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**Responding to Change:
Designing a University
for the 21st Century**

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Abstract

This paper examines the need for universities to develop alternative organisational forms to deliver services which will meet the demands of government, business, and communities for a highly trained, technically skilled, well educated workforce. It postulates that in order to survive in the increasingly competitive tertiary sector, successful universities will need to be efficient, focused, committed to learning and be able to effectively reach beyond space and time. It looks at how communications technology can help forge new links between business and universities to create competitive advantage. Universities are ideally suited to this future but need to change from the traditional bureaucratic forms they have taken. We propose a small, flat organisational structure with a flexible, multi-skilled core, a strong group of strategic partners working on a contractual basis and a supporting resource of part-time flexible labour.

KEY WORDS: Universities, Tertiary Education, Change-Strategies, Organisational Design and Structure

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1. Introduction

In times of change, learners inherit the earth, while the learned find themselves beautifully equipped to deal with a world that no longer exists.

-Eric Hoffer

Every few hundred years circumstances combine to bring about radical changes in the status quo. Under such circumstances the fundamental nature of change shifts from evolutionary progression via incremental steps based on the past, to revolutionary change by leaps and bounds predicated on the future. We are fortunate to live in such times.

Our world is rapidly moving out of the Industrial Age and into the Information Age. The changes that are taking place will radically affect the way our work is organised and the way we will live. Universities, as we know them today, will not survive if they do not respond to the radical way in which the world is changing. They have become too expensive, too complicated and cumbersome. Like the centrally planned economies of Eastern Europe under communism, our centrally planned universities are also discovering that the old ways which worked quite well in the past are no longer cost-effective. As academics, we will have to re-shape our organisations and re-think the way we educate people if we are going to survive in an age when advances in information technology make almost anything possible.

The purpose of this paper is to outline the nature of these forces for change and suggest ways in which universities might respond. It is addressed primarily to our colleagues who work in and who manage universities, because it is we, not our politicians, who should lead and design the new universities for the 21st century.

2. Forces for Change

It would be impossible to comment upon the need for new university structures without remarking upon the forces for change. These are detailed below.

2.1 The Competitive Paradigm

Today, government, business, and communities are increasingly focused on competitiveness. Competitiveness studies and definitions have moved beyond investigations of individual businesses and industries to concentrate on the nation state unit (Porter, 1990). For a nation to be competitive, it must first of all have a skilled and educated workforce. Among other things, this means a strong initial education system and a system for life-long learning and training. Overall the nation-state must strive to create a total environment that enables its industries, businesses, and public services to compete globally.

With the restructuring of the economy and the resulting development of new paradigms relating to competition, organisation, social relations and education, the world in which we live will gradually look much different to us and require different expectations and behaviour. Handy (1989) calls it the Age of Unreason and points to a requirement for 'upside down thinking'. For organisations, including universities, the age of change requires responsive adaption through strategic management.

Many writers have documented the type of change occurring and required in business organisations (Kanter, 1983, 1989; Peters 1987; Morgan 1986). Others have documented and written about what happens to organisations, even very successful ones, when they become rigid and fail to continue to adapt and change (Miller, 1990; de Vries and Miller, 1987; Meyer and Zucker, 1989).

Successive New Zealand governments have gone further and faster in the past decade in adopting a market driven philosophy, which in principle invokes the notion of the progressive withdrawal of central government from the economic market place. This increasing orientation toward a more market driven style of economic management is reflected in the competitive environment now encouraged by government policy in the tertiary sector.

Until recently, the seven autonomous New Zealand universities enjoyed a virtual monopoly over the right to grant degrees. In an effort to stimulate more competition amongst educational providers, the New Zealand Qualifications Authority (NZQA) was granted the authority to license institutions with degree granting rights. This has led to the introduction of degree programmes by polytechnics, colleges of education and private institutions. The

Commerce area has been their primary focus, with Accountancy as the most popular discipline. Such developments constitute a direct challenge to the universities in the one area in which enrolments have continued to grow during the 1990s.

2.2 Emerging Demographic Trends

From a university perspective, the competition from other educational providers, particularly the polytechnics, will be exacerbated by changes in two key demographic trends. Firstly, the total number of students at secondary school in New Zealand will continue to decline throughout the 90s as the number of young persons in the 15-21 age group follows the OECD trend downwards (Ministry of Education, 1992). Thus, universities can expect increased competition for students in their traditional target market, secondary school leavers.

Secondly, due to emerging demographic trends in OECD countries and to supply factors, knowledge workers are becoming an increasingly scarce resource both regionally and internationally (El-Khawas, 1989; Mooney, 1989). Thus, universities will face increased competition for skilled staff with teaching experience at degree level. Already it is difficult for New Zealand universities to recruit candidates with the desired skills profile in many disciplines. Supply and demand being what they are, these knowledge workers are very expensive. Since they cost so much and new technologies allow them to do and control so much more, universities will operate with fewer and fewer of them.

One positive trend however, is the growing number of older students attending university. In 1966, students aged 25 or over made up 15.9 per cent of the total New Zealand university population. Today this segment has more than doubled in size, standing at 36.5 percent of all university students (Ministry of Education, 1992). Even assuming no change in older students' participation rate in university education, those aged 25 or over will comprise 50 per cent of university enrolments by the year 2000 (NZVCC, 1993). This trend will challenge universities to rethink their methods of operation, programmes, instruction and administrative structures to better meet the unique educational needs of these older students. The typical older university student is employed and possesses more experience than the traditional undergraduate. These students will demand education that is professionally relevant and directly applicable to their current work environment.

2.3 Demand for a Skilled and Educated Workforce

Our education system must produce more and highly skilled, knowledgeable, and technically able workers. The perception and perhaps the reality is that New Zealand schools are not producing what is needed. Our rapidly changing and increasingly complex environment demands continuous learning. Unfortunately, the New Zealand university system was set up to focus almost exclusively on the first career preparation education of traditional undergraduates, those in the 18-21 age group.

As education requirements shift to continuous learning throughout the adult life, the demands on the education system will change. Career preparation is more likely to include formal work terms in the programmes of study. Individuals will also look to a different mix of work and education, perhaps preferring to move back and forth from work to education as they progress through life.

Business educators are feeling the greatest effect of the demands for able, knowledgeable, highly-skilled, and innovative workers to deal with an increasingly competitive and knowledge-based environment. Commerce programmes throughout the world are responding with changes in accreditation standards (Fuchberg, 1991), in programme and course focus toward globalisation and internationalisation (The Economist, 1991), in forging strategic alliances with corporations (Lea, 1991) and in searching for market niches (Lea, 1991; The Economist, 1991).

2.4 The Information and Communication Revolution

Computer and information science will play a special role in the inevitable restructuring of our educational system. In the coming decade computing and information technology will be the backbone of the most significant change in education in over 100 years (Soloway, 1991). Rather than being an adjunct to learning and teaching, emerging technologies such as interactive computer networks will facilitate a fundamental rethinking of education delivery. The use of telecomputing in education will open up new worlds of opportunities for students, teachers, and institutions alike at all levels (Conhaim, 1992). Universities will be able to offer educational programmes via telecomputing networks directly to students 24 hours a day, 7 days a week. Changes in educational concepts and technology will also make

national boundaries increasingly irrelevant. We are already close to the reality of genuinely multinational universities.

Walton (1989) explored the impact of information systems on organisations. He deals with the conditions necessary for successful implementation of major information technology/information systems, arguing that this has three components, all of which must be present for information technology (IT) to reach its potential. The three factors are: 1) strong direction through the alignment of business, organisational and technological strategies; 2) wide organisational commitment to and ownership of the IT system; and 3) strong competence demonstrated through user mastery by the employees. Successful implementation radically changes the way the organisation operates, leverages its effectiveness and opens up new horizons for the organisation.

The same conditions that lead to successful use of the newer interactive technologies in business and commerce will also apply to educational institutions wishing to use these technologies. The 'information society' is based on and requires fast, flexible and devolved decision-making and management, and thus radically different organisational structures and methods of working from those found typically in large, autonomous universities.

3. The Learning Organisation

To deal with rapid change and complexity universities must become 'learning organisations'. The learning organisation, says Senge (1990) needs to take a systematic view of its business and environment. Using strategic management and techniques such as cross-functional teams for systematic 'outside-in' thinking (Murgatroyd, 1989) will allow universities to create new structures appropriate to changing realities.

Senge (1990) lists the disciplines which must be present in an effective learning organisation: systems thinking, personal mastery, mental models, building shared vision, and team learning. The shared vision is evident in the business definition which must clearly focus the organisation on viable and appropriate goals. Senge considers system thinking as the foundation for the other disciplines as it provides the view of the whole picture.

Heskett (1986), writing about managing a service business, notes that a service organisation must include four key basic components in its Strategic Service Vision. These components are: 1) clearly differentiated services for its target market segment, 2) a comprehensive and focused operating strategy, 3) a well thought out and distinctive service delivery system which leverages value over cost, and 4) a service concept which strategically positions the organisation in the market place. Each of these components is vital to the success of a university in today's competitive environment. The development of the components is a rigorous process best implemented and enhanced in the environment of a learning organisation. Indeed, one might say that successful implementation of the components is proof that the disciplines of a learning organisation are present.

In an increasingly competitive market where customers (students, employers, suppliers, and providers of funding) are all demanding more effective, efficient, and flexible modes of delivery geared toward life-long learning, a different form of educational organisation/institution must emerge. The new organisation must do more with less. It must organise itself around its key human resources using the new information technologies to maximise their effectiveness and integrate itself into a network of companies and individuals which can best provide it with the skills and services it requires on an 'as needed' basis.

4. Organisational Possibilities

To many, the university of today seems a chaotic uncoordinated place; impossible to 'manage'. However, the traditional structure, with modification primarily by adding faculties or schools for new disciplines, has served well over the years until now. As with any organisation, the university reacts slowly and reluctantly to change and many can be classed as permanently under-performing organisations (Meyer and Zucker, 1989). Indeed, the concern with performance relative to investments has led the British Government (through the Committee of Vice Chancellors and Principals and the University Grants Commission and their successors) to systematically collect and publish performance indicators which are now also used to guide funding decisions (Committee of Vice Chancellors and Principals/UGC, 1988). Current demands for change are becoming loud and action urgent. Those schools which do not change will, in the longer run, wither and die, strangled by a lack of funding and support. This will come about as other options become available to students through

new independent schools and corporate schools. The new university will have to change its organisation, cut loose from the clutter of faculties as fiefdoms and become a renewed learning organisation and not just an organisation disseminating knowledge.

How might the learning organisation manifest itself in the university sector? Handy's (1989) Triple I organisation stresses Intelligence, Information, and Ideas and is conceptually similar to the learning organisation. Using Senge's thinking, building the Triple I/learning organisation requires a number of ingredients:

1. System thinking to gain an overview of the full picture.
2. Shared vision or realistic, acceptable pictures of the future supported by genuine, shared goals, values and purpose or mission. Strong leadership is required here to help create, implement and facilitate the continued growth of the shared vision.
3. Upside down thinking to create new mental models. Senge discusses a number of tools for identifying and creating models. Shell's scenario building techniques for strategic planning and management is a prime example (Schwartz, 1991; Wack, 1985a; 1985b).
4. Personal mastery through life long or continuous learning. Personal mastery gives purpose; purpose gives rise to vision. Personal mastery arises from a devotion to truth. Truth is used here in the sense of not deceiving yourself; of understanding and using current reality as a basis to work from in creating vision.
5. Team learning through cross-functional, high performance teams. The modern learning organisation needs continuous improvement throughout and can only get this through the sharing and dissemination of learning through teams so the whole organisation can learn.

The learning organisation will need both intelligent people and intelligent machines and these will work together to leverage improvement. Like an orchestra, the parts of the learning organisation should work harmoniously together, guided only by the conductor who has the complete score i.e., the shared vision created by systematic thinking.

5. A Systematic Approach to Change

Is there a more systematic way of approaching the future? Scenario planning (Wack, 1985a; 1985b; Schwartz, 1991) involves more than projecting possible futures. It is about changing the perceptions about the future and how we will have to proact. We propose a series of steps to aid moving our increasingly bureaucratic universities toward becoming flexible, learning organisations dedicated to outstanding performance.

1.Realisation: Looking at a combination of economic factors, market circumstances, and the cost drivers associated with organisational management, it will become clear that "if we continue to do what we've always done we'll go broke." Government grants for tertiary education per equivalent full-time student (EFTS) are in decline relative to costs, inflation, and demand. Only by changing the cost-drivers will publicly funded universities be fiscally responsible. By developing scenarios, universities can change the way they look at possible futures. They will no longer believe things will stay the same; no longer be able to deny the need for new mental models.

2.Reform: Having realised the need for change, having developed scenarios for possible futures, and having chosen a vision of the changed organisation, it is then essential to begin a major process of reform. This process should be powerful and all embracing. It should be undertaken without hesitation and with a great deal of interpersonal care. Nonetheless, the transformation will involve structural changes, position changes, rethinking products and services and changing the relationship between the provider and the customer in such a way as to make the latter the central focus for the work of the organisation. There will be several barriers to this process: old style management, unions, attitudes, lack of funding, and habit being among the most common. These must be overcome if the new kind of organisation is to emerge which is leaner, more sensitive to customers, and effective in achieving educational goals efficiently.

- 3. Empower:** Within the framework of the revised organisation, teams need to be empowered to achieve goals and objectives that are product focused, learning oriented, and organisationally improving. In doing so, the teams themselves, need to be regarded as learning organisations. A commitment to training and education to develop new competencies such as knowledge of the business, analytical skills, and interpersonal skills is crucial.
- 4. Informate:** The information needs of the learning groups/ teams need to be met with an intelligent, timely flow of data to the people who need it to help make decisions. Empowered local decision making groups working directly with customers/ clients need up-to-the-minute data to help them do the right thing, the right way, at the right time. The empowered team is like a coxless rowing team flailing away at the water if it is not fully informed and equipped with the tools to use the information acquired.
- 5. Evaluate:** Using all the available technologies of evaluation, quality function deployment, and measurement, the organisation should benchmark all of its important tasks with a view to regarding benchmarks as the starting point for improvement. It must establish clear goals, objectives and performance criteria for all the organisational members. It must establish service guarantees for its customers.

These five steps represent a radical agenda for rethinking organisation design. What is clear is that universities will not fulfil their promise if they maintain their traditional bureaucratic forms. It is also clear that the design of the traditional university is being challenged and will change.

6. A Design for a Renewed and Flexible University/Organisation

Society will be less able to afford to have members of its labour force spending long periods of time exclusively at educational institutions particularly once they have already completed their original tertiary qualifications. In addition, public funding for universities is being curtailed severely by changing fiscal realities throughout the world and private funding will

not make up the difference. Private funding will also be much more discriminating. The biggest constraint on universities however, will be the shortage of top knowledge workers to fill the core critical functions in the organisation (El-Khawwas, 1989; Mooney, 1989). A shortage of knowledge workers will create greater competition for the best. This is already occurring in commerce as doctoral candidates are ardently pursued with high salaries and other perks by universities and polytechnics. Many in fields like finance, marketing, and computer science choose to go into the private sector. As a consequence, universities and polytechnics will be able to afford fewer knowledge workers, be they marketers, computer specialists, or any other in-demand group. They will have to augment the fewer core workers they can afford with contractual and flexible workers (e.g., contracts can be made with private sector people to perform short term or part time tasks such as writing or teaching) as had long been common in schools of law and medicine.

Viewing the university education field in general and the commerce part of it in particular from a broad systematic point of view, we see a need for restructured, focused lean structures and sub-groupings. The organisation must be flexible, highly adaptive, and quick to learn. It must systematically use leading edge tools to manage and plan to design, create, and revise products quickly and often. It will be time conscious and have a very short product life cycle. One of the advantages of the traditional model of education is the flexibility of the academic - his/her ability to change what is taught on a day to day basis as required. Some of this ideal flexibility has been lost with the changing focus of many university organisations to a more exclusive focus on 'publish or perish' limiting the ability of the academic to keep up in areas not directly related to her/his narrow specialty.

Handy (1989) uses a model he calls the Shamrock organisation, in which he envisions three leaves: 1) the core, 2) the contractual fringe, and 3) the flexible labour force. Each leaf of the shamrock must be managed differently yet be part of the whole.

The shamrock for a university in the 21st century would parallel the prototype described above. The core would consist of a small highly energised productive group of academics, professionals, and support staff. Each is broadly skilled in educational practice as well as being an expert in a specialisation. The core sets direction, develops the organisation vision, and provides the leadership in developing a cohesive and innovative curriculum. Research in both discipline and education is a primary function of the core. Core professionals work at home or on the road with contracted individuals and companies, but stay in close

communication with the central office by various technologies. The core meets regularly on-site and by computer-mediated means. The core works to eliminate system delays for timely response to demand requirements and to accumulate the knowledge about the student/client that is essential to appropriate decisions. Everyone in the core must be a manager while at the same time being more than a manager since no one can afford to be only a manager.

The key to making this work and fostering the group vision and resultant goals will be the Vice-Chancellor, who cannot be allowed to become bogged down in daily detail. The administration of the courses and programmes must be a smoothly running area requiring little intervention. The Vice-Chancellor will then be able to concentrate on work as leader, facilitator, and liaison for the university. Another key will be formation of teams that go beyond academic disciplines and that constantly work together and with other teams. A spirit of innovation must drive the core to new concepts and experiments in education.

While the composition of the core will vary from university to university, the key concept remains the same - a relatively small, compact, cohesive group carries out the central functions, contracting and utilising part-time workers to carry out the work of the institution. The winners in the long run will be those who best integrate demand requirements, expertise, and communication and information networks to effectively perform the goals and objectives chosen.

In this 21st century university organisation the contractual fringe will consist of both academics hired for particular tasks in preparation of materials and teaching and instructional designers contracted for specific projects. Other individual companies will be hired for activities in accounting, computing, printing, media tasks, consulting in programme design, and so on. The components of the contractual fringe will be integrated into and networked to the core through information systems and computer mediated communications networks. In the service and support areas the 21st century university will fight the urge to build an on-site capability for handling everything.

The contractual fringe will be made up of individuals and organisations paid for results not time. The organisations will be smaller than the main organisation but also have their own shamrocks. The central organisation will exercise control by specifying results, not by overseeing the methods.

The flexible labour force will consist of individuals doing part-time tutoring, counselling, advising, secretarial work, lab supervision and so on. Peak periods in registration, exam marking, and other related activities will require the use of a flexible part-time labour group to avoid adding permanent staff for these activities. Again, the flexible labour force will be networked to the core, and where necessary to the contractual fringe, through the computer-mediated communications network and strategic information systems.

The flexible labour force will include many people (often significant numbers of women) who do not want full-time jobs but access to money and people, supplementing and complementing their other work. Often they will hold two or more part-time jobs and would more properly be classed as self-employed with a portfolio of jobs. This group would not be treated as unimportant hired help. They will be a valuable part of the organisation in which the university should invest by providing training including training leading to qualifications.

A possible fourth leaf would involve getting the customer or client to do more of the work. The same concept behind self-serve petrol stations and automatic tellers will be applied to university education, as we rely increasingly more on self-directed learning techniques and self-registration. Our flexible university of the future will not be wedded to any developments or delivery methodology but seek to innovate and go with what works for a particular customer group or a particular piece of subject matter.

7. Conclusion

Three messages should be clear from this paper. First, change is inevitable but learning from change is optional. Universities can choose to resist changes in structure or process or they can embrace them. Those who embrace change in a strategically focused way are likely to emerge as Shamrock organisations able to respond flexibly and intelligently to the environmental changes they will experience. Those who resist, especially publicly funded universities, will find others moving into their territory and occupying their market. "Doing what we've always done" is not likely in the future to produce the same outcomes as in the past.

Second, the key to the strategic management of change is the development of people within the organisation through the creation of a learning community. The ideas in this paper suggest a need to rethink the relationship between individuals and their work and between processes and performance. Knowledge workers will be a scarce commodity from the end of the 1990s through to the early part of the next century - new organisational frames need to be created which both challenge these workers and also empower them to find their own ways of responding to these challenges. Such changes to organisational design require us to rethink the relationship of work to recognition and reward strategies.

Third, high performing organisations offering tertiary education may emerge from a variety of sources: publicly funded universities have no monopoly over the enterprise of learning. To be responsive, universities will need a focused service strategy, a simple structure and challenging goals. A failure to grow in this way and to provide leadership by doing so will in turn lead the government and private investors to reduce their funding and switch their allegiances to more productive and less expensive options. This new thinking is already re-shaping service organisations in several industries. It is time for university educators to embrace these challenges.

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