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INTELLECTUAL CAPITAL INTEGRATION FOR VALUE CO-CREATION IN HIGHER EDUCATION

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Abstract

In the changing dynamics of socioeconomic settings, the role of HEIs (Higher Education Institutions) is now realized as more strategic and central to all such developments. The dynamics are sometimes characterized by government interventions, industry expectations and societal needs. This new and dynamic position describes HEI as an innovation hub, a value-adding entity and as an intellectual capital powerhouse. HEIs' role is often considered around three key areas of teaching, research and community contribution. This paper presents a synergized approach to portray HEIs' strategic roleby re-conceptualizing value creation for its stakeholders. With application of discourse analysis, it attempts to identify and propose value creation sources for HEIs. The sources are identified by constructing on intellectual capital and service innovation frameworks. This paper shows the complexity of problem in reporting value creation by higher education institutions in the context of dynamics and its relation to the environment. HEIs have already adapted the structures that are more inclined to 'managerialism' than the administration (Enders, 2015) such as understanding of competitive markets, stakeholders' interests and the need for deploying strategic management practices. Nevertheless, the organizations in higher education are yet to build systems that could provide a strategic blue print for value creation. The discourse of intellectual capital deployment in higher education management is also not an alien; however,its integration on reporting value creation sources would provide aprototype that can be customized for individual institutional value creation reporting. The sources are categorized by affirming service innovation and intellectual capital discourses in the context of stakeholders' evolving expectations.By reinventing intellectual capital and re-conceptualizing value co-creation we can facilitate the efforts on buildinghigher education institutions that are highly sustainable in our competitive era.

However, this intellectual capital and value co-creation alignment requires a comprehensive yet innovative reporting to inform strategic decision making. This paper presents a reinventing intellectual capital model to demonstrate how HEIs can develop and deploy intellectual capital and sustain this on-going value co-creation. The model is based on intellectual capital and service innovation frameworks. Intellectual capital is integrated as structural, human, relational and social capital whereas service innovation is incorporated on Service-Dominant logic. The arguments focus on the dynamics of entrepreneurship, sustainability, globalization and knowledge society. The model is then validated by deploying content-analysis and recommends value co-creation instruments for internal and external stakeholders.

Keywords: Intellectual Capital, Value Co-creation, Service Innovation, Higher Education Management

1. Introduction

In the emerging context of globalized economy, the role of higher education is also redefining. As the societies of now are pillared on knowledge, sustainability and entrepreneurship the role of higher education institutes (HEIs) is also repositioned on a different spectrum and the expectations from HEIs are becoming multi-dimensional. They are expected to develop individuals that are capable of sustaining societal well-being, become economic contributor, possess global insight and are lifelong learners. Theyare expected to provide analysis on issues in respective disciplines, innovate to solve problems and provide perspectives on future developments. They are also expected to continue to build and create knowledge in all streams. It is undoubtedly difficult to differentiate what HEIs' role falls into which category of expectations however, they are often considered as teaching and learning, research and contribution to society also known as '*third mission'*. Surrounded in these dynamics, HEIs' new strategic position not only demonstrates their centripetal impact on the societies; but also affirms the existence of a continuous value co-creation cycle leading HEIs to achieve their socio-economic agendas [Figure 1]. Apart from repositioning of HEIs on this macro platform, the external dynamics has also influenced HEI's internal governance that is more inclined towards management of HEIs as organizations in a competitive business sector.

In these organizations, the decision-making is now more autonomous yet achievement oriented. The performance evaluations are more robust and frequent that has also influenced decisions making on research and development, funding and investment and goal setting(Leitner, 2004).It implies attention to narrow details on not only around the management of these institutions, but also on transparent and meticulous system of communication/reportingto all the stakeholders of HEIs [Table 1]. This complete and concise reporting is deemed important to let them know that HEIs are doing what they say they are doing. Such reporting to stakeholders can be considered as marketing (Fagerstrøm&Ghinea, 2013) that too , in higher education sector, often discussed in holistic manner; involving multiple activities and dynamics (Krachenberg, 1972).This paper discusses teaching and learning, research and development and third mission activities (Judson & Taylor, 2014; Brambilla&Damacena, 2012; Díaz-Méndez &Gummesson, 2012) as streams of value co-creation. While the notion of value co-creation (VCC) in higher education is subject to multiple interpretations this article focuses on how this conceptualization can be best instrumentalized to understand, communicate and manage the source that enable HEIs perform their dynamic role. The purpose of this article is to provide a comprehensive reporting mechanism for HEIs to showcase their impact and to allow informed decision making by stakeholders.It does so by integrating intellectual capital and Service-Dominant Logic for development of model and also proposes instruments for value co-creation.

Figure 1:The HEI's centripetal position in Today's societal context (Khalid, 2016)

Table 1: Stakeholder categories and constitutive groups(Jongbloed, Enders& Salerno, 2008: 309)

Stakeholder category	Constitutive groups, communities, stakeholders, clients, etc.
Governing entities	State & federal government; governing board; board of trustees, buffer organisations; sponsoring religious organisations
Administration	President (vice-chancellor); senior administrators
Employees	Faculty; administrative staff; support staff
Clienteles	Students; parents/spouses; tuition reimbursement providers; service partners; employers; field placement sites
Suppliers	Secondary education providers; alumni; other colleges and universities; food purveyors; insurance companies; utilities; contracted services
Competitors	Direct: private and public providers of post-secondary education
	Potential: distance providers; new ventures
	Substitutes: employer-sponsored training programmes
Donors	Individuals (including trustees, friends, parents, alumni, employees, industry, research councils, foundations)
Communities	Neighbours; school systems; social services; chambers of commerce; special interest group
Government regulators	Ministry of Education; buffer organisations; state & federal financial aid agencies; research councils; federal research support; tax authorities; social security; Patent Office
Non-governmental regulators	Foundations; institutional and programmatic accrediting bodies; professional associations; church sponsors
Financial intermediaries	Banks; fund managers; analysts
Joint venture partners	Alliances & consortia; corporate co-sponsors of research and educational services

2.Value co-creation in higher education

In its simple form, value creation can be determined by asking one question of what activities (and in what configuration) a provider should perform that can add value to the product/ service they deliver and enable it compete in the market. In other words what a provider does that differentiates it from others in the same sector. All such drivers of product/service

differentiation are the sources of value creation (Amit &Zott, 2001). HEIs' carry out their social, economic and service functions that are the outcome of interconnections and interdependencies on their stakeholders (Ranjan & Read, 2014)such as students, industry and Government. These interactions are complex, yet provide unique value such as when students undertake real industry problems they also enhance their competencies and work readiness; in this example HEIs, industry and students has formed a unique network of value co-creation where receiver (stakeholders) and provider (HEI) collaborate to create value for the receiver. Value co-creation is often described by referring to Service Dominant (S-D) logicwhich is defined as: "*rebundling of diverse resources that create novel resources that are beneficial (i.e., value experiencing) to some actors in a given context*; this almost always involves a network of actors, including the beneficiary (e.g., the customer)" (Lusch and Nambisan, 2015: 161).Following S-D logic, the stakeholders' engagement can be elaborated as co-creation of value whereHEIs distribute the responsibility among its stakeholders [Table 1:(Jongbloed, Enders & Salerno, 2008, p. 309)] to maximize collaboration and customized experiences resulting in high perceived value of these services as they are experienced or used. This value co-creation is an innovation in itself and denoted as service innovation which is based upon "Actor-to-Actor Networks, Resource Density, Resource Liquefaction and Resource Integration" (Lusch&Nambisan, 2015: 160).

2.1 Reporting Value co-creation and Intellectual Capital:

In recent years, the application of intellectual capital concept has become widespread. The notion of dependence on intellectual capital (human, information and organization) in delivering value to primary and secondary stakeholders is a strategic alignment discourse (Kaplan & Norton, 2004). In order to improve the organizational understanding of HEIs, management scholars have applied IC-concept in multiple formats. Edvinsson and Sullivandefines intellectual capital as the "knowledge that can be converted into value" (1996: 358). Moreover, Steward (1998) describes IC with intangible assets excluding any information and knowledge that does not contribute to create value for organization which means identifying these intangible assets is also identifying VCC sources. Intellectual capital (IC) application is very relevant to HEIs as, for them; it is both input and output.

According to Ranjan & Read, VCC is modeled on "knowledge, equity, experience, personalization, relationship and interaction" (2014: 295) which is very much the fabric of intellectual capital discourse. Brooking (1996) suggests that intellectual capital is comprised of four types of assets: (1) market assets, (2) intellectual property assets, (3) human-centered assets, and (4) infrastructure assets. The IC for HEIs has been reported in many ways such as research related resources, activities and results(Fazlagic, 2005) and (Córcoles, 2013); performance indicators (Marr et al., 2004) and countable variables such as number of researchers, number of computers etc.in (Kok, 2007) and in (Ramirez, Manzaneque&Priego, 2015). This article adapts Ferenhof's (2015) model to represents IC as it is based on the analysis of peer-reviewed research work on the topic that incorporatesMarr (2005), Bontis (2002), Ross et al. (2001) and Still et al.(2013)'s work to encompass IC. It collects essence of IC in the form of a Meta model describing IC in four components of structural, human, relational and social capital.

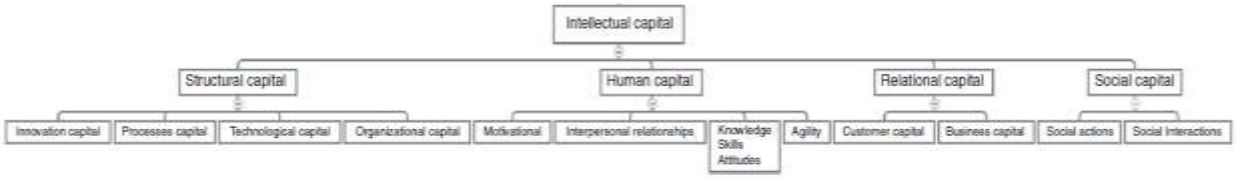

Figure 2: IC Meta Model (Ferenhof et al., 2015: 91)

The synthesis of intellectual capital and service innovation leads to described VCC as a holistic framework of integration and interdependence that can result in identifiable VCC sources providing a mean of strategic alignment to fulfill stakeholders' information needs (Kaplan & Norton, 2004). Khalid (2016) describes it as 'Reinventing IC for reporting value co-creation in HEIs' model. The model translates service innovation for VCC by interweaving components of intellectual capital as resources such as actor networks are based on human capital, structural capital provides hard and soft scaffolds that are conducive for integration and innovation. Customized interactions pillared on social capital and 'value-in-use' and 'value in experience' is affirmed as relational capital.

Figure 2:Reporting value co-creation in HEIs (Khalid, 2016)

3. Approach

As the framework for reporting VCC is established, the next step was to identify and validate indicators that can be scaled to analyze VCC by any HEI.In order to examine the text that produces VCC and IC link, the study began with analysis of selection of text from literature that describes sub-components of IC; the meanings were then connected to the HEIs' context applying in interpretive form. The proposed VCC model is constructed on a diversity of concepts that requires attention to its measurement in parallel with conceptual development (Brakus et al., 2009). For new and re-conceptualized topic of study discourse analysis is useful and viable research methodology (Phillips & Hardy, 2002).This studysynthesizes intellectual capital for application using text, context and discourse three dimensionality (Phillips & Hardy, 2002) collecting information on evaluating value co-creation sourcesin particular settings ofHEIs. It then undertakes a validation test on VCC dimensions (Ranjan & Read, 2014) by performing critical content analysis. The content analysis was administered to validate the conceptual completeness (Wilson, 2016) of the proposed VCC indicative instruments.The website content (home page and school's page) of reputational ranked top-10 business schools [Table 2] ("World University Rankings 2016-2017 by subject: business and economics", 2016) was used as data set.

The coding and analysiswas carried out using NVIVO-10 and results are presented in [Table 3]. Website content is "analyzed by breaking it up into conceptual chunks" (Wilson, 2016: 117) that are coded against VCC dimensions.The test indicatedsignificant visibility of each of the IC-dimensions as representation of VCC instruments.

Table 2: Top Ranked Business schools ("World University Rankings 2016-2017 by subject: business and economics", 2016)

World Ranking	Business School
1	Massachusetts Institute of Technology United States
2	Stanford University United States
3	University of Oxford United Kingdom
4	University of Chicago United States
5	Harvard University United States
6	Northwestern University United States
7	University of Cambridge United Kingdom
8	University of California, Berkeley United States
9	University of Pennsylvania United States
10	Columbia University United States

4. Discussion

Following the analysis and testing methodology, this section discusses IC and VCC link in its interpretative form followed by results from content analysis as VCC instruments in Table 3. The discussion and mapping for each of the sub components goes as follow:

1. Structural Capital:

Structural capital (SC) is an organizational fabric integrating IC with tangible assets for the value creation processes. Marr (2005) describes it as the "stuff" that enables the organizations progress. Mesa (2007) appreciates Marr's rationale of individuals' and organization's alignment on value-creation. The SC is also described as the intangible asset left when employees are gone home (Ross et al., 1997). It is grounded in the Meta model as "innovation capital, process capital, technological capital and organizational capital" (Ferenhof et al., 2015: 90). Following Edvinsson (1997) and Stewart thoughts on transforming human capital to structural capital, SC capital can be argued for HEIs as a soft-scaffold covering organizational operations management, data management, culture, strategy and context that all revolves around academics and academic departments. The categories are further elaborated for HEIs byexemplifying Johnson's (1999) approach to SC.

1.1 Innovation Capital:

It can be described as HEI's ability (in structural systems) to extract, record and adapt knowledge (explicit and tacit) from human capital and incorporate in its value-creation processes. The projects, researches and solutions in the forms of consultations given by university to the industry, national and supra-national organizations, businesses and knowledge society in general could be examples for an HEI's innovation capital.

1.2 Organizational Capital:

Organizational Capital is termed encompassing learning and supportive culture for employees to experiment, innovate and be unsuccessful (Bontis&Richardson, 2000). It also covers the organizational norms, values and rules (Szczepankiewicz, 2012) conduciveness towards knowledge sharing and collaborative learning. Opportunities for career growth; support for questioning, feedback and experimentation and systems to share learning (Marsick&Watkins, 2003) are marked as OC for HEIs.

1.3 Process Capital:

This sub-component is action-oriented; Johnson (1999) describes it as ways of transferring the work of human capital to create value. The work process, practices and procedures that help firm transform and acquire essence from human capital can be a critical factor for HEIs operating in strategic contexts. These "procedures and routines of the company's internal processes" (Marr, 2004: 555) can be found in course delivery and assessment methods, compliance practices, the terms of reference to work with external authorities, quality assurance mechanisms etc.

1.4 Technological Capital:

It is the virtual infra-structure facilitating the efficiency and effectiveness of human to structural capital transformation. Knowledge and information sharing mechanisms; access, recording and reporting information is encompassed in the technological aspect of intellectual capital. For HEIs, the examples can be: Moodle integration, Microsoft share point knowledge base, institutional research database,repository of the student work, the best teaching and learning practices, Human Resource Information Systems.

2. Human Capital:

Human capital (HC), as part of IC, is defined by different authors in different ways; however' a similar vocabulary is found in almost all such definitions covering a collective of knowledge, skills and sometimes, the experience of its employees resulted because of interaction "between self and environment" (Kwon, 2009: 2). "Human capital includes experience, the know-how, capabilities, skills, and expertise of the human members of the organisation" (Kok, 2007: 185). It is the stock of competencies, knowledge and personality attributes embodied in the ability to perform labour so as to produce economic value. The discourse of HC as being something 'rented' and cannot be claimed by the organization or employers as theirs is also found common. The Meta model, however further elaborates it in third-order constructs of: "motivation, interpersonal skills, knowledge, skills and attitudes and agility"(Ferenhof et al., 2015: 90). Based on the established strong link between human capital acquisition, education and training (Becker, 2009) we can say that university's human capital is a compulsory ingredient to develop culture of learning and innovation. It provides unique learning opportunities and development of entrepreneurial qualities. The mapped for sub-categories are as follows:

2.1 Knowledge, Skills and Attitudes (KSAs):

In HEIs, it can be discussed as a 'collective wealth' of faculty's knowledge (subject and tacit), skills and unique experiences; and at the same time the human capital of its students that they develop throughout the study period (Raza et al., 2011). The research outputs, training provided and education of the academic staff are considered indication of this HC category (Leitner, 2002). The number of students graduated and their other academic achievement such as their professional qualifications in the study time can arguably be considered HC of an HEI (Bezhani, 2010). Academic process management, research and teaching skills and leadership styles (Brooking, 1996) of academics and employability skills developed in students are also HEI's human capital.

2.2 Agility:

The institutional and its employees' ability is the creative ability to contribute strategically the organizational goals by adapting their KSAs for a strategic fit. Bontis et al. (1999) signifies the importance of intellectual agility of an organization as an enabler to change the way of doing things with innovative solutions. It is characterized by the organizational competencies(Veiseh and Eghabli, 2014) around critically analyzing concerns, identifying root of issues, accessing almost all possible information around the core, evaluating options and their implications for short and long term, vivid decision making, keenness to learn about self and others. These people are comfortable with ambiguity and complex situations (Personal Attributes and Leadership Capabilities - Indicators, 2009). For HEIs, it can arguably include adapting and customizing academic processes and practices to address emerging expectations. Establishment of new programmes and degree structures, feasibility and consultancy projects, progress reviews, continuous improvement plans implementation are some examples of education management projects. Adapting anddesigning multi-disciplined and skill-diverse pedagogies to suit the learning needs of different groups, use of authentic assessments and cultivating learning environments that are conducive to independent and collaborative learning would be a few examples from course based academic practices.

2.3 Motivational Capital:

The motivational dimension of HC can be discussed as a driving factor that encourages individuals and groups to play their active role in the value creation process. (Ferenhof et al., 2015) has identified motivational capital as a common theme in a number of peer-reviewed articles on the topic. In terms of IC, it is the level of motivation in teams and individuals to strive. In HEI's context, academic staff's motivation can be sustained through job design, appreciation for work, competitive wages and promotion and growth opportunities (Herzberg, 1959) (Linder, 1998); whereas students' motivation towards learning can be kept up with student-centered, activity based, reflective and authentic learning opportunities.

2.4 Interpersonal Relationships (IR):

The interpersonal relationships play a key role in knowledge sharing and creation. For HEIs , it would include collaboration and support within the departments. The effectiveness can be seen in the form of continuous support for the new academics, collaborations for research, sharing best practices in pedagogy etc. A stronger IR within teaching teams and with academic management is often reflected in students' progress and efficiency in the learning processes.

3. Relational Capital:

Relational capital embodies all the organization's relationships with customers, suppliers and other critical stakeholders (Roos et al., 2001). Meta model (Ferenhof et al., 2015) describes it with third-order constructs of customer and business capital covering relations, brand and

image. For HEIs, it can arguably be considered including relationship among the academics from local and global educational institutions resulting in knowledge exchange such as programme reviews, student exchange programmes, collaborative conferences etc. It also includes relationship among students at inter and intra institutional level resulting in value-adding activities. This can be carried through participation in local, regional and international competitions, forums and consultancy projects. HEI's alumni are also an example of such capital though scarcely tapped for value creation. It is also characterized by relations with higher secondary schools, potential students and their parents, collaborations with Industry and potential employers.

4. Social capital:

Social capital includes resources enabled subjecting social networks and are utilized by members of networks for action (Lin, 2001); although it is based on relations with society as a whole (Still et al., 2013) but derived from professional and business networks of its employees (Krebs, 2008). Meta model, as explained above, consolidates it with the third-order constructs social activities and social interactions.These are the positive externalities by which organizations flagship their contribution towards sustainable society (Wasiluk, 2013) through instrumenting their IC. For HEIs, like any other institution, it is perceived as a resource and value-adding ability exhibited by social activities and interactions benefiting both members and society at the same time. HEI's achievements, memberships, recognitions, knowledge transfer to public (Bezhani, 2010) and contribution towards societal development projects and agendas can be marked as examples of this collective valuable resource (Nahapiet&Ghoshal, 1998) and can arguably be described as strategic responsiveness of IC towards the societal good.

Table 3:Value Co-creation Instruments

IC-categories	IC-Integration for VCC	VCC Instruments
Structural Capital for VCC		
Innovation Capital	• projects, researches and solutions to authentic problems	• Access to Research work done by academic staff (at least proceedings) • Repository of students projects/presentations • Student work/skill display
Organizational Capital	• Strategic priorities, norms, values and rules conducive for learning and institutional image as learning organization. • Organizational structures flexibility	• Encouragement for High performers • Achievements sharing • Learning support programmes [staff and students]
Process Capital	• Process and systems in place to work process, practices and procedures that help firm transform HC to SC such as synergised approach to Performance	• Repository of performance /progress reports • Self-reviews and/or improvement plans/ agendas [departmental] • Annual reports • Feedback from regulatory

	management, quality management and self-development processes for collective wider benefit	authorities • Processes information for grievances, reports on consultation with industry
Technological Capital	• virtual infra-structure for learning and knowledge sharing and continuous easy to retrieve back-up systems	• Interactive dash boards • Formal and informal blogs • User-friendly, backward integrated and media-friendly information sharing system.
Human Capital for VCC		
Interpersonal Relationships	collaborative learning Systems for employee and student induction and orientation Opportunities for best practice sharing	Information about • induction programmes • employee gathering informal/formal events • team celebrations • symposiums and workshops events • Annual calendar
Knowledge, Skills and Attitudes:	• faculty's knowledge (subject and tacit) , skills and unique experiences that are aligned with HEI's strategic orientation • KSA as they are developed in students • Research outputs and Training of academic staff • Academic Achievements by students • Employability skills development of students • Teaching, Management and leadership skills of academics	• Academic staff portfolios • Access to sample consultancy/Research projects • Institutional research strategy and academics contribution • Longitudinal analysis of pre and post study Competency assessment • Graduated students and High achievers portfolios • Professional qualifications by students and staff • Achievement data such as graduates destination data • Innovation in Teaching and learning methods
Agility	• competencies around critically analysing concerns, keenness to	• Message note/videos from Academic staff evidencing their approach to their

	learn about self and others • Evidence of doing similar things differently, • devise new processes, • consciousness towards development and innovation to contribute towards organization in a more strategic manner	field, institution and society. • Projects/development that is unique to them and to the institute. • Institutional position on teaching philosophy and academic processes.
Motivational Capital:	Academics and students motivation towards value co-creation. Driving factor that encourages individuals and groups to play their active role in the value creation process. For academics: job design, appreciation for work, competitive wages, and promotion and growth opportunities. For students: student-centered, activity based, reflective and authentic learning opportunities.	• Employees satisfaction report • Students satisfaction report • Stakeholders [industry, government] feedback on value-creation • Student-cantered, activity based, reflective and authentic learning opportunities. • Public appreciation for work, • Performance based promotion and growth opportunities
Relational Capital for VCC		
Customer capital	Academics-industry liaison systems Institutional-Government liaison systems Graduates: brand ambassadors	• Career growth of graduates • Parents, employers feedback on graduates • Standardization in programme reviews of • MOUs and action plans • Collaborative consultancy projects
Business Capital	Suppliers Institutions' correspondence for VCC Brand and Image Inter-firm relations Financial relations with	• Networking with other HEIs [local and global] for sharing best practice. • Collaboration with higher secondary educational institutions

	Alumina	• Collaborations with Industry and potential employers • Ties with targeted industries through curriculum planning design and delivery. • Compliance with national and international regulatory authorities • Participation (students/academics) in competitions and skill events. • Research outputs on social issues • Quality assurance reports • Alumni relations Management System
Social Capital for VCC		
Social Actions and Interactions:	• Institutional effort for a sustainable society • Individuals (academics) networking at local and global platform for societal agendas • Social citizenship • Industry/work ready graduates/workforce	• Public service and volunteer opportunities • Green projects • Welfare projects • Awareness programmes on social issues • Free courses [MOCS] • Free Tutorials for basic skills • Knowledge sharing on social platforms: newspapers, social networks and other e-media etc. • Sustainability projects • Preparing youth for prompt participation of graduates/students as successful members of society

Conclusion:

This paper contributes to what we call the 'third stage' of research on intellectual capital. It does so by first synthesizing it in HEIs' context and then proposing HEIs' intellectual capital components as value co-creation instruments.It suggests that the role of HEIs in the today's

settings can be best described as a multi dynamic and multidimensional process of continuous value co-creation (VCC) whereby all stakeholders play active and indispensible role throughout. It also suggests that the outcome of that value co-creation can be comprehensively reported by deploying intellectual capital as instruments for such value co-creation. However, further studies can be done to provide a more robust list of such instruments. This VCC reporting can provide a holistic, yet customized view to different stakeholders for decision making on resource allocation. It also provides an autonomous platform for HEIs to showcase 'how they do what they say they do'which is not necessarily engraved in the existing ranking systems. By providing a shared structure for communication and benchmarking on the best practices, it is aimed to motivate business academics and scholars to contribute to the knowledge on the management of higher education. HEIs are often discussed borrowing concepts from different management fields; however, a vast knowledge gap has yet to be filled with entrepreneurial solutions on addressing growing strategic challenges.

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