Strategies for Adaptation of Tertiary Educational Institutions in the Digital World

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ABSTRACT

Education is a tradeable commodity. Particularly since the advent of university rankings, competition has become fierce. National governments have responded by policy changes and sometimes the imposition of strict quality agendas. The changes observed affect all tertiary institutions and call for both organizational and personal resilience. Adaptive change is necessary in response to the vulnerabilities experienced. Change strategies adopted by some in the sector to ease the burdens experienced are reviewed and discussed and include adoption of LEAN and other strategies for continual improvement to reduce waste, eliminate the causes of organizational inefficiency, improve employee engagement and strengthen relational features in general. Included are the introduction of well-being initiatives and strategies for the minimization of silo mentalities. For non-profit institutions, particularly those with a firm understanding of the purpose and potential of human beings, the changes allow an emphasis on human development and empowerment.

KEYWORDS: Organizational Resilience, Personal Resilience, Lean, Sigma Six Strategies, Silos

Introduction

Universities play a crucial role in the development and progress of nations and enable them to compete on the world scene. Their role in the social and economic development of a country is vital and they can also serve to maintain national values and culture (Adeogun, Subair, & Osifila, 2009). Expansion of higher education in Southeast Asia has come with its associated financial burden and challenges and a proliferation of private institutions. Graduate and post-graduate oversupply is not an issue as can be experienced elsewhere (Oppong & Sachs, 2015; The United Nations Educational, Scientific and Cultural Organization (UNESCO), 2014). It is anticipated that financial pressures will lead to a proliferation of online courses and the adoption of artificial intelligence solutions to challenges. This will bring its own suite of issues (Kebritchi, Lipschuetz, & Santiague, 2017; Popenici & Kerr, 2017).

Expanding access to higher education and shifting the burden from the public to the private purse reflects government policy in response to global changes. Today, education is considered a global commodity and hence tradeable (Boni & Gasper, 2012). Such changes have been widely experienced and have led to increased competition among universities (Dill, 2001) in a world dominated by rankings (Hazelkorn, 2015). In any deregulation moves, the ultimate success of the system resides in maintaining quality standards. Again, a variety of approaches have been taken, with some being quite rigorous (Lucas, 2014; Schiller & Liefner, 2007). In Thailand, for example, higher educational reform has been focussed on alignment with national goals, improving management efficiency, research funding expansion, emphasis on basic and applied research, collaboration, and teaching excellence (Pimpa, 2011). However, approaches frequently emphasize the economic impact that a university is capable of making nationally. Universities undoubtedly exert an economic impact but also contribute to human and sustainable development and harmony among societies (Boni & Gasper, 2012).

In the increasingly competitive environment in which universities operate, one of the strategies that should appeal to every institution is the drive to become more efficient.

In this article, some of the strategies available to increase university productivity will be addressed while also improving quality particularly relating to the development of human potential.

Organizations and Change

The world is becoming increasingly interconnected. In responding to this environment, the term resilience is applied to those organizations able to handle the changes and profit from the adjustments made.

Resilience relates generally to the ability of individuals, communities or organizations to cope with external stresses and return to an equilibrium state. From an organizational viewpoint, it is the ability to adapt and change on a continuous basis as the environment demands. The speed with which this can be accomplished is a factor in determining resilience (Bhamra, Burnard, & Dani, 2016; Gallopín, 2006).

In natural ecosystems, the state of a system may fluctuate, but if it remains within bounds enabling it to retain its identity, function, structure, and interactions, it is considered resilient (Bhamra et al., 2016). However, it is also possible in a complex system for external changes to be so great that a new equilibrium state is achieved and maintained (Gallopín, 2006). Such changes might be experienced in a tertiary setting, for instance, when institutions amalgamate or establish branch campuses.

In order to cope with changing circumstances, an organization needs to adapt. If such changes are not made, then the system will be reduced to continual cycles of recovery operations and will be ill prepared to survive (Bhamra et al., 2016). Hence, the idea that the term resilience contains an element of transformation is gaining ground rather than simply to indicate recovery capacity (Shaw & Maythorne, 2012).

Resilience is related functionally to both the adaptive capacity and vulnerability of a system (Bhamra et al., 2016). Service based industries will be concerned primarily with social issues that may include communications, risk awareness, and preparedness. Recognizing the risks to which an organization/industry is exposed to is vital to effective planning both prior to and after a critical event (Cutter et al., 2008). Being able to emerge from testing situations better prepared to meet future challenges is achieved following a thorough understanding of the business environment operating and the adoption of strategic initiatives aimed at tapping into the strengths and creative potential of its employees and forming community, national, and other linkages that give opportunity to form productive associations (Lee, Vargo, & Seville, 2013). Positive outcomes can be accomplished by reviewing and structuring an organization's financial systems, governance structures, technological facilities, personnel management systems, and security provisions to allow a dynamic response to reasonable predicted challenges to the status quo (Starr, Newfrock, & Delurey, 2003).

Adaptive capacity. The adaptive capacity of an organisation is its ability to learn quickly from events and adapt to the changing circumstance. This presupposes that information acquisition is ongoing and extensive, that changes can be made quickly to address the perceived challenges, and that there is a mechanism available to assess strategy effectiveness. The ability to demonstrate adaptive capacity does not represent a static quality but is dynamic. It may involve changes in strategy, the system of management adopted, the governance structure, and facilities put in place to support the implementation of decisions or to manage demands. The ultimate aim is to be positioned so as to enable the organisation to act proactively and in cooperation with employees thus emphasizing the opportunities available rather than the inconveniences experienced (Smit & Wandel, 2006; Starr et al., 2003). This will be an ongoing process. Adaptive capacity is the mechanism for achieving resilience (Bhamra et al., 2016).

Adaptive capacity within the socio-ecological context contains both reactive and proactive components. The reactive component may involve adjustments or adaptations that fundamentally change the system (Gallopín, 2006; Bhamra et al., 2016). Universities traditionally have favoured adjustments, with adaptations being a last resort in times of dire financial and other crises. The introduction of proactive component into the concept of adaptive capacity, when dealing with social systems, infers the existence of a positive attitude towards change. This is an area of some significance that will be commented on more extensively later. The development of a proactive stance comes from an awareness of the environment an organization is operating in and is related to its vision. A creative tension may exist between vision and reality, which is a positive. However, the corporate entity must be involved in this creative exploration, otherwise operational dissonance will result (McManus, 2008). In university settings such malfunction may be evident when key operators are unable to marshal a critical mass of support behind a transformational idea. This highlights the significance of the decision making structures. If they are too rigorous then the capacity to adapt within a reasonable time frame may be destroyed. If the organisational management structure creates bottle necks in the problem solving capacity then response to risks and crises are difficult to manage effectively. Flexibility in decision making within the bounds of common goals is a favoured approach. For instance, in the military a decentralized command and control system allows flexibility. However, the coordination strategy used is key to the overall effectiveness of the operation so as to fulfil the strategic function of the unit. Similar structural arrangements may be applicable

to academic enterprises (Gorman, Cooke, & Winner, 2006). Since organizations operate in a complex environment involving competition, changes in economies, social-demographic issues, a political-legal environment, changes in technology, and perturbations in the natural environment, they need to be in a position to change their internal structures and function appropriately (Amagoh, 2008).

In organizations, some risks can be foreseen and strategies adopted to cope with them. However, complacency in coping with more common hazards can expose an organization to a greater loss from rare events. Resilient organisations are able to build greater flexibility into the suite of responses utilized (Etkin, 1999). For instance, in universities fluctuations in enrolments are known historically and management plans can be adopted to cope when they fall within designated limits. However, when rare events occur leading to large changes in enrolments, then extreme stresses may be placed on an organisation. Survivors may react creatively by quickly introducing new streams of teaching endeavour to meet unmet needs in the community.

Vulnerability and planning. It is understood that universities are businesses involved in the production and dissemination of knowledge (Oades, Robinson, Green, & Spence, 2011) and are vulnerable to pressures arising from multiple sources including government policies, inter-government relationships, changes in the popularity of career destinations, public perceptions of performance on quality indicators, availability of qualified academics, and other factors. Vulnerability is the degree to which an organization is susceptible to such changes and varies greatly, even among institutions located in the same region. This is on account of differences in exposure, the sensitivity of the particular system to pressures, and the capacity to respond (Gallopín, 2006).

Identification of vulnerabilities without this impacting on strategic planning is hardly a useful endeavour. This is abundantly evident if the vulnerabilities relating to the anticipated effects of hurricanes, floods, other natural disasters, and acts of terrorism are considered (Kantur & Işeri-Say, 2012; Rivera & Kapucu, 2015). Similarly, to plan without considering the vulnerabilities impacting or likely to affect the enterprise will not be conducive to building a resilient organization.

The acceptance of the actual state of affairs in an organization can be obscured by overconfidence in the present structure, processes, and comfortable routines. Then, too, pessimism may compete with optimism and hope. The later characteristic must come to the fore if an organisation is to become or remain resilient (Kantur & Işeri-Say, 2012).

Individual resilience. In seeking to increase the resilience of any university, the significance of individual resilience cannot be ignored (Burnard & Bharma, 2011). For the individual, resilience represents persistence under stress and the adoption of a constructive attitude towards the circumstances operating. Harnessing individual capabilities to emphasize the ideological identity of the institution, with its strong moral foundations and view of mission, will tax the creative abilities of all but will contribute to the collective efficiency (Kantur & Işeri-Say, 2012; Lengnick-Hall & Beck, 2005). The constructive sense making and drive towards efficiency can only be achieved by taking advantage of the social capital available on campus (Oades et al., 2011). Resilient individuals are able to manage change as they have both the psychological and biological strength to do so. Such individuals are likely to be of most value in any change process (Wilson & Ferch, 2005).

Many factors have been associated with the development of personal resilience, such as goal setting and movement towards their fulfilment, an optimistic disposition, creativity, determination, high self-esteem and efficiency, and developing interpersonal skills. Motivation to achieve a particular goal contributes to resilience (Resnick, 2011; Sacchetti, 2013; Skodol, 2010). All these features and more are relevant to academic establishments.

Indicators of Institutional Resilience

Similarities are observed between universities and other autonomous organizations operating in a competitive environment whose business is to interact with and serve the interests of people. The literature on resilience enhancement strategies relates more specifically to industrial enterprises (McManus, 2008), but need not remain in the industrial domain. Resilience there is considered under the headings of adaptive capacity and planning strategies (Lee et al., 2013).

Adaptive capacity. A variety of indicators were considered by Lee et al. (2013). The adaptive capacity of an organization, as indicated in table 1, is dependent on a unified, cooperative approach taken and one where positive perceptions are encouraged. This forms part of the helpful perceptual stance and contextual integrity features described by Kantur and Işeri-Say (2012). They considered that conveying a realistic view of the operating environment of an institution, when addressed with positive overtones, could lead to a unified and compatible involvement of employees is seeking a solution in a supportive managerial environment. Resilient organizations possess a positive view of employee capabilities and encourage their participation in problem solving.

Planning strategies. A realistic assessment of the vulnerabilities of an organization should logically lead to the formulation of plans to minimize their impact. Central to any planning exercise is an understanding of resource accessibility. Lee et al. (2013) separated internal from eternal resources (table 1), whereas others may incorporate both under the heading of strategic capacity (Kantur & Işeri-Say, 2012).

Success in planning is dependent on employee involvement too. This goes beyond engagement in emergency drills. Involvement of employees in decision making processes before a crisis serves to encourage creative solutions, which are indispensable in an actual crisis and are vital to the emergence of a resilient organization (Kantur & Işeri-Say, 2012). The nomination of recovery priorities can be indicated in general terms, but the favoured approach is to react proactively to perceived risks (table 1). In the event of crises occurring, resilient organisations encourage creative ideas in a flexible environment—strategic acting is demonstrated (Kantur & Işeri-Say, 2012).

Table 1 Indicators used to measure organizational resilience and a description of their basic characteristics

Indicator	Description
Adaptive Capacity	
Minimization of silos	Social, cultural or behavioural barriers are reduced that tend to inhibit employees from cooperating across levels in an organization and with other organizations.
Internal resources	The ability to operate as normal during a crisis through accessing internal resources.
Staff/faculty engagement	Employees identify with its goals of the institution and are prepared to own a problem so as to aid in its resolution
Information and knowledge	Information and knowledge is shared across and between organizations
Leadership	Transformational leadership is shown in designing, popularizing and implementing the institution's vision statement
Innovation and creativity	An institution encourages problem solving in the workplace. Innovative and creative solutions are sought to resolve issues.

Table 1 Indicators used to measure organizational resilience and a description of their basic characteristics (continue)

Indicator	Description
Adaptive Capacity (Continue)	
Decision making	The skill and knowledge level of staff is used to solve existing or emergent problems. Authority to make decisions related to work issues is delegated and in times of crisis clear lines of additional decision making are indicated.
Situation monitoring and reporting	Industry indicators are monitored and these are integrated with knowledge gained from past experiences. The interdependence of the organization is recognised and issues arising can be raised with senior management, who actively listen.
Planning	
Planning strategies	Strategies have been adopted in order to manage risks and vulnerabilities to which the organization is exposed.
Participation in exercises	Staff are involved regularly in crisis/emergency exercises enabling familiarity and to test and refine their effectiveness.
Proactive posture	The strategic approach to risks and potential crises is one open to innovation rather than that of copying competitors. Signals of stress lead to the initiation of corrective measures before a crisis unfolds.
External resources	Knowledge about and active fostering of relationships with external organizations with similar values and interests is the norm. Responses to emergencies in the community are incorporated in the institutions plans and agreements allowing access to resources in emergencies have been established.
Recovery priorities	Priorities have been nominated for recovery and minimum resources enabling operations to continue have been secured. The implication of a crisis on others is understood (connectivity).

Source: Lee et al. (2013)

Strategies for Improvement

On account of the heightened competitive element, tertiary institutions have been forced to make market-sensitive adjustments and seek efficiencies. The organizational structure possessed is often one that poorly prepares them for change.

Universities have typically operated as bureaucracies, with a top down management system regulating the activities of non-academics. Academics possess greater autonomy within their professional areas of expertise. Administrators generally are devoted to following a system of rules. This means that typically universities possess a rigid hierarchical structure and operate in a climate conditioned to protect the status quo (Abu-Tineh, 2011). Lines of communication typically centre on key individuals remote from the day to day action. Their opinion is sought by communicating through nominated personnel located at successive layers in a hierarchical management chain. Decision making often is dependent on proposals moving through a series of hierarchically arranged meetings scheduled by the calendar. Such models deny flexibility and these organizations lack resilience.

A number of strategies might be adopted to adjust to market realities. Some possibilities are discussed.

Lean and other approaches. One strategy adopted is to implement Lean principles. This methodology identifies value-added processes and non-value added ones and eliminates the latter. The emphasis is on process flow efficiencies. On the other hand, the Six Sigma strategy seeks to identify and eliminate defects and their causes. Both strategies help to ensure a quality product. Sigma Six strategies may follow the Lean process or they may be integrated. Adopting Lean principles in areas involving multi-step processes has functioned to increase the efficiency of institutions. Service areas such as admissions, research fund administration, hiring, adopting new course proposal, building repair/alteration requests, and issuing donor acknowledgment letters have benefited particularly (Antony, 2011; Balzer, 2010; Tenera & Pinto, 2014).

The Lean approach is devoted to improving any process with the focus of attention on the beneficiary. It values the human capital available. The watchwords are: "simple, slim and speedy" coined by Watanabe, Stewart, and Roman (2007, as cited in Hills, 2015). Lean is based on five basic principles: define the value of the process from the client's perspective; construct a flow profile of a process, so allowing assessment of the step-wise value for both provider and beneficiary; eliminate waste where no value is added; make the process flow smoothly and skew it to incentivize the beneficiary; seek to make continual improvements to the process involving all employees (Balzer, 2010; Hills, 2015).

Success of the Lean approach requires high level administrative support and the involvement of all the appropriate administrative staff in a training program.

Success can be achieved by focussing on well-chosen processes. Careful assessments of the process, refinement of the steps needed for substantial improvement, nomination of clear lines of responsibility and a time-frame for completion of designated actions, and effective communication of plans with those involved are all necessary for success. Naturally, performance assessment is a part of the process. Improvements can follow on a continuing basis (Balzer, 2010).

Genuine adoption of the Lean process represents a change in institutional philosophy, which will influence all aspects of its activities. The resulting organization will be dominated by principles of self-organization rather than top-down directives; this means, inevitably, the decentralizing of authority and the empowerment of those further down in the organizational structure (Rhee, 2011; Hills, 2015). The motivation of employees to support the adoption of reforms will be dependent on the institutional environment prevailing. Its success depends on willing leadership at all levels (Balzer, 2010).

Involvement in Lean processes is more likely to be observed in an organization with a high resilience score. The metric is not static and cannot be used to compare organizations (Gibson & Tarrant, 2010).

Strategic vision. Lean strategies work best where the strategic vision is clear. Education institutions that share a common goal and have devised ways in which to achieve these are demonstrably resilient. To be effective, any vision statement needs to be short, easily remembered, be embraced by the workforce and sponsoring agencies, and be promoted by leadership so as to ensure that the vision is realized (Institute of Medicine, 2013).

Well-constructed vision statements that managers/leaders link to service-directed behaviours can exert measurable positive effects on performance (Kirkpatrick, Wofford, & Baum, 2002). In the university environment, leadership's ability to articulate the vision and how it might be achieved, followed by innovative approaches, and strategic hiring decisions are intimately tied to the realization of the vision (Rhee, 2011)

Leadership imperatives. The issue of transformational leadership has been highlighted already in comments on designing, popularizing and implementing the institution's vision statement (Guttenplan, 2011; Kirkpatrick et al., 2002). Leadership characteristics, as well as a range of other features, favour the development of organizational resilience (Lee et al., 2013). Leadership vision for the

future is a key feature facilitating adaptive and even proactive behaviour in those individuals already inclined in that direction. Leaders can facilitate proactive behaviour by providing an enticing direction and creating a supportive context (Griffin, Parker, & Mason, 2010). The movement towards a higher ranking status cannot occur independently of talented leadership with international experience and reputation (Mukherjee & Wong, 2011).

Strong leadership is essential when organizational change is initiated. Programs of improvement through implementation of the Lean initiatives, for example, require strong and sustained leadership, with few deflecting foci of attention (Balzer, 2010).

Relational features. There are vital links between an organization's resilience and the identification of employees with its goals and effectiveness. This may be expressed in terms of owning a problem so as to aid in its resolution (Stephenson, 2010). Individuals respond best in a flexible, creative environment that is opportunity driven. Bureaucratic structures reduce the development of resilience. Organizational resilience-building is optimized by giving attention to the human element with its social dimensions (mental and psychological health) in order to improve efficiency and effectiveness (Denhardt & Denhardt, 2010). Some suggestions follow.

a). Social capital has structural, social and cognitive dimensions. The structural dimension can be used to access resources, obtain information and so on; the social dimension is rooted in trust and trustworthiness; and the cognitive dimension involves common views of goals and ways of achieving them (Tsai & Ghoshal, 1998). Lean programs, which are based on advice coming from inter-organizational communication network groups, use social capital. Optimization of this capital can be achieved through strategic initiatives undertaken by management signalling the significance of the individual and that demonstrate trust in them (Prusak & Cohen, 2001). For example, involvement of faculty and students in the design and evaluation of courses and other activities can encourage human development and contribute to the quality of an institution (Boni & Gasper, 2012).

Those organizations that possessed high inter-organizational social capital and use it, show a quicker recovery time after disaster (Buzzanell, 2010). The holding of shared values represents a form of social capital without there having to be network connections (Tsai & Ghoshal, 1998).

b). Dependency in contrast to involvement and creativity will stifle the development of resilience. One measure indicating dependency is employee

silence where comments might have been anticipated. According to the Luthans' model (Knoll & van Dick, 2013; Luthans, Luthans, & Luthans, 2004), positive psychological capital (incorporates efficiency, hope, optimism) and associated resilience might be expected to be elevated by active involvement of employees in decision making and problem solving and the conferral of some form of autonomy. Development of a positive psychological capital is bound to impact on organizational resilience when encouraged in association with other advances (Youssef & Luthans, 2011). The collective resilience of participants ultimately will help to determine what response an organization will make in stressful times. Research support comes from the teaching and health professions (McCann et al., 2013; Michela, Lukaszewski, & Allegrante, 1995).

Innovative and creative solutions are needed to find fresh solutions to both new and old problems. Organizational resilience is contributed to by generating a climate of creativity (Blatt, 2009; Mafabi, Munene, & Ahiauzu, 2015).

c). Generation of trust and being connected enables the development of mutual understandings and a sense of community. These features are significant to the successful restructuring of an organisation in the face of stress. Establishing a supportive management environment has strong links to resilience as it does to creative thinking. Such thinkers are able to conceive of new possibilities; they are both curious about the emerging structure and hopeful about the future (Horne & Orr, 2011; Wilson & Ferch, 2005). Developing such relational support features is foundational to the adoption and success of Lean initiatives and the improvement of research outcomes (Rhee, 2011).

d). Meaningful communication enhances employee involvement, for it can function to establish and maintain connectivity within an organization. In order to be effective, communication needs to flow both ways, so that the organization is ready to both give and receive information and suggestions (Horne & Orr, 2011). Such communication can be effective if it addresses core issues, such as goals, mission, vision, and generates trust and self-respect (Kantur & Işeri-Say, 2012). Communication involves effective listening (active). If the listening includes an empathetic element, then the complexity of issues will be understood more completely and a closer bond will be established among those communicating (Drollinger, Comer, & Warrington, 2006).

Communication, to be effective, naturally has to come from trusted sources. Communication patterns must be developed over time, thus allowing confidence to be expressed during periods of crisis. If trusting

relationships are developed, in the event of a crisis there is less attribution of blame forthcoming (Longstaff & Yang, 2008).

e). Well-being initiatives can be beneficial and are multifaceted (Seligman, 2011). Initiatives may involve the faculty and administration, the classroom, social interactions, the local community, and the residential student environment (Boni & Gasper, 2012; Oades et al., 2011). Some initiatives are particularly relevant to institutions housing residential students such as coaching activities, cultural events to improve appreciation of a diversity of students, residential goal setting and rewards for excellent performance. Community relationships are significant to the long term attitudes developed towards a university. Volunteering activities in the vicinity of a university, when well organized, can generate positive outcomes for both the volunteers and those receiving their services. This form of community engagement (service-learning) is well-developed in some locations in Asia.

Minimization of silos. A negative characteristic of many organisations is the existence of barriers (social, cultural or behavioural) that inhibit employees from cooperating across levels and with other organizations. This essentially represents the erection of communication barriers.

A silo mentality may develop within an organization as a result of policies and procedures adopted, managerial attitudes, stimulation of a competitive environment, poor communication patterns, geographical isolation and other factors (Fenwick, Seville, & Brunsdon, 2009). For example, a change in government policy may stimulate changes in the funding model adopted in institutions. Taking an actual example experienced in a western country, a public university chose to facilitate intense competition among departments for students to enter programs during orientation week, which ultimately led to lack of cooperation and a diminution of trust among academic units. A silo mentality had been created artificially and unnecessarily, with cooperative ventures diminishing.

The creation of a silo mentality within and between organizations impacts resilience. Communities are influenced negatively by failure to construct cooperative arrangements with other organizations. Clear leadership is required to foster cooperative internal and community relationships, to increase understanding through shared learning sessions, and to convey the concept that cost considerations are not the only parameter to consider in managing an institution. An understanding of the gains that can be obtained through cooperative endeavours should be high on the agenda (Fenwick et al., 2009).

Connectivity recently has received considerable attention in a national ranking attempt across five continents (Williams, de Rassenfosse, Jensen, & Marginson, 2012). These authors considered the proportion of international students in tertiary education, the proportion of articles published with international collaborators, open access full text files available, and external backlinks to higher education webpages. When all these features were considered, a prominent feature noted among universities ranked nationally was that a high proportion of collaborative work was evident. It is pertinent to note that the CWTS Leiden Ranking of universities considers indicators of collaboration in its assessment of the strength of universities (CWTS Leiden Ranking, 2018). Such ranking provides different information to that usually given by international ranking schemes.

Attention to internal connectivity would boost perceptions of relevance, provide a sounding board for ideas, elevate confidence, perhaps generate synergism, and would certainly boost resilience. External connectivity accomplishes the same ends but also confers flexibility in that more ambitious goals can be set (Denhardt & Denhardt, 2010). Establishment of external links enables projects to be launched and successfully completed that would otherwise have represented simply visionary dreaming.

Conclusions

On account of the interconnectedness of our modern world, universities are impacted by developments in the most highly developed nations. The widespread adoption of university rankings, based primarily on research performance, and the emergence of education as a tradeable commodity has radically changed the dynamics of tertiary sector operation.

Universities must rethink the manner in which they organize their institutions at the management level in order to become more flexible, creative and efficient time managers. The human capital of faculty needs to be utilized more effectively so that they are engaged, positive attitudes are stimulated, and innovation is rewarded.

Critical engagement with the mainstream thoughts in the various discipline areas in research and writing endeavours will deliver academics from the temptation to simply regurgitate other peoples' thoughts. Such undertakings are best pursued in cooperation with academics at other institutions with whom meaningful connections have been established.

Recommendations

Each institutions must craft its own pathway out of crisis by creating a highly efficient organization with a clearly articulated vision and continually reinforce positive

attitudes among the learners, teachers and support staff by engaging them constructively in improvements to operations. Adoption of Lean and other tested approaches to eliminate defects and increase efficiency are recommended.

Engagement of faculty in research is vital in order to maintain credibility. Interaction with the local community and industry in order to establish centres of research focus/excellence is well designed to foster community good will and to develop a sense of well-being and usefulness among the faculty.

Cooperation among institutions and with industry will stimulate creative developments and assure national relevance.

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