010; Van Der Merwe & Cronje, 2004); Administration/Professional Services (Hutaibat, 2011); Procurement (Hutaibat, 2011; Pathak & Pathak, 2010); Human Resource Management (Pathak & Pathak, 2010; Van Der Merwe & Cronje, 2004) and Technological Development (Pathak & Pathak, 2010; van der Merwe & Cronje, 2004).

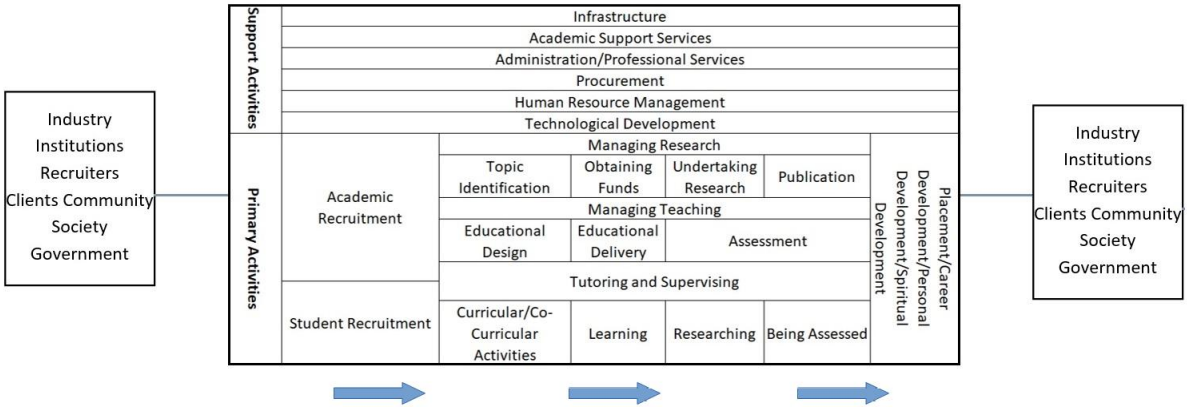

Figure 1: Value Chain in Higher Education recreated from (Hutaibat, 2011; Pathak & Pathak, 2010; Sison & Pablo, 2000; Van Der Merwe & Cronje, 2004)

According to (Hutaibat, 2011; Pathak & Pathak, 2010; Sison & Pablo, 2000; Van Der Merwe & Cronje, 2004) primary activities include Academic Recruitment (recruitment of teachers); Student Recruitment (recruitment/enrollment of students); Managing Research (Topic Identification, Obtaining Funds, Undertaking Research and Publication); Managing Teaching (Educational Design, Educational Delivery and Assessment), Tutoring and Supervising (Curricular/Co-curricular Activities, Learning, Researching, Being Assessed) and Placement/Career Development/Personal Development/Spiritual Development. Each activity includes a myriad of tasks which cannot be discussed within the limits of this paper.

Various external entities are also part of the value chain viz. Industry, Institutions, Recruiters, Clients, Community, Society and the Government (Hutaibat, 2011; Pathak & Pathak, 2010; Sison & Pablo, 2000) which provide input(s) to the value chain and/or are recipient to its output(s).

Triple Bottom Line Approach

Introduced by (Elkington, 1997) in his book *Cannibals with Forks*, the Triple Bottom Line (TBL) approach to sustainability requires an institution to manage its activities and tasks in a way which ensures that it earns money (Profits) and develops the society (People) while doing no or less harm to the environment (Planet). These are popularly known as the three pillars or 3Ps of sustainability – Profits, People and Planet. This approach involves long-term economic growth aligned with social development and environmental conservation. It requires every individual, community and organization to transact with the other keeping in view the sustenance of the People, Planet and Profits. Ignoring any pillar of sustainability while taking beneficial decisions and actions in favor of others causes loses in the former which then ricochets its losses to the latter defeating our purpose in the first place.

Triple Bottom Line Approach to the Sustainability of the Value Chain in Higher Education

Much of higher education stresses individual learning and competition, resulting in professionals who are ill-prepared for cooperative efforts. Learning is fragmented, and faculty, responding to long-established incentives (e.g., Tenure, research, etc.) and professional practices, are often discouraged from extending their work into other disciplines or inviting interdisciplinary collaboration (Cortese, 2003). Not only do universities educate our citizenry with interdisciplinary knowledge, but they are large, prestigious, and influential institutions in their own right, capable of having large impacts on the environment as well as some influence on local and global communities (Uhl & Anderson, 2001). A college or university would operate as a fully integrated community that models social and biological sustainability itself and in its interdependence with the local, regional, and global communities (Cortese, 2003; Velazquez, Munguia, Platt, & Taddei, 2006). There are many ways in which universities can be involved in sustainable development, e.g. management, planning, development, education, research, operations, community service, purchasing, transportation, design, new construction, renovation and retrofit (ULSF, 1999).

In order to achieve sustainability in the value chain in higher education, we propose to look at the problem in question from a Triple Bottom Line approach. Each and every activity in the value chain must be planned and executed in consonance with the aim of making it sustainable vis a vis People, Planet and Profits thereby contributing to the overall sustainability of the value chain. Hereunder, we discuss as to how the primary and support activities in the value chain of higher education can be made sustainable vis-à-vis TBL approach. We use examples from around the world to substantiate our argument.

Infrastructure, Academic Support Services, and Administration/Professional Service

The higher education institutions must design, build, and operate infrastructural elements in ways that do not diminish the social, economic and ecological processes required to maintain human equity, diversity, and the functionality of natural systems (Community Research Connections, 2017). This infrastructure enables the services required for academics and other administrative purposes. For example, throughout the campus at the University of Waterloo, Canada, the use of alternative energy systems and a reduction in energy consumption are promoted. Source reduction initiatives and the use of reusable materials are employed in waste management. The development of an eco-purchase system that promotes sustainable production practices by conducting all university business with environmentally responsible companies plays a significant role in carrying sustainability practices into the community. Moreover, a system of facility auditing has been implemented and university bodies are encouraged to develop their own concepts of sustainability (University of Waterloo, 2016). Meanwhile, at Brown University, USA, attention is given to environmental awareness in administrative policies. It encourages departments/schools to consider the use of products and services that impact the environment less than competing products giving consideration to factors such as energy efficiency, returnable/reusable/recyclable shipping materials and always looking for a high percentage of post-consumer content - which is material that has served its intended purpose and has been discarded for disposal or recovery by a business or consumer (Brown University, 2017).

Procurement

Sustainable performance across dimensions begins from inducting the concept of sustainability in the procurement practices and policies of an institution. Elements, like the practices of suppliers, supplier selection rules, purchasing criteria, procurement channels, credentials of products and services procured must have the touch of sustainability. Sustainable procurement considers both environmental and social factors when making a purchasing decision thereby minimizing the environmental and social impacts of the purchases. Die Fachhochschule Aalen University in Germany, for example, has made environmentally friendly operations central to its strategy (Die Fachhochschule Aalen, 2017). Its focus is on the usage of paper, heating, lighting, water,

and procurement. The University of Bath, England, considers what impact they have on society, the economy and the environment when they buy goods, services and works. It has a Sustainable Procurement Policy which has been developed in consultation with the University's Sustainability & Carbon Management Steering Group and also a Sustainable Procurement Action Plan which details their approach to building sustainable procurement practice into their existing processes and procurement activity. The university has engaged with the Chartered Institute of Purchasing and Supply (CIPS) to use the CIPS Sustainability Index as a key part of the ongoing management of our suppliers (University of Bath, 2017).

Human Resource Management

Sustainable HRM (Human Resource Management) besides recruitment is associated with practices such as health management, staff composition, encouraging continuous education, career planning, promoting individual responsibility and participation, image analysis and improvement, sophisticated incentive systems, exit interviews, outplacement, participative management styles, assessment of superiors (Zaugg, Blum, & Thom, 2001). Sustainability can be used as a principle for HRM itself and the tasks of Sustainable HRM are twofold. On the one hand, it fosters the conditions for individual employee sustainability and develops the ability of HRM systems to continuously attract, regenerate and develop motivated and engaged employees by making the HRM system itself sustainable. On the other hand, Sustainable HRM contributes to the sustainability of the business organizations through cooperation with the top management, key stakeholders, and NGOs and by realizing economic, ecological, social and human sustainability goals (Ehnert, Harry, & Zink, 2013). For example, Centre for Sustainable Human Resource Management and Wellbeing established at the Australian Catholic University, Australia, attempts to grapple with the relationship between HRM practices and outcomes beyond predominantly economic and financial outcomes thereby advocating extended number of metrics, including community well-being, quality of life and employee well-being (the notion of job satisfaction or 'happiness in the workplace') for sustainable HRM practices (Australian Catholic University, 2016). The center also explores scholarly themes in the Human Resource Management and Organizational Behavior domain through the lens of cultural, social, psychological and ethical inquiry.

Technological Development

Technological advances are determined largely by funding priorities, for example, work on human genome research and technologies is in full steam because of the fundings and commitment by institutions and researchers. By the same token, if funding is provided for innovative technological and social solutions to the sustainability crisis now facing civilization, great things might be accomplished (Uhl & Anderson, 2001). The University of Vermont's LEED Platinum Aiken Center, USA, which houses the Rubenstein School of Environment and Natural Resources, is home to the Eco-Machine, which mimics the natural wastewater treatment process of wetland ecosystems to treat the building's wastewater. It uses communities of aquatic micro-organisms, invertebrates and wetland plants that work together to recycle sewage so that it can be used again in the building to flush toilets, reducing water consumption (Sustainability Degrees, 2014). Similarly, University of California San Diego, USA, has an entire Energy Innovation Park, which houses a 2.8-megawatt fuel cell (the largest on any college campus), a sun-tracking photovoltaic array, a compressed natural gas fueling station and more through its network of weather forecasting stations, campus researchers and students use wireless meteorological sensors to collect data on temperature, humidity, rainfall, wind speed, solar radiation and more, and use this information to help improve building efficiency, adjust irrigation needs and find new spots to install solar panels on campus (Sustainability Degrees, 2014).

Academic Recruitment and Student Recruitment

Sustainability should encompass the recruitment of faculty and admission of students into institutions. This ranges from sustainability in the procedures of recruitment of faculty as well as students to making sure the faculty, as well as students, have a commitment and towards

sustainability and from developing courses and institutions to teach sustainability to recruit people to teach and study in such institutions and courses. Moreover, faculty, as well as the students, must be acquired and relieved in a way ensuring their sustainable career development and employability. Quantitative evidence shows that sustainability influences admissions decisions of prospective students. According to (Dautremont-Smith, 2009), almost two thirds (63 percent) of the 10,300 respondents to The Princeton Review's 2008 College Hopes & Worries Survey indicated that they would value having information about a college's commitment to the environment and that it might impact their decision to apply to or attend the school. Nearly a quarter (23 percent) said this information would "strongly" or "very much" contribute to decisions about which schools to apply to or attend. He further mentions that another survey of over 1700 students at a diverse group of nine campuses by researchers at the College of William and Mary found that "current freshmen are two times more likely to choose their school based on sustainability concerns than the entering freshman class just 3 years ago (13.5% vs. 6.5%, respectively)." According to (Committee on Academic Programs in Environment and Sustainability, 2016) at the University of Michigan, USA, a Committee on Academic Programs in Environment and Sustainability was formed which submitted a report in 2016 titled "A New Vision for University of Michigan Academic Programs in Sustainability, Environment, and Society". It recommended the formation of School of Sustainability, Environment, and Society (SSES); the Program in Sustainability, Environment, and Society (PSES); and the Graham Sustainability Institute (GSI). In addition, they recommended the faculty and students to be engaged in such institutions and programs

Managing Research (Topic Identification, Obtaining Funds, Undertaking Research and Publication

Not only should more research be conducted in sustainability but the research practices must be sustainable. The Faculty of Sustainable Research at the American University, USA, expresses that sustainability research focuses on a key principle of sustainability (such as social equity or environmental stewardship); addresses a sustainability challenge (such as climate change or poverty); or furthers our understanding of the interconnectedness of societal and environmental challenges. Sustainability research leads toward solutions that support economic prosperity, social well-being, and ecological health (American University, 2017). At the University of Technology of Sydney (UTS), Australia, the mission of The Institute for Sustainable Futures (ISF) objectives are to undertake and promote scholarly activity and research of the highest quality directed towards the identification of sustainable futures; to conduct research and consultancy work focused on social, economic, and scientific issues concerned with improving/quality of life of all social groups in ecologically responsible ways. Meanwhile, the University of Florida (Hanrahan, Kibert, & Bosch, 1998) is an example of a university that has signed a declaration promising to make environmental education and research a central goal of the institution. Similarly, the Ohio State University, USA, provides funding for research, scholarship, travel and student projects dedicated to advancing education, research, and innovation related to energy, the environment, and sustainability (Ohio State University, 2016).

Managing Teaching

There is a need to use sustainability as a way to structure courses and curricula, and that composition studies, with its inherent cross-disciplinary and its unique function in students' academic lives, can play a key role in giving sustainability a central place in students' thinking and in the curriculum as a whole (Owens, 2001). Institutions must teach in a sustainable way as well as teach sustainability. To achieve sustainability in teaching the content of learning will require interdisciplinary systems thinking, dynamics, and analysis for all majors, disciplines, and professional degrees. The content of education shall include ways to preserve and restore cultural and biological diversity, both of which are critical to a sustainable future (Cortese, 2003). At the University of Technology of Sydney (UTS), Australia, the mission of The Institute for Sustainable Futures (ISF) is to

advise on the development of curricula at the UTS to ensure that UTS graduates are alert to issues of economic, social and ecological sustainability (Institute for Sustainable Futures, 2017).

Tutoring and Supervising

Meanwhile, the University of Florida (Hanrahan et al., 1998) is coordinating an effort to ``green'' the curriculum, operations and research agenda by holding stakeholder meetings, making an environmental audit, auditing courses for environmental content, and creating educational publicity projects. The objective is to embed environmental literacy into virtually every curriculum and every segment of campus operations. Similarly Student Sustainability Center at the Portland State University, USA, continually works with the Institute to create opportunities for student engagement and leadership like the recent Solutions Generator in 2013 that funded student design efforts and facilitated creative student-led ideas aimed at changing the world, enabling participants to learn about and work on sustainability on a local scale (Sustainability Degrees, 2014). Encouraging the development of curricula and extra-curricular activities to promote environmental awareness and responsibility (University of Hertfordshire, 2015) Georgetown University, USA, is home to at least a dozen student clubs and organizations addressing sustainability and environmental topics (Georgetown University, 2017). There are 45-50 student organizations or clubs at the University of California, USA, related to sustainability and the environment (University of California, 2017). At the University of Arizona, USA, under the Sustainable Arizona University program there are 60-90 students per semester working across 10 committees on projects such as the University of Arizona Community Garden, Greening the Game for more sustainable athletics events, HydroCats to install water harvesting in Tucson, Arizona, and the Energy and Climate Committee for student energy advocacy.

Placement/Career Development/Personal Development/Spiritual Development

(Association of Graduate Careers Advisory Services, 2006) holds the definitions of employability can focus on immediate employment, on immediate employability, or on sustainable employability. The third of these, in particular, requires attention to be paid to longer-term career development. In a number of institutions, close links have been established between career development learning and the processes of personal development planning. Conversely, career development learning helps to ensure that PDP processes are not limited to learning and to the present, but have a future orientation that incorporates work and career too. It thus 'acts as a crucial nexus between the undergraduate "present" and the "future" of life after graduation. It enables individuals to develop values, skills, and knowledge to contribute to sustainable development (University of Hertfordshire, 2015).

Careers services within universities can make a substantial contribution to career development learning. The teaching and learning methods used in career development learning need to be personally engaging (and therefore active and interactive in nature); they also need to make the world of work real (and therefore include or draw from direct experiences of the workforce. The three forms of modular approach: Generic, where the same module is designed to be available to students in any department or course. Customized, where a generic template is adapted to the needs of particular departments or courses. Bespoke, where modules are developed for specific purposes within particular departments or courses (Association of Graduate Careers Advisory Services, 2006).

Industry, Institutions, Recruiters, Clients, Community, Society and Government

Colleges and universities have an obligation to support local and regional communities, making every action lead to community improvement (Cortese, 2003). Where appropriate, the University of Hertfordshire aims to build partnerships with the local community to promote sustainable development (University of Hertfordshire, 2015). At the University of Technology of Sydney (UTS), Australia, the mission of The Institute for Sustainable Futures (ISF) is ``to work with industry, government, and the community to create sustainable futures, through programs of

research, consultancy and teaching" (Institute for Sustainable Futures, 2017) The learning and benefit to society of higher education forming partnerships with local and regional communities to help make them socially vibrant, economically secure, and environmentally sustainable will be a crucial part of successful higher education (Cortese, 2003).

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