Reconfiguring the higher education value chain

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Abstract
Forces of demand and supply are changing the dynamics of the higher education market. Transformation of institutions of higher learning into competitive enterprise is underway. Higher education institutions are seemingly under intense pressure to create value and focus their efforts and scarce funds on activities that drive up value for their respective customers and other stakeholders. Porter’s generic ‘value chain’ model for creating value requires that the activities of an organization be segregated in to discrete components for value chain analysis to be performed. Recent trends in higher education make such segregation possible. Therefore, it is proposed that the academic process can be unbundled into discrete components which have well developed measures. A reconfigured value chain for higher education, with its own value drivers and critical internal linkages is also proposed in this paper.

Keywords
Value chain, higher education, for-profit, value drivers, brick and click

Introduction
Higher education as a service industry has undergone significant changes worldwide. The traditional role of state funded not-for-profit educational entity is being replaced by a self-funded for-profit one (Goldsworthy, 2008). The traditional service characteristics of higher education as well as business models in the industry are changing (Onsman, 2004; Poon, 2006). The following excerpt from a report prepared for the UNESCO 2009 World Conference on Higher Education bears testimony to these trends:

The worldwide surge in private higher education and the financing models for this sector have important implications for students and society. These trends have generally led to increasing austerity in universities and other post-secondary institutions (overcrowded lecture halls, outdated library holdings, less support for faculty research, deterioration of buildings, loss of secure faculty positions, and faculty brain drain as the most talented faculty move abroad). In response to these financial pressures, universities and national systems have sought solutions on the cost and demand side. (UNESCO, 2009)

It is apparent that academic operations in institutions are gearing up for the twin challenge of large class size and a more discerning and demanding customer. Simultaneously operations are also being reconfigured to accommodate the other two critical customers, i.e. funding agencies (to ensure smooth research activities) and the ranking agencies for higher education institutions (to maintain national/international visibility and credibility). Higher education institutions are thus seemingly under intense pressure to create value and focus their efforts and scarce funds on activities that drive up value for their respective customers and other stakeholders (Goldsworthy, 2008). The transformation of institutions of higher learning into competitive enterprises is underway.

Concept of the value chain
The changing dynamics of the higher education sector demand that competitive advantages be created as and when possible. To create competitive advantage, the concept of ‘value chain’ was initially proposed by Michael Porter (1985). He conceived it as a framework to capture the chain of activities performed in a manufacturing organisation and to identify the interrelated nature of these activities. There are five primary and four support services in the value chain model proposed by Porter. The primary activities in the value chain model are: inbound logistics, operations, outbound logistics, marketing and sales, and services. The support services are: human resource, technology, firm infrastructure and procurement.

The value chain model is a useful tool for defining a firm’s core competencies and the activities in which it can pursue a competitive advantage of cost and differentiation. The generic value chain model requires that the activities of a firm be segregated into discrete components for value chain analysis to be performed. However, in the case of the
service sector, its four basic characteristics of intangibility, inseparability, non-inventory and inconsistency interfere with the configuration of the value chain. The earlier research factored in this limitation and proposed service sector-specific value chains. However, this concept has been the reference point of research on strategy for services in general and higher education in particular (Sison et al., 2000; Gabriel, 2005; Polese & Monetta, 2006; Mora et al., 2008; Makkar et al., 2008).

Some of the previous studies on this theme (Gabriel, 2005; Makkar et al., 2008) have rejected the application of Porter’s value chain in the context of higher education and proposed an alternative chain for institutions of higher education. The arguments for rejection were: some components of the value chain, i.e. inbound and outbound logistics, cannot directly be applied; and the four basic characteristics of services make such application impossible. However, recent trends in higher education make it possible to unbundle the academic process into discrete activities (which have well developed measures); to distinguish between value driving and other activities; to configure the value chain as per the Porter’s model; and to explore critical linkages between activities.

Higher education has stretched beyond the exchange of value between the teacher and the taught. A large chunk of the academic’s role has been disintegrated and the thrust on teaching and learning has been replaced by other value-creating activities. Therefore a discussion on this theme would be lopsided if only the traditionally didactic part of higher education institutions (Gabriel, 2005; Polese & Monetta, 2006; Makkar et al., 2008) is factored in while configuring/proposing any theoretical framework of the value chain.

This paper presents a detailed discussion on the emerging trends in higher education, as well as the unbundling of the higher education activities. It also presents the traditional as well as the proposed reconfigured value chain, along with a brief discussion on critical internal linkages in both chains to capture the paradigm shift taking place in higher education.

**Emerging higher education landscape and new age value drivers**

The seriousness of an educational institution as a free commercial entity was clearly established with the advent of private initiative in education in general and higher education in particular (McNay, 1995; Lenington, 1996). The ‘for-profit’ character of institutions is eventually bringing in consideration of driving up the cash flows streams as well as effective cost control measures to maximise customer value (as perceived by the customer) and organisational profits. The industry is indulging in a closer examination of the top-line as well as the bottom-line performance.

The following paradigm shifts in higher education need to be addressed before the discussion on the higher education value chain can be taken further.

- **Changing business models.** The rise of ‘self funded’ and even ‘for-profit’ higher education institutions indicates that the battle for student numbers, skilled human resources and a quantum of the grants and research/publication pie is on. Three emerging business models are brick (physical campus), brick and click (physical as well as virtual campus) and click only (virtual campus) (Levine, 2001). Top-line and bottom-line drivers of performance in each of the three are same, i.e. keep the numbers moving and the costs under control. The value chain gains its importance in higher education because sooner rather than later institutions are bound to isolate the activities performed into discrete components. This would be necessary in order to determine the scope of cost efficiency and the potential for further value creation. Gradually, the fully integrated value chain of institutions will be disintegrated to realise better returns on investments (Poon, 2006).

- **Student as customers.** The traditional role of a seeker is replaced by that of a client who has the ability to pay. The self-funded education customer places demands on the system making education a learning- rather than teaching-centric activity (Levine, 2001) and from providing a qualification to managing the total customer experience (Polese & Monetta, 2006). A breach of marketing promise could result in legal action (Onsman, 2008).

- **Rank-defining perceptions.** In the global education market where the customer and the service provider could be geographically separated, ranks provide a global frame of reference about the intrinsic value of institutions. Ranking agencies continue to monitor and establish benchmarks for the value delivered by these institutions.

- **Overseas/online market expansion.** Active market development overseas using agents, marketing campaigns and strategic brand development has increased the significance of both procurement services and marketing and sales. Also the establishment of overseas as well as virtual campuses have expedited the market expansion process.

- **Technology.** Technology has been a support service in academic institutions. However, cost economics and the emerging online mode of delivery are ensuring that the institutions are partially on the way to substituting teacher-driven with menu-driven educational resources (Poon, 2006).

As a backdrop to these developments, the value driving activities are getting redefined for higher education. Based on the above trends, the new age value drivers in higher education can be summarised as follows:

- **Student enrolments.** The expansion of capacity by educational institutions has created an emphasis on full capacity utilisation thus making student enrolment numbers important.

- **Research grants and publications.** This has become the most salient measure of the intellectual capital of an educational institution of higher learning as well as a requirement of survival in the future.

- **Teaching and learning training.** Teachers are trained in how to manage the student’s overall learning experience.

- **Research training and development services.** The thrust of this activity is on shaping up the individual research
initiatives of an academic by providing training on aspects such as the supervision of higher degree candidates, the writing of proposals for funding and the commercialisation of the research outcomes.

- **Technology.** Technology enables students to navigate themselves through the courses, creating a flexible learning experience, pre-packaging a large component of the academic delivery and assessments and making available customer contact/touch points beyond the classroom.

- **Student’s evaluation of teaching.** These ratings are de facto the customer satisfaction ratings. They are a composite statement of the total customer experience with a course and the teacher.

- **Visibility.** Market expansion and a diverse set of customers have propelled the institutions towards active brand building and differentiation. Alumni get factored in at this point as brand ambassadors/mascots.

The traditional thrust on the quality of students admitted, the quality of faculty and the quality (as well as nature) of teaching and learning is being replaced by student numbers and a teacher’s ability to mobilise publications/grants and higher customer satisfaction ratings. The rigour of the admission process is taking a back seat in the buyer’s market for education, while rankings such as the Academic Ranking of World Universities (ARWU) prominently factor in quality research output in their methodology for ranking institutions (ARWU, 2009).

### Unbundling components of higher education and reconfiguring value chain

The service characteristics of intangibility, inseparability, inconsistency and perishability are being largely controlled using technology, i.e. education is gradually moving from a high-contact, low-equipment service to a relatively low-contact, equipment-based service, where the moment-of-truth experience (the interface between the customer (student) and the frontline staff (teacher)) may no longer be the focal point of value creation. The following section explores the possibility of breaking down a hitherto highly intangible, high-contact service such as higher education into primary and support activities, and proposes a reconfigured value chain.

#### Primary activities

The five primary activities in Porter’s value chain model are: inbound logistics, operations, outbound logistics, marketing and sales, and services.

- **Inbound logistics** include receiving, warehousing and inventory control of input material. In the case of the higher education industry inbound logistics refers to student enrolments (Radner & Miller, 1970) and by the same analogy recruitment of teaching/research staff. The inventory (i.e. student–teacher ratio) management philosophy in higher education may vary from just in case (conservative student-staff ratios which constrain the demand for faculty and the number of students to be admitted) to just in time (flexible inventory of staff, more contractual, casual and part-time employment to adjust the capacity with respect to demand) and just for me (menu-driven virtual education customised for each student, with no demand for staff resources) (Duderstadt, 1999). The traditional education institutions were judged on the student screening out ratio, whereas the new age institutions derive value out of numbers. The direct impact of this trend has been on the warehousing of the staff, i.e. the gestation period for an academic to acquire teaching and research training (Goldsworthy, 2008).

- **Outbound logistics** is the activity concerning the finished product and its placement in the market. Manufacturing outfits create value in this activity by placing the product in the market in the best possible manner at the least possible cost and in the least possible time. Extending the logic here, outbound logistics in the context of institutions of higher education would imply: the student’s ability to get the best possible return on investment in the least possible time and cost; the teacher’s ability to make the student’s learning possible in the best manner and in the least possible time and cost; and the researcher’s ability to get their work published in the best possible academic journals, delivering the desired research outcomes/commercialisation and developing an intellectual property portfolio in the least possible time and with the least possible cost. Overall, all these components in some measure get factored into the rankings at national and international levels. All the three variables mentioned above adequately and quantifiably reflect the value added.

- **Marketing and sales** are two other primary services of the generic value chain. Marketing and sales in higher education, as in any product/service, refers to all activities associated with getting the buyer to purchase the
product. The definition of buyers may include the students themselves, funding agencies and employers. This activity did not have a defined role in educational institutions. Traditional education brands were rarely created using mass medium advertising, promoting a university as if it were a bar of chocolate or a bottle of soda. Faculty and alumni were the core elements of its brand identity; in some cases individual names outweighed the overall brand value of the institution itself. The role of marketing and sales and services in creating education brands and in servicing education customers is growing in significance. Educational institutions have started promoting their brand in the print and electronic media. Open days are being used to market various courses while agencies/agents are being recruited to lure overseas students. The potential evidence of rising returns on marketing expenditure may soon bring this activity into the limelight.

Support services

The four support activities of Porter’s value chain, i.e. firm (administrative) infrastructure, human resources, technology (R&D) and procurement, may be adapted in the context of the services sector as well. **Firm infrastructure** may add value by putting in place a set of rules and procedures to facilitate effective functioning. **Human resources** may help identify, recruit, train and develop staff. **Technology (R&D)** as a support service in education may help in the development of new pedagogy, curriculum, assessment plans, blended learning, etc. **Procurement**, which is a critical support service in a manufacturing set-up, traditionally has been insignificant in the education industry, but in the context of higher education may refer to facilitating student enrolments and attracting qualified academic/research staff.

Support services are the new emerging power centres in the higher education sector. In view the recent trends support services can be categorised at two levels, i.e. primary (critical to value creation) and secondary (enabling yet not critical). In the reconfigured value chain it is proposed that the following primary support services: **procurement** (drives the revenue), **technology** (helps cost-effective, innovative and flexible academic delivery), research **training and development** (trains teachers to produce better quality, more commercially relevant research output), teaching and learning (helps the teacher to make the student learning possible, i.e. drives up customer satisfaction) and academic **administration** (helps establish controls and monitor performance on established criteria) should be added (Poon, 2006; Goldsworthy, 2008). It is also proposed to include two secondary support services, i.e. **human resources and firm infrastructure**, which are emerging as routine activities not capable of significantly adding value directly or supporting the primary activities in a vital manner.

Reconfiguring the value chain

The emerging higher education institutions, both ‘for-profit’ as well as ‘not-for-profit’, are recasting their business models and reevaluating the key thrust areas. The traditional model of higher education is under scrutiny for its ability to create value commensurate with the emerging performance benchmarks. The possibility of unbundling higher education into a set of interrelated yet discrete activities has been addressed in the previous sections. This section presents the traditional and proposed reconfigured value chains for the higher education sector.

Figure 1 represents the traditional value chain. Five primary activities and four traditional support activities are used to explain the traditional education value chain. The application of Porter’s value chain in the traditional institutions is rather difficult as the teaching and learning interface has traditionally been fairly opaque. The determination of specific value addition

![Figure 1. Traditional higher education value chain (arrows indicate the critical linkages)](image-url)
taking place depends on visibly discrete sets of activities. The traditional education model had little scope for such distinctions between the various activities, as it was highly governed by the intangible aspects of value creation which are neither visible nor quantifiable. A large chunk of value creation took place via the academic interface in the classroom and students and teachers were deemed as the best brand ambassadors for the institutions.

The intrinsic value created by an institution clearly could not be broken down into fine components to reflect the scope of value addition. Such an application, though graphically represented here, does not qualify for a rigorous value chain analysis. In essence, even if defended otherwise, such an application would be difficult to make in the click or brick and click models of higher education. Figure 1 also reflects these linkages in the traditional value chain by way of arrows. As is reflected, the inbound logistics, operations and outbound logistics were three value drivers, and the linkages were strong between them, i.e. the outcome of one could be significantly affected by the outcome of the other.

Figure 2 represents the proposed reconfigured value chain in higher education in view of the paradigm shifts discussed above. The figure captures the increasing significance of support services, the emerging trend of teaching and learning (in large part independent of the physical presence, i.e. reducing level of contact), technology as an enabler as well as a creator of cost advantage and enhanced efficiency; and the formalisation of marketing and sales services. The activities identified have a structure and are capable of being outsourced. The value added at each stage has a specific measurement and the interaction/linkages between activities can be established with some degree of clarity.

Higher education institutions could identify the value drivers as well depending on the business model (i.e. for-profit, self-funded or externally funded as well as bricks, bricks and clicks or clicks only models of business). The margins for each institution will depend on the configuration of the chain as well as the identified value drivers. Critical internal linkages and the paradigm shift are obvious as a lot of linkages are taking place between support services and primary services. Marketing and sales and inbound logistics, procurement and inbound logistics, and technology and operations are some of the many such linkages evolving in the reconfigured value chain.

Conclusion
This study has revisited Porter’s value chain analysis and extended its application to the higher education sector. The core objections to the application of this model to higher education have been addressed in view of the changing nature of higher education entities, the forces of demand and supply in the market for higher education, the unique and dynamic models of business and the compulsion to create value for stakeholders and clients. These are all good reasons to demystify the business of education where considerations of intangibility, inseparability, non-inventory and inconsistency have rendered the application of the generic value chain model inappropriate. These limitations have been discussed and a new value chain is proposed, though suitably adapted to the unique context of higher education.

All three formats of higher education (brick, brick and click, and click) coexist today, each having its own unique business model. Configuration of the value chain, value drivers and the extent of disintegration could vary between the three formats. Yet the relevance of value chain analysis
along the lines of this study will be high for each one of them due to the fact that there are specific demands on institutions falling in any one of them to not only create value, but to maximise it for all the stakeholders and customers.

The study is aimed at assimilating the developments in higher education and making a case for the application of Porter’s value chain analysis in this sector. A discussion on the possible merits or otherwise of a ‘value chain analysis’ in higher education is considered beyond the scope of this study. Future research on the theme could possibly take up that aspect of study as well.

References

Biography
Dr Virendra Pathak has a Ph.D. in Civil Engineering. He has twenty years of experience in academia and is currently associated with the Queensland University of Technology, Australia. He is involved in teaching spatial science related subjects and his research interests are in the area of applications of geospatial technologies for urban development, higher education policy and management. E-mail: virendra.pathak@qut.edu.ac

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