

Quality & Productivity In The University System -An Australian Context

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ABSTRACT

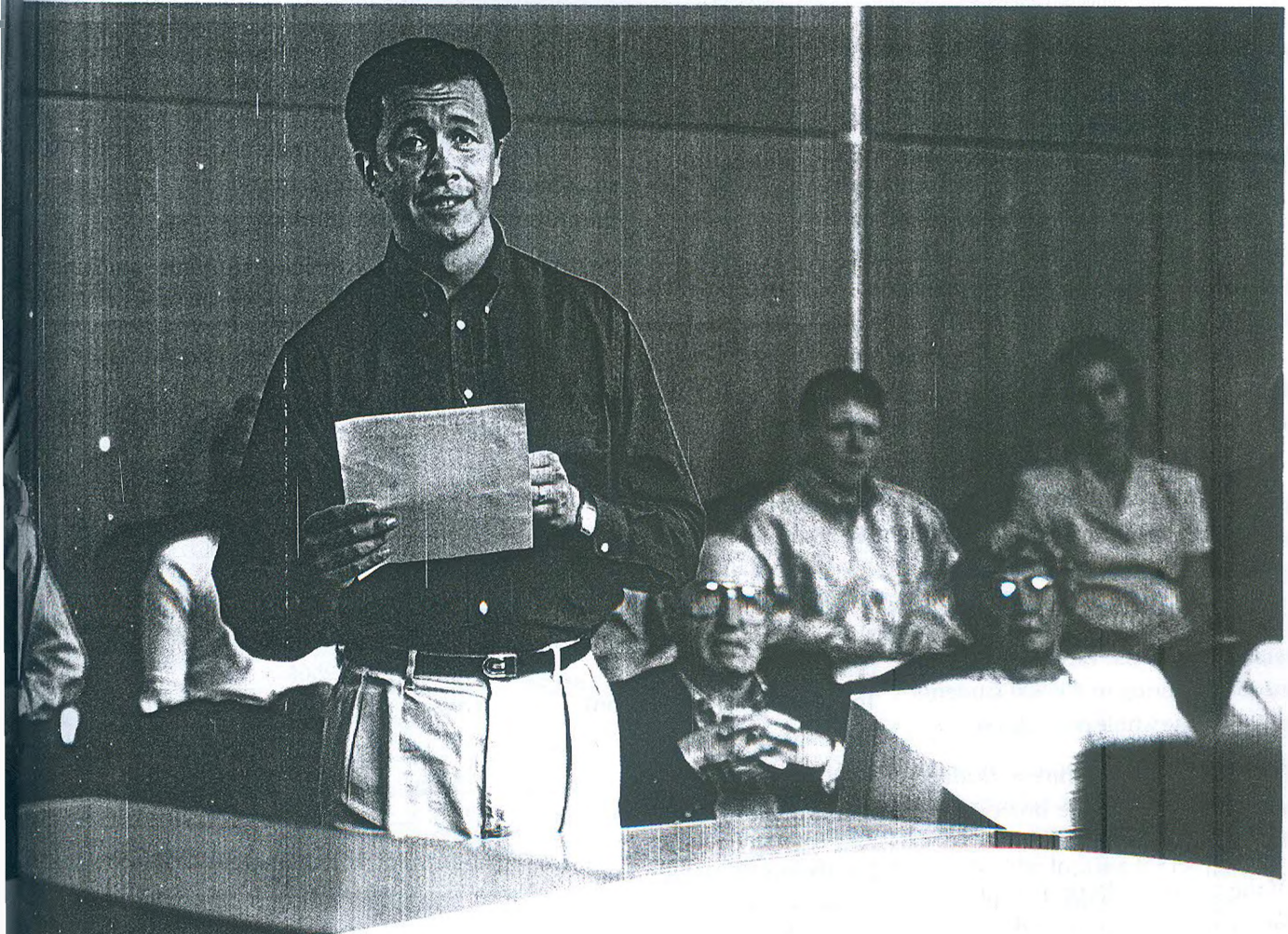
Quality and Productivity Management context for an organization will remain relevant for all the time to come. Considerable debate is going on in Australia under the banner of "Higher Education at the Crossroads" and one central theme appears to be why none of the Australian Universities appear in the list of the top 100 universities in the world (Ref: Ministerial discussion paper- Higher Education at the Crossroads (Nelson, 2002). A high level committee set up by the Minister for Education, Science and Training examined various issues including diversity, specialisation and regional engagement with regard to higher education in Australia. This paper proposes an Operations Management view as to how universities in Australia can aim to be rated amongst top 100 in the world and be truly classed as world class. This paper examines the deficiencies in the Australian Universities generally and proposes as to how a holistic view of Quality can assist individual institutions to lift their game in enhancing their quality in learning, teaching and scholarship in the current climate of entrepreneurial approach to education and achieve sustained growth in the volatile and fast changing national and international political scene.

INTRODUCTION

Higher education sector is one of the fast growing business sectors in Australia. Currently, this is estimated to be around \$ 10 billion industry. Higher education is on the agenda of the federal government where education minister is personally involved in the debate. There is recognition amongst the policy makers in the country that the higher education sector not only contributes to the development of social, cultural and political environment of the country, but also to the economic and technological developments. Most of the universities in the country are government funded, where the federal government contributes to gross funding ranging from 30% to 90%. But during the last 5 years, there have been clear indications that government contribution will be reducing and that the universities will be required to generate funds from private sources. Hence, there is a push towards income generating programs such as fee-paying programs for the Australian

students (as against HECS programs where higher education tax is collected by the government accounting for most of the undergraduate and some of the postgraduate programs), substantial increase in the international students studying on campus and whole lot of sponsored and collaborative programs.

Universities have, therefore, developed strategies for creating additional places for the fee-paying students for on-campus studies, while they are also increasing their presence in other places such as offshore educational centres, educational centres in the other major towns within Australia (Sydney, Melbourne, Brisbane, Perth and Adelaide), and adopting several flexible delivery schemes such as distance education, internet education etc. There are growing numbers of universities who hire 'business development' professionals at very senior levels (most reporting to the Vice Chancellor/President). There is also a push towards incorporating a performance clause in the



contracts of the Senior Administrators that provides for the generation of funds from private sources.

Keeping in line with the normal business development profile, the current minister of education rightly launched a country-wide debate under the banner entitled "Higher Education at the Crossroads" where focus is clearly on 'taking stock of where we are, where we want to go and how we intend to go there'. There is also an unequivocal recognition that Australian universities do not find a place amongst the top universities in the world (not even one Australian university is amongst the top 100 in the world). The minister expressed that at least one or two Australian universities be ranked amongst the top 50 in the world, thereby implying that national policies and strategies should address the concerns about the quality profile of Australian higher education generally and develop mechanisms that will enable individual universities to

develop and implement quality assurance mechanisms and processes and address the quality issues. It is a commonsense even from a business stand point. Australian universities have had successes during the last few years as regards increasing the number of international students and retaining the Australian students in higher numbers due to the changing political climate in the world adversely affecting the traditional destination of the international students (i.e. north American Universities). But it may not be possible to retain this position unless Australian universities are perceived to be amongst the top world universities based on the experiences of the graduates of

Disclaimer: Views expressed in this paper are personal views of the author and are not meant to reflect on any particular institution in Australia.

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the Australian universities.

Hence, the quality focus is imminent and this paper explores the issues and addresses some of the critical quality related problems in the higher education institutions in the country.

REVIEW OF THE CURRENT STATUS OF HIGHER EDUCATION IN AUSTRALIA

1. Australian education system caters for around 5.5 million students (about 29% of the whole population) and it is divided into three parts:

(A) School education with 9595 schools catering to 3247425 students (about 17% of the whole population)

(B) Vocational education and training with 2110 registered VET providers catering to 1627285 students (about 8% of the whole population)

(C) Higher Education with 39 universities and 89 other accredited institutions catering to 695500 students (about 4% of the whole population).

2. There are 38 government funded universities and 1 private university in Australia.

3. Of the total workforce of around 9.6 million, a total of about 19.8% hold a higher qualification (about 2.7% hold a postgraduate degree, 2.7% hold a graduate diploma/certificate and 14.4% hold a bachelor's degree).

4. Of the total of 2.18 million persons holding a higher qualification (around 11% of the total population), 1.90 million (around 87%) persons participate in the workforce.

5. Of the total student population in higher education, about 24% are in the age group of 15-19, about 37% are in the age group of 20-24, about 12% are in the age group of 25-29, and about 27% are in

the age group of 30-64.

6. Of the total student population of 695500 in higher education, about 18.1% are overseas students, with 12.2% (about 72700) studying in Australia and 5.9% (about 35000) studying offshore in the university offshore campuses or in the university affiliated institutions.

7. 50% of the total overseas students studying in

Important statistics over 10 years (1991 to 2000) for Higher Education Institutions in Australia (Source: Nelson, 2002)

	1991	2000	% change
Consumer Price Index (30 June)	106	133.8	26
Total revenue (\$ million)	5462	9328	71
Total operating expense (\$ million)	4780	9006	91
Operating surplus (\$ million)	682	322	-53
HEdu research expenditure (\$ million)	689	956	39
Academic staff salaries (\$ million)	1808	2859	58
Non-academic staff salaries (\$ million)	1458	2506	72
Total staff salaries (\$ million)	3266	5365	64
Other expenses (\$ million)	1514	3641	140
Total domestic students	504880	599878	19
Total overseas students	29630	95607	223
Total students	534510	695485	30
No. of units offered	76287	91853	20
No. of units with less than 5 enrolments	15145	20681	37
No. of units with 500 enrolments or more	364	664	82
Academic staff (Professorial)	5100	6555	29
Academic staff (non-professorial)	22888	23349	2
Academic staff (Casuals)	4271	7096	66
Total Academic staff (FTEs)	32259	37000	15
Total non-academic staff	40750	44989	10
Total FTE staff	73009	82009	12
Total Revenue per student	10219	13412	31
Total Operating expense per student	8943	12949	45
Academic staff expense per student (\$)	3383	4110	21

Important statistics over 10 years (1991 to 2000) for Higher Education Institutions in Australia (Source: Nelson, 2002)

	1991	2000	% change
Edu Research Expense per student (\$)	1289	1375	7
Edu Research Expense per academic staff (\$)	21358	25838	21
Academic staff salaries to total expense	38	32	-16
non-Academic staff salaries to total expense	30	28	-7
Other expense to total expense	32	40	25
No. of students per unit offered	7	7.6	8
No. of students per academic staff	17	19	6
No. of students per staff	7	8.5	21
Academic staff salaries per member (\$)	56046	77270	38
non-academic staff salaries per member (\$)	35779	55702	56
Total salaries per member (\$)	44734	65420	46

Australian Higher Education Institutions study in the business/economics/commerce disciplines and rest of the % are distributed amongst other disciplines.

The total revenue of the publicly funded higher education institutions was \$9.3 billion in 2000, out of which % came from the Commonwealth grants, 15% from the Commonwealth Contestable Research Grants, 18% from HECS, 10% from the Overseas students fee income, 2% from the Domestic postgraduate fee income, 3 % from the investment income and 21% from the other sources.

In 2001, Commonwealth payments through the education portfolio totalled over \$ 5.86 billion comprising \$ 4.7 billion for general operating purpose (including CS contributions) and \$ 1.2 billion for research and training programs.

The current HECS (higher education contribution scheme) contribution levels per annum (i.e. contributions made by the domestic students for the university programs) are: \$ 3598 for the arts and humanities, \$ 5125 for mathematics and computing, and \$ 5999 for medicine and medical science.

The table gives growth pattern of higher education in

Australia over a 10 year period (1991-2000). Revenue growth (71%) is lesser than the operating expenses growth (91%). Higher Education research expense has grown by 39% and academic staff salaries have grown by 58%. There is much larger growth in non-academic staff salaries (72%) and other expenses (140%). Hence, it may be inferred that more expenses are incurred on non-value adding activities. This is also reflected in the rate of growth in the academic staff salaries (21%) as against revenue growth per student (31%) and operating expense growth per student (45%). Average number of students per academic staff has gone up by 6% (from 17 to 19).

DEFINITION OF QUALITY

Quality has been defined in many ways each of which may have relevance to the higher education institutions. In fact

when we talk about quality, we may be looking for certain characteristics in all of its activities and outcomes. Quality has been defined as being about -

- Value (Feigenbaum, 1983)
- Conformance to standards, specifications or requirements (Crosby, 1979)
- Excellence (Peters and Waterman, 1982)
- Meeting or exceeding customer expectations (Parasuraman et al., 1985)
- Fitness for use (Juran, 1989)
- Delighting the customers (Peters, 1989)

But the quest for quality is essentially a search for competitive advantage. (Wilkinson et al, 1998). It is universal in its appeal whether organization is a hospital, a bank, a university, an insurance company, local government, an airline, or a factory. (Oakland, 1993)

Higher education institutions in Australia are facing growing competition day by day: competition for quality students, competition for higher enrolments, competition for quality staff, competition for research grants, competition for industry/business support, competition

... and the need to ensure that the higher education system is sustainable and value adding. The ministerial paper goes on further to state that Australia needs a sustainable higher education system with institutions that are value adding, learner centred, high quality, equitable, responsive, diverse, innovative, flexible, cost effective, publicly accountable, and socially responsible. All these characteristics can be built into each institution if a holistic view of quality is adopted in the reengineering of the higher education system in Australia.

HIGHER EDUCATION PROCESSES INFLUENCING QUALITY

Course curriculum is the foundation of education. Irrelevant course content, unsuitable learning objectives, and unsound teaching and assessment strategies may cause considerable quality problems.

Teaching methods are important for ensuring that the desired learning outcomes are achieved.

Faculty play an important role in the determination of quality outcomes. Academic qualifications and experience appropriate to the level of teaching, relevant knowledge base including keeping abreast of the latest developments, and commitment to teaching are some of the important elements that would have considerable influence on the quality outcomes.

Classrooms are the nerve centres of education. That is

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Extra curricular activities are necessary for the personal development and quality of life of the students. Sports, clubs, societies, debates and many other forms of activities are an integral part of higher education.

Professional activities including seminars, conferences, business forums and get-together with the professionals contribute a lot in the achievement of learning objectives.

Placement services have become important activities for most of the educational programs. Number of employers and profile of employers visiting campuses and/or participating in the placement programs add considerable value to the higher education.

Faculty Research not only ensures that the faculty keeps up to date with the latest developments but it also enhances their capacity to make education meaningful and relevant for the students.

Exchange programs provide opportunities to the students to acquaint themselves with the world at large and see for themselves what is happening in the other institutions. Quality of exchange programs will enhance their learning experience.

Transfer of credits and advanced standing are important in the current context of mobility of higher education. There are several quality issues such as equivalence of credits, relevance of the knowledge used for seeking advanced standing etc. that need to be carefully examined.

Student feedback is very important in the current context of higher education to gauge whether curriculum, teaching and learning methods, facilities, quality and commitment

Teachers etc. are effective.

Employment surveys may act as barometers of the relevance of higher education. They can also be used to obtain feedback from the employers to determine ongoing suitability of the products of the higher education institutions.

Alumni involvement in the university governance can contribute a lot in the effectiveness of higher education. Alumni are the subjects as well as benefactors of the higher education institutions.

CHALLENGES FACING HIGHER EDUCATION INSTITUTIONS IN AUSTRALIA

SHRINKING PROGRAM STRUCTURES: During the last 10/12 years, most Australian universities have reduced their Bachelor Degree programs from 36 semester courses to 24 semester courses and Masters degree programs from 16 semester courses to 8 semester courses. These changes have taken place due mainly to budget constraints and to some extent market forces where one does not want to be seen overdoing. This places these programs and graduates at a considerable disadvantage when compared internationally and casts doubts as regards perceived quality of these programs.

REDUCTION IN PROGRAM DURATIONS: Due to changing economic scene nationally and internationally, there is some pressure on educational institutions to reduce overall duration by offering summer courses, intensive mode of study and/or allowing students to enrol in more courses than the prescribed full load of study. Higher education is more than acquiring credits and passes. There should be a minimum time for self-reflection and assimilation of knowledge.

STATIC COURSE CURRICULUM: In the fast changing technological and socio-economic scene, one would expect that the education curriculum are keeping pace and processes and systems are in place to allow continuous updating of the curriculum. But there are numerous problems with regard to additional costs, faculty development, and vast resources needed to make frequent changes in the curriculum.

REDUCED STUDENT INVOLVEMENT IN EDUCATIONAL PROCESSES: In most of the higher education institutions in

Australia, vast majority of the students spend time on campus only for attending classes or undertaking examinations, rather than spending time on full-time basis for sharing and participating in the overall campus life. Although there are provisions to involve students in various educational committees in most of the Australian universities, there are often only handful of students who get involved. This fails to provide customers' view of the quality of the processes.

5. DECLINING ACADEMIC STAFF EXPENDITURE: From the statistical table presented, it can be seen that during the last 10 years, academic staff salaries have gone up by 58%, as against 91% increase in the total operating expenses rendering 16% reduction in the ratio of academic staff salary expenditure to total expense. During the last 10 years, academic staff expenditure per student has gone up by 21%, as against 45% rise in the operating expense and 31% rise in the revenue per student. This decline can also be seen from the number of students per academic staff that has gone up by 6% (from 17 to 19) over the last 10 years. This is quite alarming indicating a shift in the teaching/learning paradigm.

6. REDUCED FOCUS ON FACULTY DEVELOPMENT: With fast changing higher education environment including greater variety of programs, update of technology, market driven programs, imparting education in multiple campuses including offshore locations, it becomes imminent that faculty development keeps pace. But pressure on resources is high and faculty inputs are needed not only on educational processes but also on administrative functions. Hence, faculty has much less time for self-development and keeping themselves up to date with the changing environment, adversely affecting quality. There are instances where faculty teaching in the new programs may not be adequately qualified or may not possess in depth knowledge of the subject matter.

7. OVER GOVERNANCE: University governance in Australia has caught up the wave of reorganization, rationalisation and restructuring. These changes are heavily influenced by the latest jargons of the change management arena such as business-like orientation, business process reengineering, benchmarking and indeed introduction of sophisticated integrated information systems and many others. But it is a universal truth that University Administrators barring some functional management areas do not have any professional

education or training in management. Hence university administrators feel more secured in over governance. Compared to a decade before, number of Senior Executives has increased manifolds. Not long ago, there were only a handful of Senior Executives including Vice Chancellor, Registrar, Bursar and Deans of the Academic Units. Now, in addition to the aforesaid positions, there are several Deputy Vice Chancellors, 15 to 20 Directors of various functional Units, and a large number of Head of Schools. Besides, there are numerous positions of Programs Directors, Course Coordinators and Chairpersons of a large number Committees (such as University Senate, several Academic Boards and Research Management Committees, etc.). As expected, all these positions generate vast amount of non-value adding work for both academic staff and non-academic staff. Due to the over governance, open environment has disappeared and academic freedom is diminishing due to ever increasing rules and regulations.

8. SHIFTING TEACHING AND LEARNING PARADIGM- FROM FACULTY ONUS TO SYSTEM BASED: One would notice that in almost all top higher education institutions in the world, teaching and learning is largely faculty based. Universities increase their profile by attracting top notch academics who contribute to the development of new programs, work as gate keepers of new knowledge and act as the focal point of teaching and learning. But now, all of the educational programs are system based, wherein students enrol in the programs and courses, acquire required grades and on completing the graduation requirements, they take their certificates and get out of the system. Graduates today know and remember at most their Program Directors. Rather than focussing on their self-development in association with the learned faculty, they concentrate on acquiring qualification, thereby missing out on the potential benefits of long-term association with the faculty.

9. INCREASING COMMERCIALISATION OUTLOOK: Increasing competition for resources as well as students and changing paradigm of high education from faculty based to systems based have contributed to the development of commercialisation outlook in almost all of the higher education institutions. Uneconomical courses are deleted from the programs. Classes are combined and the mode of course offerings is governed more by economics rather than academic rationale. Employment of marketing personnel for student recruitment, introduction of academic staff performance measurement systems,

increasing focus on quantity rather than quality, reducing program durations for fast turn over, and many others are the indicators of increasing commercialisation outlook in the Australian Higher Education institutions.

10. ENTREPRENEURSHIP: There are growing signs of entrepreneurship focus in all aspects of higher education functioning. Creativity, innovation and risk taking are the essential components of entrepreneurial approach in business. Most of the Australian Higher Education Institutions are government funded and hence are influenced by public accountability and demonstrable equity and fairness. Hence, true entrepreneurial approach gets only a lip service and results in often loss making low quality ventures.

11. REDUCING LOYALTY OF THE STAFF AND STUDENTS: Higher education institutions in Australia are becoming more like business institutions. Staff and students are two of many elements of the system. Personal touch and sense of belongingness are disappearing. There is no sense of ownership in the processes affecting quality.

12. CHANGING VALUES OF THE SOCIETY: Due to the fast changing socio-economic scene, expectations and values of the society are changing. Higher educational institutions are seen more of providers of skilled workforce. Source of higher jobs and increased earnings is replacing age-old belief that universities are the source of intellectual development and brain of the society. Hence quality paradigms in higher education are changing. Focus is on student retention, ability to get jobs, level of income of their graduates and ability to attract more funds.

13. INCREASING FOCUS ON ARTICULATION- ASSUMPTION OF LINEAR PROGRESSION: Due to the reasons mentioned earlier, there is increasing pressure to provide articulation of university programs and courses with those in the technical colleges and even higher secondary education. All those who qualify for university education generally join university and then move into the workforce. There are a large number of other HSC graduates or School dropouts at lower levels of academic achievement who acquire certificate and diploma qualifications and then move into the workforce. For a variety of reasons, nationwide articulation arrangements are in place whereby students with diploma and certificate qualifications can get admission without any further entry tests into the university programs and most of them with exemption of

up to 50% of the program. Courses taught in the certificate and diploma programs in various technical colleges are vastly different. Their emphasis is primarily skills development and they very often lack theory building and fall short of university courses. This form of linear progression into the higher education creates numerous quality problems.

QUALITY ROADMAP

The game of quality is such that can be played in almost any state of an enterprise. The higher education scene in Australia is under tremendous pressure. There is a need to make its foundation strong and unshakable. There is a need to recognise the changing socio-economic environment of Australia and the changing values and expectations of the Australian society from higher education, while attempting to retain and strengthen the age-old values of the higher education. While the path of quality is arduous and lengthy, there is need to devise some mechanism that would support the ongoing higher education processes to sustain the current business pressures while strengthening its foundation.

One such mechanism is 'Quality Roadmap' (Svenson et al, 1994) that allows the study of entire roadmap, revealing all possible paths and choosing the most appropriate. In the Quality Roadmap, tools, techniques and motivation of Human Performance Technology (HPT) are combined with the philosophies, concepts and statistical overlay of the Total Quality Management (TQM). In this approach, quality efforts are driven by business strategy rather than quality principles. Quality Roadmap is a diagnostic and planning tool and it views quality strategy within a larger, holistic context.

Quality Roadmap provides three faces. The first face contains business drivers, business processes and metrics,

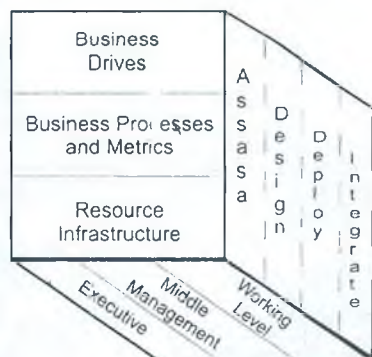


Exhibit 1-1. The quality roadmap.

and resource infrastructure. The second face contains the human elements at the three levels namely executive, middle management and working level recognising that each level has a role to play for the holistic outcome. The third face contains four phases, namely assess, design, deploy and integrate, that facilitate the project planning and implementation process. The three faces of the roadmap cube give organizations the ability to "mini-map" continuously, with 36 discrete combinations. Within each mini-map, one can create a series of smaller maps-focusing on a particular business process for instance.

There are three categories within business drivers: Assets and Competencies, Stakeholders' requirements, and Market place and competitive factors. Defining these drivers is more than a mere exercise and balancing all these requirements is not easy.

Business processes and metrics require mapping of a process from inputs to outputs, measuring that process and conducting gap analysis. Business processes include leadership processes, products and services processes, and support processes. The most common business measurements are financial, customer satisfaction and employee satisfaction. Process improvements have to be considered within the context of business drivers and resource infrastructure.

Resource infrastructure includes intellectual capacity, psychological capacity, physical capacity, knowledge and skills, organization structures, data/information, facilities, equipments and tools, materials and consequences. Each of these infrastructures may have significant impact on the success or failure of improvements. Scores of infrastructure changes may be necessary and mapping helps to understand, organise and prioritise them.

At executive level, the activity is strategic. At the middle management level, it is translating strategies into operational changes and tactics. At the working level, it is implementing tactics. Perspective of each level on the drivers, processes and metrics, and infrastructure will be vastly different.

The four phases make intuitive sense as they impose sequential logic and linkages on the improvement process, providing management with control over the objectives, and cost of improvements. The four phases allow definition of desired outputs at the end of each phase, organise

projects around those outputs, and monitor progress on each project. When scores of projects are going on simultaneously and activity taking place in different phases on three or more level, control is essential. Each phase is essential and linked to the others- treat one with disrespect, and all of them are diminished..

QUALITY ROADMAP FOR THE HIGHER EDUCATION INSTITUTIONS

STEP1: Initial analysis: where are you now and where do you want to go?

Each institution will have to develop a master map that sets forth the ground rules. First, it involves all organisational levels in a sequential, connected manner. Second, this master map ensures that business strategy is guiding improvement projects. Third, assessment drives planning for all phases, enabling an organization to anticipate obstacles and other issues that may emerge down the road.

STEP 2: From business strategy to team structure- ultimate and the start up.

STEP 3: A change machine to change the mindset of people at all levels.

STEP 4: Road Test involving getting started with team structures and their orientation and training, developing project plans, overcoming barriers and measuring success.

Step 5: Integration: finding and fixing disconnects between new, improved processes and infrastructure elements or between infrastructure elements and other linkages.

REALITY CHECK: ARE WE DOING IT RIGHT?

There is a need to ensure that the road to quality is on right course. The authors of Quality Roadmap recommend a following checklist.

1. Are you doing quality for quality's sake or for business sake?
2. Has your quality effort significantly changed the way you run your business, from selection and reward systems to executive behaviour?
3. Are your quality efforts targeted or shotgun?
4. Is there a system in place to integrate the hundreds of changes and improvements that will take place?
5. When you map out your quality effort, can you see it unfolding over a period of weeks, months, or years?
6. Are you committed to making an investment in quality?
7. Are you in control of your improvements?
8. How do your employees feel about the quality effort?

9. How do your stakeholders feel about your quality efforts?
10. Is a common language being spoken?

The roadmap is revelatory; it reveals the hidden linkages, business drivers, and other factors that can make or break your quality efforts. When you use it, you don't have to do anything more than assemble an executive leadership team and begin mapping your organization. All the resources needed are within the organization. There may not be a need to hire scores of outside experts.

CONCLUSION

The Australian higher education system is in a turbulent state expecting major restructure and adjustment. Economic pressures are high and business opportunities are knocking doors. Workforce adjustments are frequent requiring changes in the higher education policies of the government. Shortage of high calibre faculty is growing due to more attractive salary and benefits packages available in the other sectors. An Australian Universities Quality Agency (AUQA) has been created by the Federal Government to monitor and report on quality assurance in Australian higher education, and audit each self-accrediting institution (such as universities) and the accreditation bodies of the States and Territories over a five-year cycle. While business-like approach is needed to address the problems at hand, it is necessary to retain the basic values such as provider of intellectual base to the society. Quality roadmap approach has been suggested that can provide faster solutions to the quality problems and guarantee sustained benefits that are necessary for building their profile amongst leading international institutions.

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