

**HIGHER EDUCATION:
ENVIRONMENTAL ANALYSIS & INDUSTRY SCENARIOS:
SCOTTISH UNIVERSITIES IN 2010**

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Abstract

Scenario analysis is a means of evaluating potential implications for Higher Education strategic managers and evaluating the possible options. Taking 2010 as the future time horizon this paper intends to explore the implications of possible future change in the business environment for Higher Education as an industry, but focussing particularly on Scotland covering three institutions bounded by the geographic locations of North-East Fife and Dundee.

A structured approach to the problem is required. The first stage will cover an analysis of the characteristics and structure of the industry and identify the environmental forces affecting the industry. The second stage will postulate and examine two plausible scenarios, one positive and one negative, for the future development of events affecting the industry. The third stage will assess the implications of the scenarios for the strategic thinking required by the organisational players in Higher Education.

It is intended that by completing this process it will be possible to develop more robust organisational systems that will be better able to withstand the unexpected events that may arise and increase organisational adaptability through detailed observation of the business environment.

Vocational training has been uneven in the UK over the past two decades. Before 1988, governmental approaches to vocational training consisted of legislatively supported Industrial Training Boards (ITB) initially financed by a levy on employers and the National Vocational Qualification (NVQ) initiative to facilitate skill acquisition, development and demonstration at work. In terms of the ITB, employers were

encouraged to offer employee training (sometimes for the first time) as a means of recouping the levy (Leat, 1998). Many ITBs were abolished beginning in 1981 with most eliminated by 1988 (the Construction Industry Training Board is still doing well). Since then, the type and amount of training offered by employers was left to market forces but it is arguable if any improvement on quality and quantity of training has improved.

However, there is now talk of opening up the issue of Higher Education to a 'free-market' (Tooley, J 2003) and complaints about the entry procedures under consideration by some institutions (Robertson, J. and Cowie, E. 2003; Woodhead, C. 2003). With industry seeking graduates with particular skills and students shopping around for different experiences what strategic decisions are needed by universities to meet the demands of its clients and stakeholders pulling the organisations in different directions? This paper explores two options.

Key words:

Introduction

The past decade of competition as driven by the Scottish Higher Education Funding Council (SHEFC) has caused some Universities to face the prospect of large debts and appears to have increased collaborative projects between Higher Education institutions through the Strategic Fund. In addition, teaching funding and research funding are also being changed with significant implications for the industry, including the potential to introduce a new level of competition for research funding through a Research Assessment Exercise Level 6 (Goddard, A., and Davis, C., 2003:1; O’Leary, J. and Thomson, A., 2003:2-3). The Government is currently considering the future of Higher Education and has indicated that English and Welsh institutions will be able to charge higher “top-up” fees to students, levied after graduation (Tysome, T. and Thomson, A., 2003:2-3). It is possible to deduce that this can lead to divergent funding that can disadvantage Scottish institutions, unless politicians step in to equalise the playing field (Tysome, T. 2003:7; Wojtas, O., 2003:6).

Within the Tayside and Fife area, the University of St Andrews, Dundee University and University of Abertay demonstrate excellence in differing ways, amply set out on their respective websites and strategic plans. Reading these strategies it is possible to identify the potential for collaboration. St. Andrews which is not a campus University but integrated with the town has over 6000 students with 2500 staff, Abertay has over 4,000 students and Dundee University over 16,000 students with proportionally similar staffing levels to St Andrews. However, one problem facing all three institutions to varying degrees is the demographic trend indicating fewer “traditional” students. One solution to this is to expand overseas student recruitment, widen access and to focus upon niche educational markets such as distance learning. However, doing so may have considerable implications for each institution’s strategy. Especially unit strategies, which

must marry with the University Strategy e.g., each university is reviewing their estate strategy, in accordance with guidelines issued by SHEFC. Specific examples of this are, the University of Dundee who are undertaking campus re-development, Abertay who are building a new Student Centre and University of St Andrews who are building new residential facilities.

This paper will explore cover the following in dealing with future strategic issues:

- Analysis of the characteristics and competitive structure of Higher Education in Scotland and the identification of the environmental forces (internal and external) affecting this part of the industry.
- Identify where each University operates in the systemic quadrant.
- Consider the future development of events affecting the industry.
- Assess the implications of the scenarios for the strategic thinking required by the organisational players competing in the industry for the planning period to 2010.

The methods adopted in order to achieve the aims of this paper cover:

- Identification and definition of Higher Education customers and stakeholders.
- Application of strategic management tools and theory to the industry such as PESTEL to analyse characteristics and competitive structure.
- Devising two plausible scenarios, one positive and one negative, for events that may affect the industry, using recognised management theory.
- Based on evidence available, make deductions and present conclusions for strategic decision makers in Higher Education to 2010.

PESTEL Analysis of the Industry

The major customers for Scottish universities, and the three under consideration in particular, are both internal and external such as students, staff, potential students and their parents, suppliers of goods and services, government agencies (including SHEFC), townspeople, conference trade, tourist trade and other Universities. In order to analyse the industry further 'PESTEL' will be applied in order to cover issues relating to politics, the economy, society and demographics, technology, the business environment, and legal issues. The method is general and geographically dispersed entities will be required to conduct a separate analysis from each region as trends occur differentially (MacMillan, H., Tampoe, M., 2000:98-99). In addition, Porter (1999) indicates that open global markets, rapid transportation, and high-speed communications should allow any company to source any thing from any place at any time, but in practice, location remains central to competition. Porter basis this assertion on the premise that a global strategy taps the innovation advantages of locating headquarters or "home base" activities in cluster locations while spreading other activities to other locations to source low-cost inputs and gain access to foreign markets.

Political

Previously there have been identifiable issues that affected, or continuing to affect, university strategies such as student fees, the student loan scheme and the target of participation to be achieved. In terms of politics, the Labour administration has significantly altered the previous Conservative administration's commitment to Education by its policy of 'Education, Education, Education' and the establishment and emergence of the Scottish Parliaments influence on Scottish Higher education. Measures towards this end include the strengthening of competition policy and the

promotion of measures to improve efficiency and competitiveness. Also direct investment from overseas is encouraged (Price Waterhouse Coopers, 1999). Industry specific legislation introduced by government includes the Disability Regulations and the Climate Levy. Specific political factors range from the 9/11 attacks and known effects on American organisations (Reisner, R., 2002), American students failing to return to St Andrews University through to governmental policy on potential terrorism threats and war with Iraq. Current reviews of teaching and research are under-resourced with real-terms funding cuts in addition to targets requiring further 'efficiency gains'. The potential to increase targets to recruit more overseas students may be adversely affected because of cultural and travel concerns. In addition Scottish politicians have an opportunity to prevent the differentiation in funding compared to English and Welsh institutions over the next few years but it remains to be seen how this problem will be resolved.

Economic

Previous economic factors affecting strategy include the reduction in government funding between 1989-1997 that cut funding by 36% per student, increased controls and the Dearing Report with the subsequent effects.

The UK economy seems stable at present but Inflation appears to be rising with implications for Higher Education. For example, St Andrews University's particular geographical location is isolated placing an associated cost premium on goods and services. In addition, insurance premiums have increased through taxation and raised excess cover; for example, a £250 excess has been raised to £2500. Other factors include the potential effect of more bad winters with stronger winds possibly extending into the summer period that could affect conference trade and summer visitors.

Within Europe the Scots are generally less averse to joining the euro than the rest of the UK, being the least negative according to an ICM poll (Scotland on Sunday Business, 10 Feb 2002). This could be a positive outcome. There is also recognition of significant potential to develop links with China to encourage more Chinese students to Scotland.

Currently the manufacturing and consumer sectors are declining in revenue streams, making it possible to deduce that Treasury forecasts are over-optimistic. Possible consequences may be higher inflation and further economic contraction including a significant slow down in the rising house prices as the effects of high borrowing by the public due to the historically low interest rates takes effect. The falling stock market has already raised economic concerns and the latest round of tax increases are being noticed by the public and employers, particularly the raise in National Insurance contributions due to take effect in April 2003.

Society and demographics

Leat (1998) reports that, like other European nations, the UK is experiencing a declining birth rate and mortality rate, both of which serve to increase the age of the population and, hence, the age of the workforce of the country. This ageing demographic trend leads to the need for an increase in the rate of immigration to meet the growing demand for young, able employees. In relation to society and demographics for the sector, there is a target for 50% age-cohort participation within Higher Education. It has been stated that:

“...There are various aspects of what HEFCE has termed ‘supply and demand’. We have to adapt to several facts. The ‘traditional’ student market (of well-qualified students with A-levels wanting full-time higher education

away from home) is softening, while part-time enrolments for both initial and continuing higher education is the fastest growing demand area. Potential students also want different subjects and combinations of subjects from those which we are often set up to provide.” (Watson, D., 2003:5)

For Higher Education institutions in Scotland this raises difficulties in conjunction with the relatively small population, particularly for those outside the central belt. The problem is compounded by anecdotal evidence indicating the increasing number of students living at home to reduce the cost of HE in terms of fees and maintenance. This exacerbates a trend observed more generally:

“Demographic change means there will be 15% fewer young people in Scotland in 15 years time.” (University of Dundee, Planning Statement, 2002-2007:5).

The national culture is reflected in corporate culture that, in turn, affects how work is organised within a corporation. As described in Schoenberg, Denuelle, & Norburn (1995), Hofstede depicted the culture of the UK as low in terms of “power distance” (concentration of authority or autocratic leadership) and “uncertainty avoidance” (structuring of activities using hierarchies and formal procedures), high with respect to “individualism” (appreciation of individual freedom/personal time) and “masculinity” (achievement/earnings orientation), and as having a “short-term” orientation (concerned with achieving quick results, respecting traditions, and personal stability).

Technology

Technology is driving the issue of online and distance learning to help Universities meet wider access targets and provide a larger range of teaching and learning options. In

this connection, virtual learning environments are increasingly being used in Higher Education, although the development and maintenance costs appear to indicate that only popular and commercially exploitable courses will be developed fully with this option. The effects of technology are likely to increase indicated by the innovative 'digital' library at the University of Abertay and its commitment to computer spending per student. Such developments require considerable and ongoing investment, which is difficult when academic publishers continually increase charges and are developing an individualistic digital rights management culture. In addition, concepts such as tele-working, the paperless office, video-conferencing and distance learning affect the requirements for different types of physical space and the buildings required.

Environment

The nation may be at the edge of an information revolution, one effect of which may be to reduce the need to commute, but a change in culture will be required to harness the potential of such methods of working. The use of public transport, private vehicles and parking is a problem in a sector dominated by city-centre physical campuses requiring large numbers of staff to commute to work and travel as part of their duties.

Legal

Legal factors exemplify many challenges facing the sector covering changes to buildings through the Housing (Management of Houses in Multiple Occupation) Regulations 1990 to teaching and learning through the Special Education Needs and Disability Act 2001. Students are increasingly seen as customers, and are encouraged to use rights to challenge institutions including legal action (Baty, P. 2003:12). Monitoring and regulatory requirements are placed upon HE institutions as a result, reporting to the Higher Education Statistics Agency (HESA), as well as major

operational considerations. The individual rights approach is being applied externally by politicians at the expense of other approaches such as those of 'utility' or 'justice' (Hunger, J. D., and Wheelen, T. L., 1995:69). Copyright is an increasing operational problem, as so-called 'blanket' licences such as that provided by the CLA are increasingly inadequate to provide academic staff with the means to provide the teaching materials of their choice, especially since these licences do not adequately cover digitisation. Further, it has been argued that academic staff will in future be at risk of litigation for negligence in teaching as the external environment becomes even more competitive (Katter, N. A., 2002:390 *et seq.*). Further, there is a review currently under way of the rights of institutions to use the terms 'University', which further reduces certainty and is likely to increase pressures on certain institutions.

The forgoing analysis indicates that increasing collaboration, and larger units, will inevitably be required when these factors are seen against a backdrop of years of declining resources. Funding, both in terms of a new funded research structure and teaching widening access will affect strategic decisions. Commercialisation of spin-off companies from applied research and other commercial activities is also playing an increasingly important role, as institutions seek to diversify away from over-reliance upon any single source of funding such as the central grant for teaching; in other words they are diversifying their activities. In summary, a more business-like orientation will continue to be required, in terms of asset utilisation, opportunities etc. in a hostile environment in which increasing targets and performance indicators must be achieved with fewer resources and additional burdens from government. Institutions are increasingly collaborating and developing their own core competencies and aiming for competitive advantage in these areas.

Scenario analysis

Shoemaker (1992 and 2001) suggests a simple approach to construct initial themes i.e. to group all positive elements separately from all negative elements in order to form two opposing scenarios. Table 1 below forms the basis for developing the scenarios.

Table 1. Assumptions for developing scenarios

POSITIVE	NEGATIVE
<ul style="list-style-type: none">• Economic stability continues• Financial Debts Reduced• Collaborative projects with other Universities and Industry• More funding for specific projects• IT improvements to teaching access and delivery• Universities delivering training to industry• Stable and unchanging government• Graduate tax	<ul style="list-style-type: none">• Economy becomes unstable• Financial debts grow• Partnerships not possible• Reduced funding from SHEFC• 9/11 and continued unrest in the Middle East• Growth in online courses• Increasing statutory compliance and audits• Increasing tax on environmental issues• Student ombudsman

Scenarios involve hypothesis about various different future possibilities and should help, by a process akin to averaging, to ensure that the likely outcome of future developments is somewhere near the middle of the range of predictions. These scenarios look to a horizon of 2010, and use the recognised template of factors, which are inevitable, dynamic, and critical uncertainties.

A 'best-case' scenario to 2010

The campus of the future in this scenario needs a balanced blend of capital investment in real and virtual estate, leading to internationally-competitive teaching and research, and commercially exploitable research within a sustainable campus.

Inevitables

This entails that research grant monies will be made more widely available with 'seed' funding for developing research capability, and adequate provision for both applied and 'blue skies' research. In terms of teaching, adequate funding to prepare and present high quality teaching materials to all courses, not just 'popular' courses to enable all students, regardless of institution, background or mode of study to obtain the best possible 'student experience'.

Dynamic trends

Dynamic trends are likely to encompass increased development of e-learning and distance learning, but including restoration of more generous student funding to ensure that, despite demographic trends, face-to-face teaching holds up in terms of numbers and staff-student ratios. In addition, face-to-face teaching engenders part of the social experience that some students relish as part of the overall experience; it is unlikely there will be any substitute for this need.

Critical uncertainties

The biggest factor here is when Higher Education should enter the global competitive economy, and in this scenario state support would continue without adverse influence.

A 'worst-case' scenario to 2010

A worst-case scenario involves substantial contraction in the operational size and resources of institutions, pressuring managers towards rationalisation and mergers from continued political uncertainty and lack of investment commitment. In this scenario, substantial staff redundancies occur and strategic management decisions are in effect externally imposed through 'adverse' changes to funding models.

Inevitables

This includes continued pressure on the unit of resource, further increases in the competitiveness of research funding with a reduction in the grades funded and reductions in student numbers. This could be compounded by the inability to obtain successful commercial activities, a rebellion by the public to enter HE for various reasons and the global companies in the private sector setting up their own 'universities' linked to their own research and development expertise.

Dynamic trends

Increased competition from other providers, especially multinational corporations providing internal education and training programmes depriving universities of a range of potential students and consequent fee income.

Critical uncertainties

The critical uncertainty is whether student numbers drop below sustainable levels for certain geographic areas and research funding is so thinly spread that continuing to run the institutions in their current form is impossible, leading to merger or closure.

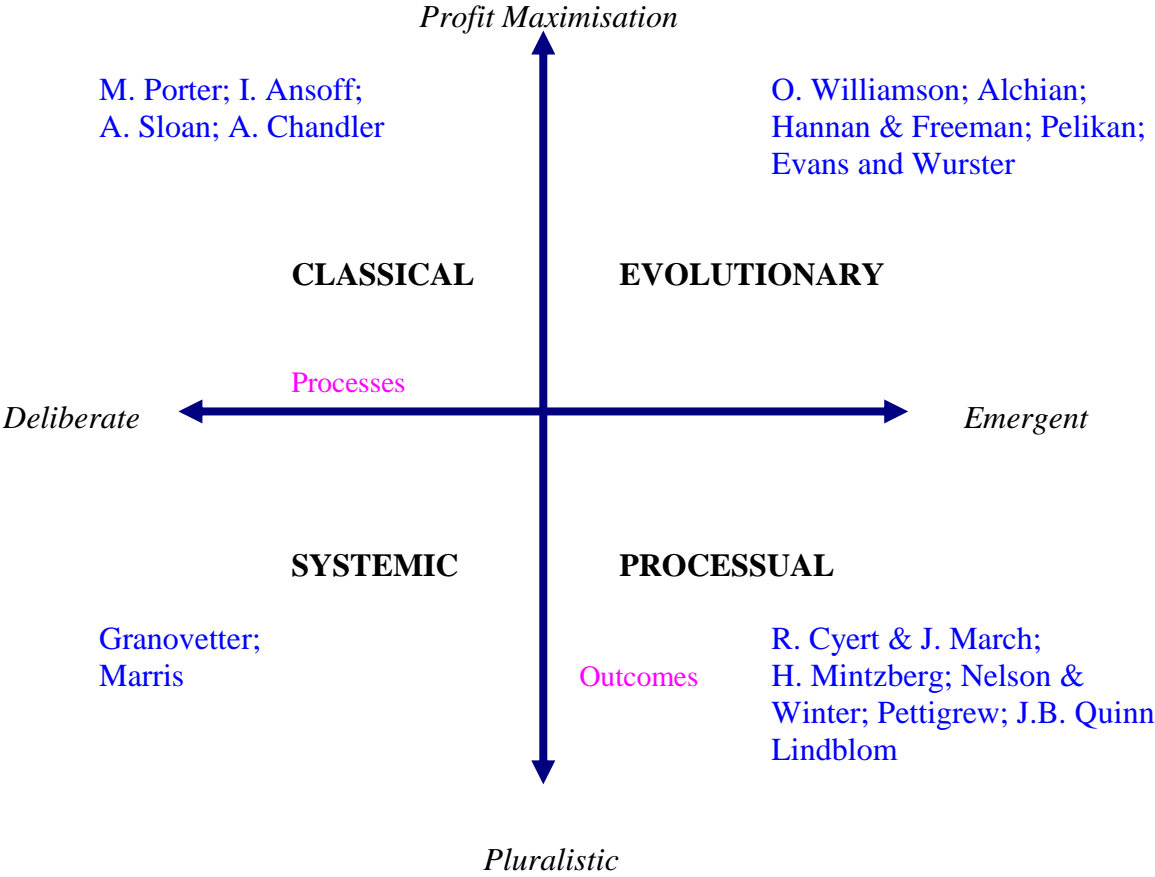
Discussion of implications to 2010

Management theory differs on how to deal with making strategic decisions. Further to this Sull (2000) has observed that when successful companies face big changes they often fail to respond effectively. Based on Figure 1 overleaf, it is possible to deduce that Porter takes a 'Classical' view of management theory in that rational planning will result in profitability, the sole objective of an organisation (Whittington, 1994:11). In addition, it is assumed that strategy can be controlled and carried out according to specific plans.

Evans and Wurster take the 'Evolutionary' theorists' view of strategy. The underlying assumption is that strategy is an unrealistic and unattainable ideal; competitive advantage is derived from relative efficiency. It follows that if an organisation has considerable costs associated with production, distribution or within the organisation itself it is at a competitive disadvantage to an organisation that, all other things being equal, is more efficient in these functions. This contrasts with Porter's view where it is implied that organisations can take control of the effects of technology and incorporate this into the organisational strategy.

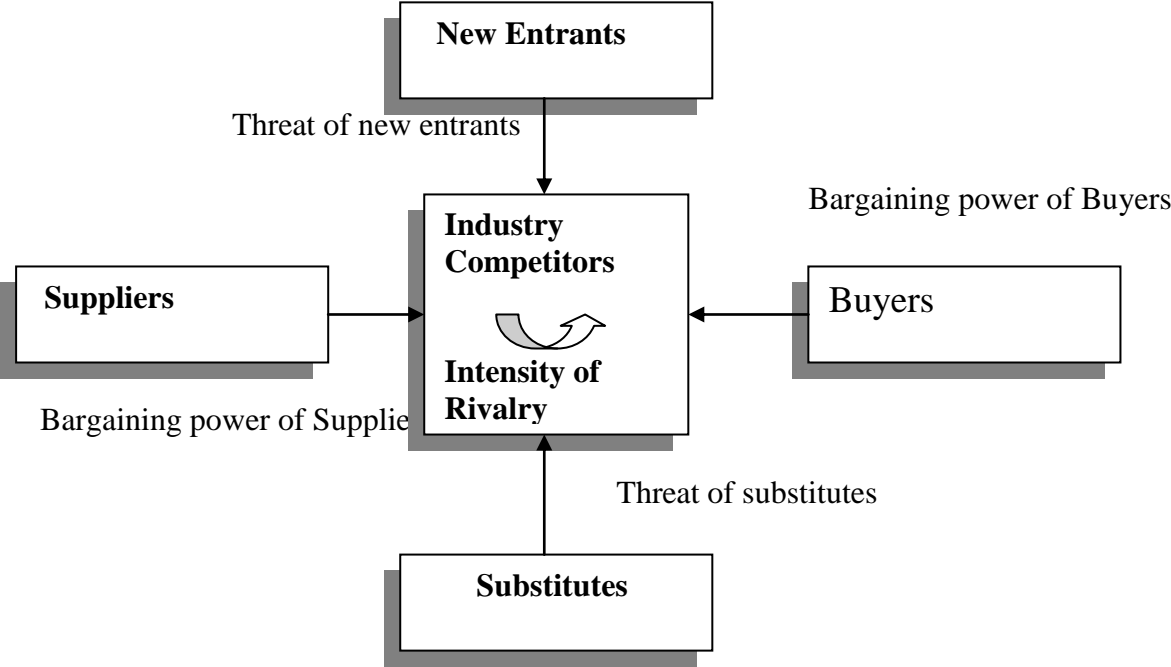
Figure 1. Perspectives on strategy

Adapted from: Whittington, R. (1994:40)



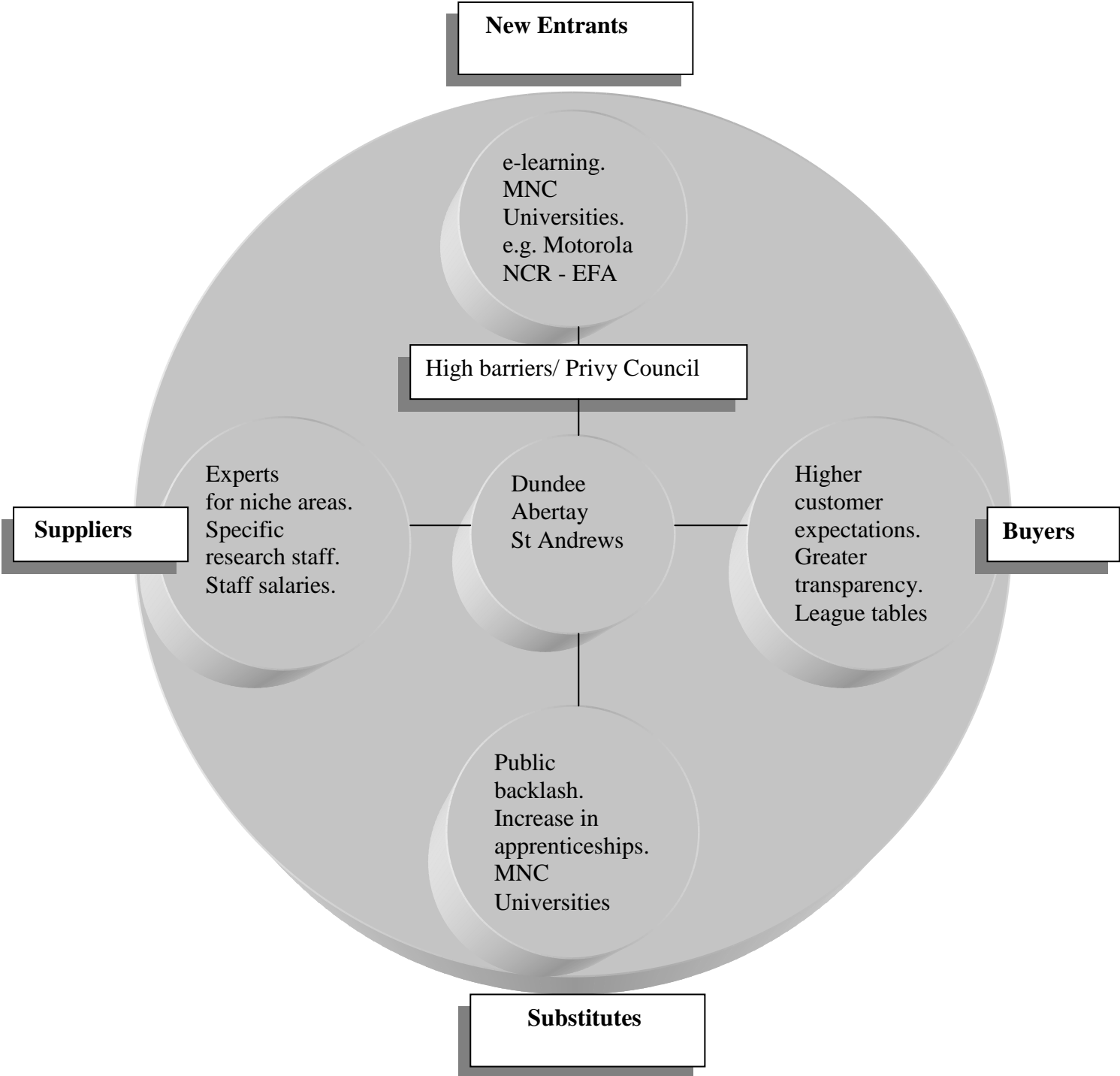
Regardless of the management perspective each strategic manager is faced with the issue of time and opportunity. As noted by Reisner (2002) universities cannot afford to, “miss the moment”, and precious momentum is lost when an organisation fails to capitalise on fleeting market opportunities. Porter (2001:66) argues that regardless of the change in structure of suppliers, substitutes etc., the ‘five forces’ will still determine profitability as shown in Figures 2 and 3 overleaf:

Figure 2. Porters Model of Competitive Analysis (Five Forces)



According to Pfeffer, Elsbach, and Chanq (2000) University and business strategies do not mix. However, there is a convincing argument by Graff, Heiman, and Ziberman (2002) that contradicts this. They have observed that universities and firms are engaged in the same overarching dynamic technological innovation processes. Further, Graff *et al* argue that all researchers pursue a combination of the three F's of fame, fortune, and freedom regardless of whether they are academic or corporate. This results in a division of innovative labour and creates opportunities for gains to be made from trade between university research and industry by patenting and marketing university research results and fostering start-ups using university technologies.

Figure 3. Scottish Higher Education - Positioning Strategy



As the strength of Porter's forces varies from industry to industry it is unsatisfactory to make general conclusions about the impact of technology, although there is evidence of general trends (Porter, 2001:67). In the long run there will be a return to fundamental market principles as market forces continue and economic value becomes the source of business success (Porter 2001:66):

- Industry structure: determines profitability of average competitor.
- Sustainable competitive advantage: allows a competitor to outperform its rivals.

Cost and price advantage may be achieved by either operational effectiveness (doing the same thing as everyone else but doing it better) or by strategic positioning (doing things differently from competitors in a way that delivers value).

This method of analysis comprises the 'five forces', summarised thus: buyers; suppliers; competition; new entrants, and substitution, i.e. the threat from rival products, centred on competition between existing market players (Porter, M., 1990).

Starting with 'new entrants' to the industry, there are already several and these are predicted to increase in number. They cluster around various electronic means of delivering teaching and include, for example, the International Virtual Medical School consortium, a global project; the UK e-University project and distance learning to India and China. The rolling out of these plans over several years could be expected to lead to a reduction of the attractiveness of selling the campus based Scottish Higher Education experience overseas.

Substitution is closely related to this, in that electronic and distance-learning courses may compete globally with face-to-face teaching by the Scottish sector. This produces substantial strategic challenges to institutional management, although the Privy Council

has control over the use of the title 'University'. There has been speculation that the World Trade Organisation has been considering opening up Higher Education to full global competition.

Buyers (students) are increasingly being encouraged to exercise choice in the marketplace and there is some authority that the relationship between a University and student is coming to be seen as contractual, i.e. of a consumer (*Moran v University College Salford (No.2)* 1993). Whilst to some extent this may be a welcome development, it conflicts with the requirement upon students to meet learning outcomes and undertake requisite study. The two approaches clash, which is demonstrated by an anecdotal increase in the instances of legal challenges made by students against universities. Buyers may also include funding bodies (as stakeholders), and they have considerable power that can be used to support governmental aims. Students have relatively little bargaining power as customers at present, although this may have changed considerably by 2010.

Suppliers may be represented by the staff who have had increasing demands made upon them over a period of years in terms of productivity, with increasing pressure for high-quality research. This has been paralleled with increased pressure to utilise estates and other resources as effectively and commercially as possible, with pressure to invest in high technology links for students as well as to provide attractive, high quality residences subject to increasing regulatory costs. Alternatively, funding councils may be classified under this heading; similar remarks apply.

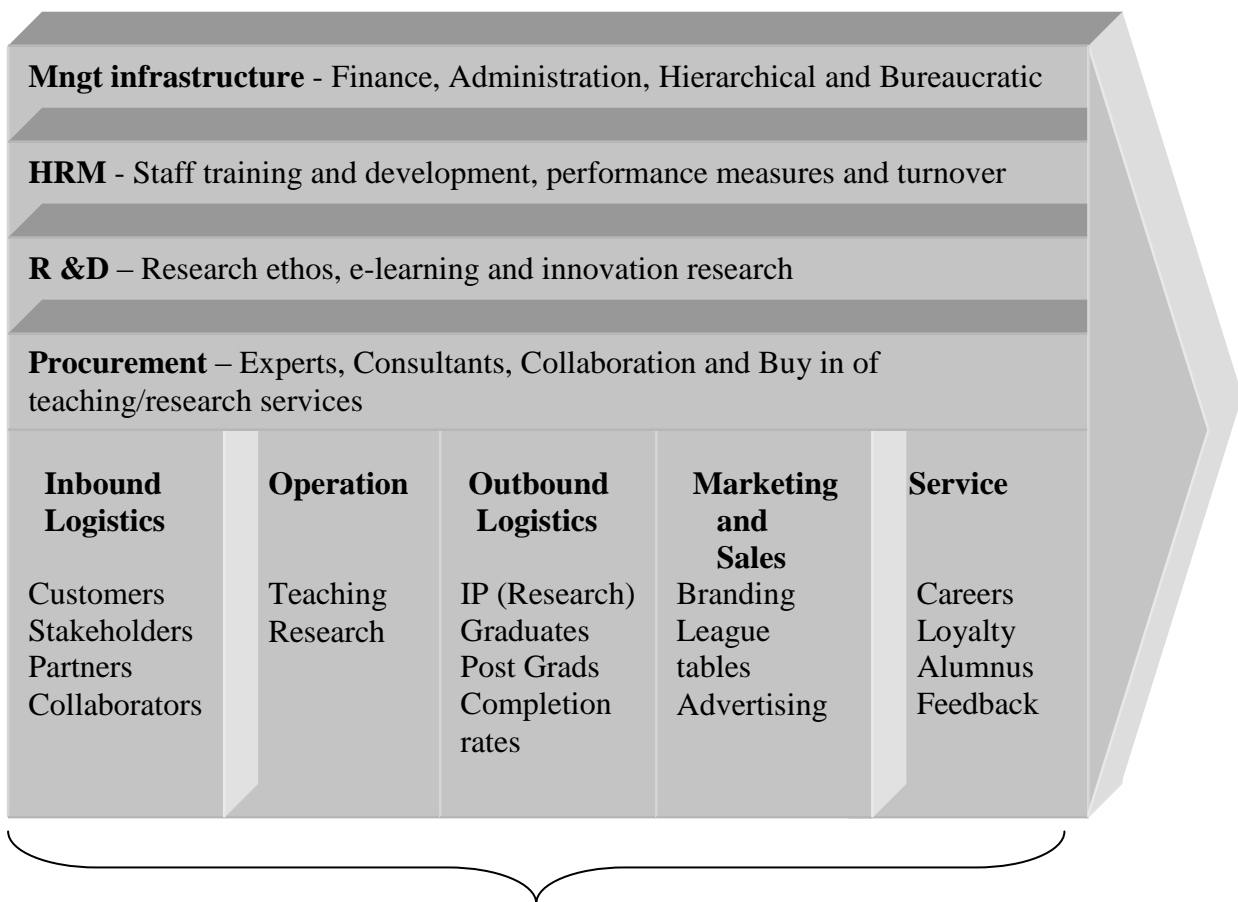
These forces may be summarised as greatly increasing competition, reflected by examples such as increased advertising. The result is likely to be some form of

rationalisation, possibly course provision and research or merger and rationalising of support functions. Distance learning provision from competitors presents a threat although probably at a higher relative cost to the consumer than existing provision.

Customer and value

Porter lists nine value creating activities, indicated in Figure 4, five of which he calls primary and four of which are support.

Figure 4. Michael Porters Generic Value Chain – Higher Education Analysis



Critical Success Factors (CSF)

Competitive Advantage - low cost, mass delivery and high quality.

CSF'S – quality teaching, customer service, branding and positioning, variety of customers and leading edge research.

With the customer and value in mind strategic changes will need to be implemented carefully, as Reisner (2002) observes, organisations need to be realistic about limits and the pace of change. It is possible to be too radical too quickly, particularly where cultural change is necessary (Carroll, G. Barnett, W Chanq, V., 2001) Further to this, raising expectations that can't be met can undermine changes that are achievable (Reisner, R., 2002). Geus (2002) identifies four key elements essential to organizational survival, growth and viability:

- Sensitivity to the environment (a company's ability to learn and adapt),
- Cohesion and identity (a company's innate ability to create a community and a persona),
- Tolerance (the ability to build constructive relationships with other entities),
- Conservative financing (the ability of a firm to govern its growth and evolution).

Conclusions

The characteristics, structure of Higher Education in Scotland and the environmental forces affecting the industry are affected by substantial control from external agencies, coupled with increasing pressure to diversify and become more self-financing. There is little control over pricing or numbers of customers, and the pressures conspire against maintenance of quality. A contradiction is inherent between the pressures for increasing financial independence and increasing Governmental pressures to micro-manage the sector, e.g. through targeted funding for wider access whilst core infrastructure is continually subject to real-terms cuts. In the horizon to 2010, the sector is entering a critical phase in which rationalisation is likely, as are increased research, teaching and financial pressures.

Two plausible scenarios are, firstly, a balanced business and research organisation of sustainable means through teaching and commercially exploitable research, and secondly, a reduction in the size of the Higher Education sector with mergers and loss of research and teaching facilities. The implications of these scenarios for the planning period to 2010 are as follows. In the positive scenario, dynamic and adaptable organisations that are strong and sustainable with an ability to adapt to faster changing industry requirements in teaching and research will emerge. In the negative scenario, institutions will struggle in a two-tier system to provide adequate teaching and research provision with a limited range of courses that are deemed to be acceptable, and the reluctance of talented people to enter university careers. Strategic planning which is flexible, addresses niches, and can take account of the pressures and associated volatility discussed in this report will be of prime importance and will mark out the survivors.

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