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Reconfiguring the higher education value chain

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Introduction

Higher education as a service industry has undergone significant changes worldwide. The traditional role of state funded non-profit educational entity is being replaced by self-funded for-profit one (Goldsworthy, 2008). Traditional service characteristics of higher education as well as -business models in the industry are changing (Onsman, 2004; Poon, 2006). Following excerpt from the report prepared for '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generally led to increasing austerity in universities and other postsecondary institutions (overcrowded lecture halls; outdated library holdings, less support for faculty research, deterioration of buildings, loss of secure faculty positions, and faculty brain drain as the most talented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 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 (Goldworthy, 2008). Transformation of institutions of higher learning in to competitive enterprise is underway.

Concept of value chain

Changing dynamics of higher education sector demands that competitive advantages be created as and when possible. To create competitive advantages, the concept of '*value chain*' was initially proposed by Michael Porter (Porter, 1985). He conceived it as a framework to capture the chain of activities performed in a manufacturing organization and to identify the interrelated nature of these activities. There are five primary and four support services in the value chain 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 in to discrete components for -value chain analysis to be performed. However, in case of service sector, its four basic characteristics of intangibility, inseparability, non-inventory and inconsistency interfere with configuration of the value chain. The earlier researches 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 alternate 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 in to discrete activities (which have well developed measures); distinguish between value driving and other activities; configure the value chain as per the Porter's model and 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 being 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 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 the chains to capture 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). 'For-profit' character of institutions is eventually bringing in the consideration of driving up the cash flows streams as well as effective cost control measures to maximize customer value (as perceived by the customer) and organizational profits. The industry is indulging in a closer examination of the top-line as well as bottom-line performance.

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

- Changing business models: Rise of 'self funded' and even 'for-profit' higher education institutions where the battle for student numbers, skilled human resource, quantum of grants and research/ publication pie is on. Three emerging business models are brick (physical campus), brick & 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 potential for further value creation. Gradually, the fully integrated value chain of institutions shall be disintegrated to realize better return on investment (Poon, 2006).

- Student as customers: Traditional role of a seeker is replaced by that of a client who has the ability to pay. 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 customer and the service provider could be geographically apart, 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 & sales. Also, the establishment of overseas as well as virtual campuses have expedited the market expansion process.
- Technology: It has been a support service in an academic institution. However cost economics, emerging online mode of delivery, are ensuring that the institutions are partially on the way to substitute teacher by menu driven educational resource (Poon, 2006).

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

- Student enrolments: Capacity expansion by educational institutions has created thrust 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 in higher learning; as well as the requirement of survival in the future.
- Teaching and learning training: To manage the overall learning of student, where the teachers get trained on how to manage the student's learning experience.
- Research training and development services: Thrust of this activity is on shaping up the individual research initiatives of an academic by providing training on aspects such as: supervision of higher degree candidates, writing proposals for funding and commercialization of the research outcomes.
- Technology: It 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 class room.
- Student's evaluation of teaching: These rating 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 the student numbers, teacher's ability to mobilize publication/ grants and higher customer satisfaction ratings. The rigour of admission process takes a back seat in the buyer's market of education. While, ranking like ARWU prominently factor in quality research output in their methodology for ranking the institutions (ARWU, 2009).

Unbundling components of higher education and reconfigured 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 [interface between the customer (student) and the frontline staff (teacher)] may no more be the focal point of value creation. The following section explores the possibility of breaking down the hitherto highly intangible, high contact service; like 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 & sales and Services.

Inbound logistics include receiving, warehousing and inventory control of input material. In case of 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 constrained 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 customized for each student, with no demand for staff resources) (Duderstadt, 1999). The traditional education institutions were

judged on the student screening out ratio, the new age institutions derive value out of numbers. The direct impact of this trend has been on warehousing of the staff *i.e.* gestation period for an academic to acquire teaching and research training (Goldsworthy, 2008).

Operations in educational institution shall differ significantly from the traditional manufacturing outfit. The process of converting raw material in to a finished packaged good, may find parallel in the process of converting an incumbent student/ teacher / researcher in to a highly skilled human resource. Production efficiencies add value and reduce cost in manufacturing set up. Their applicability in the context of higher education has traditionally been clouded by the intangibility (evaluation of teaching, learning and research) and inseparability considerations. Institutions of higher learning today, are using disruptive technology (simulation ready softwares, development of virtual content broken in to fine grain) to render tangibility, separability, inventory and standardization to the academic process (Noble, 1998; Poon, 2006; Levine, 2001). Teachers are emerging as one of the many content providers for the new education customer; thus the mystique of a teacher's persona, skills and expertise (all intangible) are being replaced by a more structured role, where value addition can be more effectively measured. Also, -evaluation of the teacher's output in both teaching and research is taking place in a more structured manner with clear definition of work load, well-defined performance measures, continuous monitoring and established control mechanisms.

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 student's learning possible in the best

manner 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/commercialization and developing an intellectual property portfolio at the least possible time and cost. Overall, all these components in some measure get factored in the rankings at national and international levels. All the three variables mentioned above adequately and quantifiably reflect the value added.

Marketing & sales, and *Services* are other two primary services of the generic value chain. Marketing & sales in higher education as in any product/service refers to all activities associated with getting the buyer to purchase the product. 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 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. Role of marketing & 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, agencies/agents are being recruited to lure overseas students. The potential evidence of rising returns on marketing expenditure may soon bring this activity in 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 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 the staff. *Technology (R&D)* as a support service in education may develop new pedagogy, curriculum, assessment plans, blended learning etc. *Procurement* which has been a critical support service in a manufacturing set up; traditionally has been insignificant in the education industry. *Procurement* 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 of the recent trends, support services can be categorized 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.* driving up the customer satisfaction) and *Academic administration* (helps establish controls and monitor performance on established criterion) 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.

Reconfigured 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 section. This section carries a discussion on putting these discrete activities in the framework of Porter's value chain and its implications:

Figure 1 represents the traditional value chain of an academic institution. 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. Determination of specific value addition taking place depends on a visibly discrete set of activities. 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 neither visible nor quantifiable. A large chunk of value creation took place via the academic interface in the class room and the students and teachers were deemed as the best brand ambassadors for the institutions.

The intrinsic value created by an institution could not be clearly broken down into fine components to reflect the scope of value addition. Such application though graphically represented here; does not qualify for a rigorous value chain analysis. In essence, even if defended otherwise such application would be difficult to make in the click or brick & click model 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 emerging 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 a large part independent of the physical presence i.e. reducing level of contact), *Technology* as an enabler as well as creator of cost advantage and enhanced efficiency; and the formalization of *Marketing & sales* services. The activities identified have a structure and are capable of being outsourced. The values add at each stage has specific measurements 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 & clicks or clicks only models of business). Margins to each institution shall 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 & sales and inbound logistics, procurement and inbound logistics, technology and operations are some of the many such linkages evolving in the reconfigured value chain.

Conclusion

This study has attempted to revisit Porter's value chain analysis and extend its application to higher education sector. The core objections to the application of this model to higher education have been addressed in the view of the changing nature of higher education entities, forces of demand and supply in the market of higher education, unique and dynamic models of business and compulsions to create value for stakeholders and clients. These are all good reasons to demystify the business of education; where intangibility, inseparability, non-inventory and inconsistency considerations 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 & 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 shall 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 maximize 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 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.

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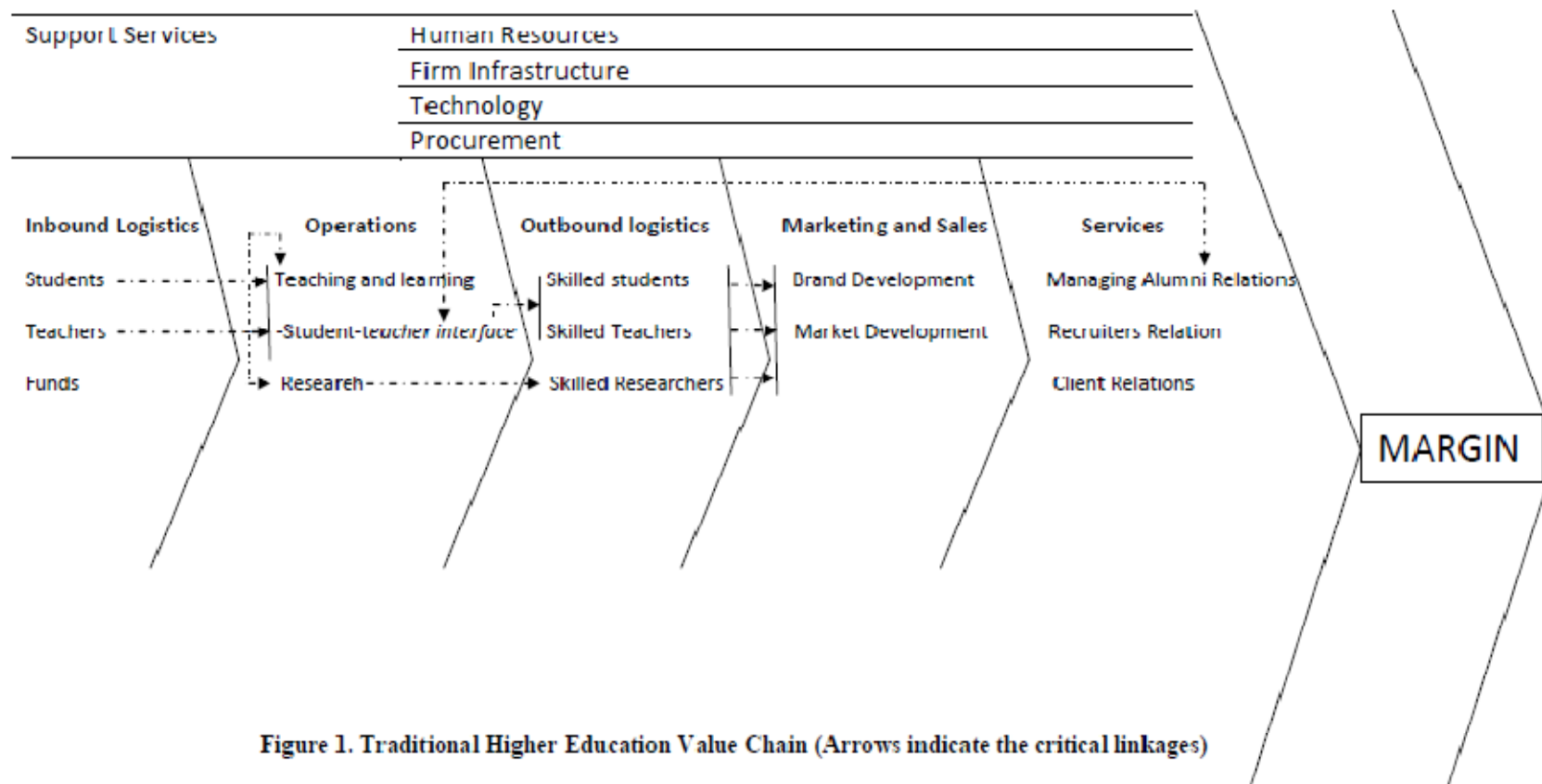


Figure 1. Traditional Higher Education Value Chain (Arrows indicate the critical linkages)

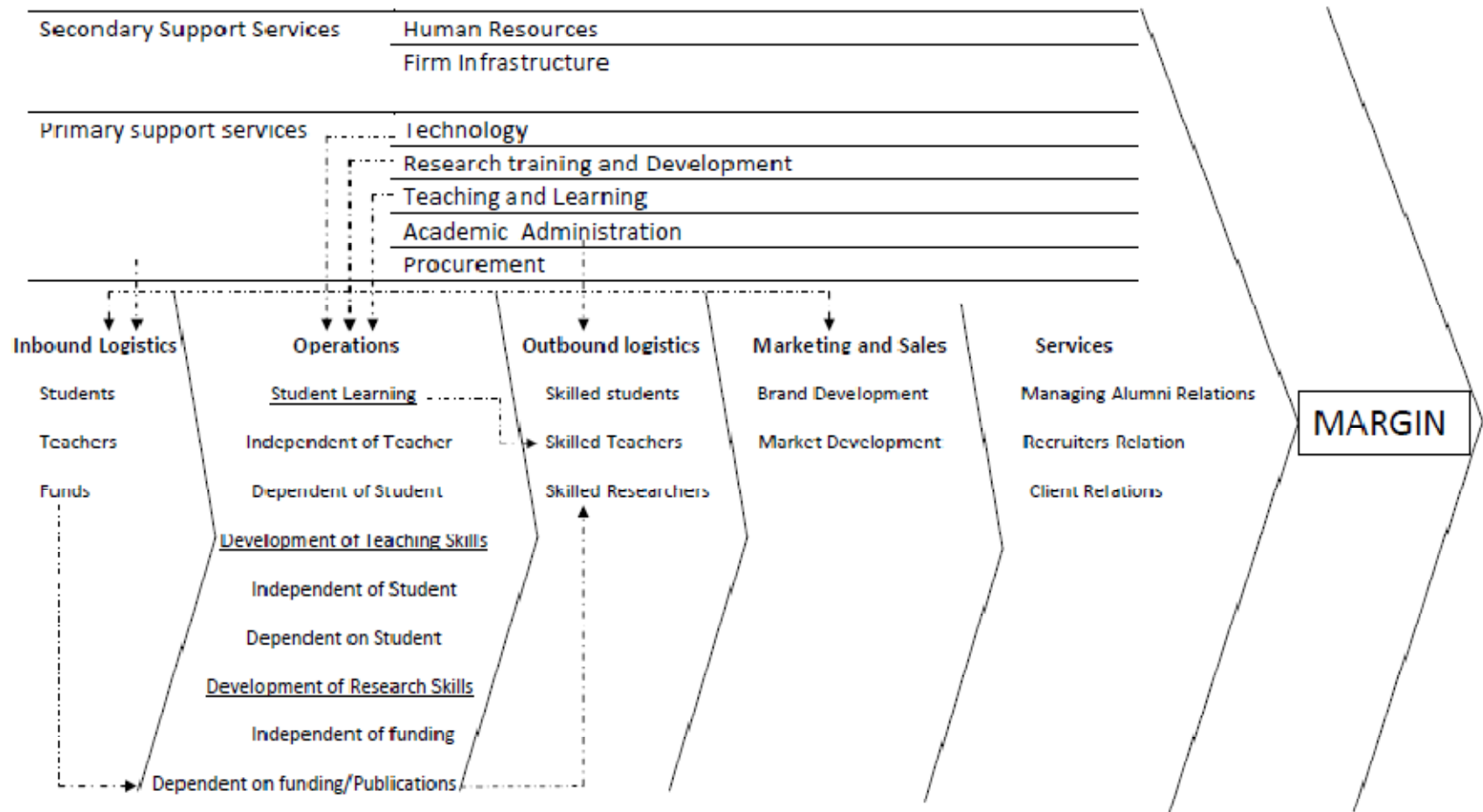


Figure 2. Reconfigured Higher Education Value Chain (Arrows indicate the critical linkages)