

CORPORATE STRATEGY FORMULATION OF A UNIVERSITY IN ENGLAND AN APPLICATION OF THE REPERTORY GRID TECHNIQUE*

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SYNOPSIS

This article looks into a formulation of Corporate Strategic Planning (CSP) in a public organisation, viz, a university in England. The Twiss's CSP formulation Model (1976) was applied. It took into account the interrelationship of the objectives, the strengths and weaknesses and opportunities and threats (SWOT), and the alternative strategies simultaneously in a strategic choice formulation. The ethos, style and mind of top management which were embodied in the subject of the study were also impregnated in the simultaneous consideration. A set of questionnaires were administered to the subject, i.e., one of the 3 high ranking officials of the university who formed the top management team in the Corporate Strategic Planning of the university whose office therefore enabled him to perceive clearly the future directions of the university and its objectives and policies. The elicited and supplied SWOT factors and numerous strategies were put in the Repertory Grid for scoring. The results were then analysed with the use of Grid Analysis Package (the INGRID Program). This is the first time that an application of this technique is used in the strategic choice of a CSP formulation. The findings indicated clearly the order of the priority of the alternative strategies of the university, as represented in the Corporate Strategy Mental Map (CSMM). Clear representation of the conceptualised strategies and their interrelationships with the SWOT factors were also shown, in the cognitive map, thus showing the Repertory Grid Technique as a potentially useful tool in CSP analysis.

SINOPSIS

Artikel ini meneliti formulasi Perancangan Strategi Korporat (PSK) di dalam sebuah organisasi awam, iaitu sebuah universiti di England. Model Formulasi PSK Twiss (1976) telah diterapkan. Model ini mengambil kira pertalian objektif, kekuatan dan kelemahan serta peluang dan ancaman (SWOT), dan silih ganti strategi-strategi sekaligus di dalam membuat formulasi pemilihan strategi. Etos, cara gaya dan pemikiran pengurusan tertinggi yang tersemadi pada responden kajian ini, juga dimasukkan dalam pertimbangan sekaligus itu. Satu set soalselidik telah diisi oleh seorang responden iaitu salah seorang daripada tiga orang pegawai tertinggi di universiti itu yang merupakan seorang daripada pasukan pengurusan peringkat tertinggi di dalam PSK. Kedudukan beliau membolehkan pengamatan dengan jelas arah masa depan universiti serta objektif dan dasarnya. Faktor-faktor SWOT dan beberapa strategi telah dimuatkan di dalam Grid Repertory untuk pemarkatan. Keputusannya telah dianalisis menggunakan Pakej Analisis Grid (Program INGRID). Ini ialah kali pertama satu penerapan ke atas teknik ini digunakan pada peringkat

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pemilihan strategi di dalam satu formulasi PSK. Penemuan kajian menunjukkan dengan jelas susunan keutamaan silih ganti strategi universiti itu, seperti yang dipaparkan dalam Peta Mental Strategi Korporat. Penggambaran yang jelas mengenai strategi-strategi dan pertalian mereka dengan faktor-faktor SWOT juga dapat ditunjukkan dalam satu peta kognitif itu. Hasil kajian ini membuktikan teknik Repertory Grid adalah merupakan satu alat yang mempunyai potensi kegunaan yang baik bagi analisis PSK.

INTRODUCTION

Formal Corporate Strategic Planning (CSP) which was initially confined to private sector large companies, has in recent years gained increasing application not only in medium size and small companies but also public organisation or Not-For-Profit-Organisations, (NFPO). Works by Thomas (1980), Trostel and Nichols (1982, March), Jaeger (1982) and Mc. Laughlin (1982) are notable in this field.

Corporate Strategy formulation in the NFPOs has its difficulties. As stated by Wheelen and Hunger (1983), this is due to their unquantifiable objectives, blurred policies and therefore broad-based strategies. These are due to influences made by too many 'interested parties' and donors. Generation of service or output are not directly related to consumer demand therefore giving rise to objectives and strategies that are not succinct. NFPOs are also concerned with tying results to financial inputs and budgets rather than consumer demand and objectives.

For the purpose of the formulation of CSP, one of the most important prerequisites is a clear set of objectives and policies. Given these and they do not change for a relatively long period of time (i.e. absence of intervention for a duration of time) one can plan for a fairly long term duration (say at least 5 years).

In this article CSP is taken to mean an appropriate, long term planning for the entire organisation as a whole. The term 'corporate' here means totalness or wholeness of the organisation. In its planning it takes into consideration its total posture including mission, objectives and policies in relation to the external influences i.e., opportunities and threats and internal factors, i.e., strengths and weaknesses, ethos and style, (Thomas 1983). Without invoking controversies, the term 'strategy' here refers to a long term means of achieving an objective (of about 3-5 years at least). This distinguishes from 'tactical' strategy which is a short-term means of achieving an already formulated plan. Other characteristics of 'strategy' here also include the results of matching external opportunities and threats with internal strengths and weaknesses. External pressures often form 'trigger signals' for organisations to undertake

Strategic Planning in order not to jeopardise the long term future of the organisation. There is an element of risk involved at this stage in taking guidance from incomplete information responding to the 'trigger signals'. This timeliness together with the riskiness form an important cornerstone to CSP. Thus a long term means to achieve and objective taking into consideration external and internal factors, usually triggered by some forces 'trigger signal'; proper timing and the taking of risks, all form the so-called 'strategy' here.

Although CSP formulation has become a popular reading topic and numerous works has been done on it, two major deficiencies can be traced, which become the areas of interest in this study. These are: (1) The familiar stage-by-stage approach of formulation in achieving the selected strategy. A substantial portion of literature on CSP conforms to this approach. Although a step-by-step approach is helpful in understanding a methodology it is not helpful in implementing a plan in a real life situation in which many steps of different sequences may have to be considered at once. This non-sequential order is the premise on which a recent model of strategic management by Johnson & Scholes (1984) was created. (2) Most of the literature on CSP pays little attention to strategic choice. Some writings cease their formulation here (at strategic choice), leaving the readers to figure out which alternative strategy to pick among the many options and amidst the numerous factors, only by indicating vague descriptive methodology. This gives the impact of an incomplete story in CSP in a situation where the next step of implementation actually requires some sort of decisions as to which of the alternative, one ought to implement. Jointly considered the above two deficiencies can impose a severe handicap to a pragmatic actual life formulation of CSP. This is because planners or strategists are beset by simultaneous consideration of numerous factors in making strategic choices. A stage-by-stage considerations can be too time consuming.

PLANNING TOOLS

The literature has shown some useful tools for some parts of CSP formation. Financial, marketing, operational research, statistical techniques and strategic management matrices were mentioned.

These include, as listed out by Brandt (1982) in the order of complexity and newness, the following:

- 1/ Intuition
- 2/ Sales volume
- 3/ Profitability

- 4/ Contribution margin
- 5/ Return on investment
- 6/ Product life cycle
- 7/ Experience curve/market share (four-cell matrix) of Boston Consulting Group.
- 8/ Multiple Factor Matrix (analysing competitive position and market attractiveness) implemented successfully by General Electric.

Wheelen and Hunger (1983) has also mentioned that there are some other tools applied by another strategy consultant i.e. the Harbridge House Consultancy with their Directional Policy matrix. The Shell Company has developed the Performance Risk Profile for their strategic choice. Snyder (1982) was also cited to have developed a weighted matrix for strategic choice.

However, none of the above tools take a simultaneous consideration of all variables, i.e., objectives, SWOT factors and strategic alternative which comprise the 'mind' of the top management. In formulating a corporate strategy, this study will include all the above factors and also identify the chosen strategies in their order of priority.

CASE SCENARIO

The combination of recessionary financial pressures and a forecast of falling student numbers available, called upon the British government to issue a directive to the universities to limit the number of students intake. The unemployment situation of United Kingdom also increasingly became acute; and could give rise to pressures for more students intake. The government's directive formed an important trigger signal to universities to consider their future, review their performance vis-a-viz, their long term objectives, policies, strategies and their priorities among them.

METHODOLOGY

The corporate strategy planning formulation was done based on a SWOT based model i.e. that of Twiss's (1976).

Data collection was done by way of questionnaires, interviews and making duplicates of secondary data. The questionnaires and interviews were administered on a *subject* in this case one of the chief Executive Officers or CEOs of the university. The collected data in the *Repertory Grid* were then analysed with the use of the *INGRID* Computer program. Elaboration on the above are as follows:

THE MODEL

The field of study of Corporate Strategy was originally popularised by Ansoff (1965) and Tilles (1966). More contributions were subsequently made on extending, improving and simplifying the topic. The terminology of SWOT went through various other acronyms before it, such as 'WOTS-up'; 'TOWS' and 'SOFT' etc. Other terminologies such as the 'Gap Analysis', 'Cascade Approach' and 'Synergistic effect' in Ansoff's model acquired wide currency. Among those contributing Steiner and Miner (1977, 1982), Porter (1980, 1984), and Wheelen and Hunger (1983) emphasised the decision making process of arriving at a strategy stage-by-stage, excluding considerations of various strategies in one single iteration. Numerous iterations considering a strategy at a time, will be necessary before arriving at the strategic choice.

However there have also been other models, viz., Twiss (1976), and Johnson and Scholes (1984) which incorporated numerous strategies together with SWOT factors in the formulation of CSP. These approaches give the opportunity to consider simultaneously, in one iteration of decision making, the objectives, various factors and strategies. These models are closest to a real life situation, where many factors may need to be considered simultaneously and they have the advantage of minimising the number of iterations required. Such models also bring into convergence at a focal point, i.e. an integrator, who makes considerations of all explicit and implicit factors. Twiss's model of CSP is used here and it has the following 5 components and steps:

- | | |
|--|---|
| 1/ Company objectives: | Where we intend to go, when do we plan to arrive |
| 2/ Alternative strategies: | How the objectives can be reached |
| 3/ Environmental forecasts:
(opportunities and threats) | What we might do |
| 4/ Capability Analysis:
(Strengths & weaknesses) | What we can do |
| 5/ Strategy Formulation: | Selects the path to the objectives after considering:
— alternative strategies
— opportunities and threats
— capability analysis |

Diagrammatically this model is represented in figure 1.

SUBJECT

The subject for this study was a high ranking university academician, the then Pro-Vice-Chancellor of the university. He was one of the three

top management team members of the university who had involvement in its CSP. His high level knowledge about the university as well as his involvement in both CSP for the university and for other organisation together with his specialisation in this field were extremely useful for the study. The application of CSP elsewhere in the public sector was also a field of study of great interest to him.

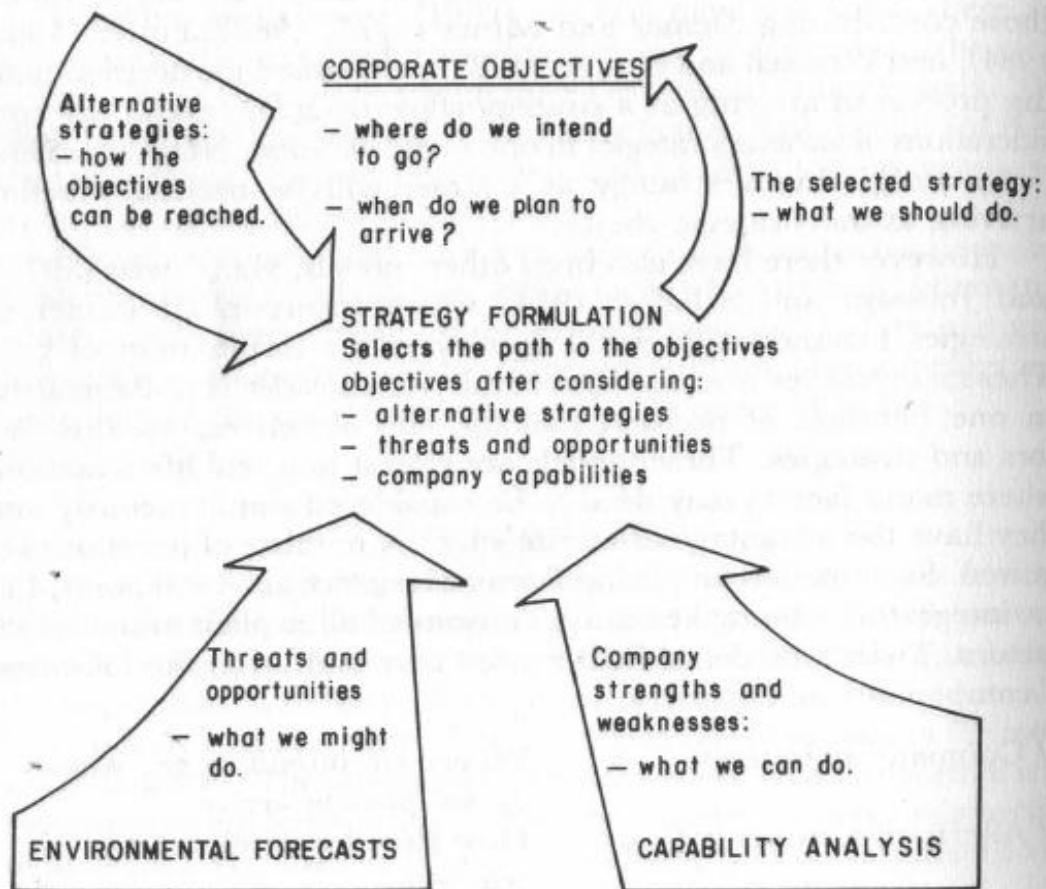


FIGURE 1. Twiss's Model of Corporate Strategic Planning

Note:

In practice this is an iterative process. It may, for instance be found necessary to change the objectives because they are shown to be unrealistic when considered in relation to possible strategies.

Source:

Twiss, B.C., *Managing Technological Innovation*, London: Longman, 1976.

The subject therefore embodies not only the knowledge of the objectives, strategic factors, SWOT, but alternative strategies, ethos and style, the

intuition and mind of the university. In the wake of difficulties in getting a total Board of Directors to fill the indepth questionnaires, the subject is fairly representative as an 'integrator' to all variables involved in the CSP formulation of the university.

DATA COLLECTION

Three types of questionnaires were administered on the subject in order to collect the necessary information for CSP. Interviews were conducted after studying two submitted questionnaires in order to agree on the strategies, SWOT factors and their ratings in the Repertory Grid which formed the third questionnaire.

Questionnaire A elicited from the subject the planning processes of the university, the strategic factors (SWOT) and the possible alternative strategies.

Questionnaire B elicited basic information on the university operations to help in the auditing of the internal environment, thus lending support to the 'SW' factors supplied in Questionnaire A.

Questionnaire C is a grid which contains the important SWOT factors against the possible alternative strategies obtained from questionnaire 'A' — Each one of them was individually rated against one another.

Interview/Discussion. After studying the submitted questionnaires A and B, possible strategies and the SWOT factors which influenced them, were listed for discussion with the subject. This formed a lengthy interview stretching to more than two hours to agree on them to form the Repertory Grid elements and constructs. The rating of the Grid subsequently followed the interview and it took another hour.

Secondary Data Collection. Published information on the university e.g. the University Calendar and Financial Statements and brochures, were collected to supplement the data.

REPERTORY GRID TECHNIQUE

Kelly (1955) devised the Reperatory Grid in an attempt to develop a clinical instrument based on his Personal Construct Theory. The Repertory Grid method is a method of obtaining an individual personal construct and subjecting it to a statistical analysis, so that objective and quantifiable cognitive maps can be obtained. The maps are made of two aspects: the elements, which are the objects of people's thoughts (such as father or mother) and the constructs, which are the qualities a person used to describe the element (such as encouraging, trusting etc).

The Repertory Grid technique has been shown to be appropriate for use in cross-cultural context (McCoy, 1981). It has also been us-

ed in analysing Consumer Preferences in marketing a product, Stewart and Stewart (1981). In Malaysia, some work has been undertaken which show the appropriateness of the technique, for instance in the study of Child Rearing Practice (Wan Rafaei, 1982) in Vocational Choice (Wan Rafaei, 1982), in Supervision and Management (Wan Rafaei, 1982) and in counselling (Wan Rafaei, 1982).

The grid can be scored by grading or rating. Chetwynd-Tutton (1974) has shown that the grading method has been more frequently used as this is comparatively less difficult than ranking. The elements were rated on each construct at the same time.

Chetwynd-Tutton (1974) pointed out that grading gives unequal contribution to total variance that will show in the principal components analysis as the different grade distribution per construct contribute differentially to total variance across grades. However, the INGRID programme by Slatter (1972) has an option to normalize the constructs (i.e., scale them down so that the variation on each is equal to 1), thus giving them an equal weight in the principal components analysis and eliminating this bias.

The Repertory Grid which is made up of rows (constructs) and columns (elements) formed the third questionnaire in this study. The 'SWOT' factors e.g. changes in government plans, having quality staffs formed the 'constructs' of the grid whilst the alternative strategies e.g. to maximise research activities formed the 'elements' of the grid. A grid of 21×8 (of constructs and elements) were used in this case i.e. 21 factors and 8 strategies were obtained for the study.

The grid was rated for values between 1 to 10 to reflect the influence of the factors on the alternative strategies. The higher the score of rating, the bigger the influence of the factors e.g. if the the factor of 'having quality staffs' influenced a great deal the 'maximisation of research activities' strategy, the score was 9.

Elicitation of Constructs and Elements. Based on Twiss's model, the SWOT factors formed the constructs, whilst the alternative strategies, the elements. The 'SW' or internal factors were elicited first from the subject (the CEO) supported by the supplied information on the internal audit of the organisation. The 'OT' or external factors were elicited next from the subject while taking guidance from the supplied ones in the questionnaire. The number of SWOT factors elicited totalled 21 (which were within the grid capacity).

Taking into consideration the internal audit of 'SW' and the overall knowledge, including ethos, style and timing (as embodied in the CEO), the alternative strategies were next elicited from the subject by discussing them with the administrator of the questionnaires.

There were 8 alternative strategies elicited in this case (and this total was also within the capacity of the grid).

RESULTS

THE UNIVERSITY

The university had a student population of 3,600 persons in 1983 and had a technological orientation in its course design. It offered numerous courses ranging from engineering to languages with the more well known courses being engineering, biological sciences and management.

The university had a corporate planning group comprising of seven persons, viz, the Vice Chancellor, two Pro Chancellors (one of whom from the management school was the subject of this study), three Deans, one each from science, technology, and arts and social sciences, plus the Registrar. The University was also unusual in having a full-time planning officer who services the group.

GOALS AND TARGETS

The university had the following objectives:

- 1/ to have high quality of students intake.
- 2/ to conduct extensive and highly esteemed research work.
- 3/ to have high involvement in applying academic knowledge to societal needs.
- 4/ to maintain the high esteem status of the university within higher education by having low student wastage rate and good quality degree training to enable graduates to secure jobs quickly.

The targets of the university were as follows:

1/ *Student Numbers*

- a/ New increased targets for overseas students (since they pay higher fees than the British counterparts, therefore yielding more income).

Non-EEC students attracted no support from UK government in most cases; any income was attained entirely by the university, and a higher minimum fees were prescribed by the UK government.

- b/ To keep the intake of British Students at existing level.

Target levels for all higher education were determined by UK government as it paid tuition fees and may also give maintenance support.

2/ *Research Targets*

- a/ To undertake as extensive a research programme as possible, thereby maximising research income and training.
- b/ To publicise research.

It was noted that the proportion of total income earned by research had to be increased against a national average proportion which was itself rising from 10% to 11%. The figure for the university studied has now exceeded 15%. A further factor was the balance within that research income that came from Research Councils and prestigious foundations. This was increased at a time of stiffer competition for available resources with real reductions in Research Council funding.

The normal process of peer review of research results were measured by referred publications.

OPPORTUNITIES AND THREATS

The impacts and implications of some external factors usually do not affect the organisation almost immediately but their effects were lagged. Some had more immediate impacts where they impinge upon some activities of the university, whilst some were threatening the well-being of the university and others can also provide opportunities. The external factors were therefore taken into account, in these respects.

As an external factor, and perhaps considered as a trigger signal, was the advent of a series of new directives by the government to limit the number of student intakes as follows:

- 1/ Exclusion of all non-EEC students from financial support through grants to universities, accompanied by insistence on high minimum tuition fees prescribed by government.
- 2/ Subsequent limit on number of UK/EEC students in order to limit financial implications of student support.

The above called upon the university to plan for a balancing of intakes between EEC and non-EEC intakes in some courses. In some courses, a higher proportion or sometimes, double the proportion came from non-EEC compared to the EEC countries. There were courses which were demanded by overseas students but not by the locals. This necessitated a review of courses and admissions within the constraints of staff and resources available.

The external factors affecting the university in their order of importance were as follows:

1/ Economic Factors

- a/ Inflationary pressures. The situation was adverse reaching 9 – 15%.
- b/ Government policy, its changes in budget allocation, and its shortfall in allowing for inflation.
- c/ Adverse unemployment situation in which there was a very high rate of unemployment i.e. about 13% of labour force among the labour force which has included some graduates.
- d/ Adverse financial situation necessitating a devaluation of Sterling on costs payable in US dollars e.g. scientific publications.

2/ Technological Factors

- a/ New technological development of use to the university particularly in the engineering and scientific fields.
- b/ Research and development funds availability from external sources i.e. sponsors and the government.
- c/ New agencies, institutions and companies demanding research, the type conducted in the university.

3/ Competitive Factors

- a/ Substitutes of similar courses among the universities.
- b/ Higher level of prescribed tuition fees compared to other universities in other countries.
- c/ Competition for resources externally in relation to overall performance of the university, i.e. research activities, courses offered, and students intake.

4/ Political/Legal Factors

- a/ Government backing/funding and its vagaries
- b/ Changes in government plans on students intake.

5/ Socio-cultural Factors

- a/ Changing tastes as reflected by switching of courses.
- b/ Changes in demographic variables indicating changing needs for higher education.

STRENGTHS AND WEAKNESSES

After auditing the internal factors of the university the strengths and weaknesses of the university emerged as follows:

Strengths

- 1/ The central location of the university in England i.e. among inhabitants with high propensity for high education.

- 2/ The availability of good quality staff involving themselves in meaningful applied research work for the country.
- 3/ Superior design of courses which include also sandwich courses.
- 4/ Having high level of student demand reflected in high quality students.
- 5/ Having a well structured organization which enable joint work at interdepartmental levels.

The foundation of the university strengths were laid down by the leadership of its first three highly competent and imaginative Vice-Chancellors. They encouraged bold applications of academic researches, introduced and developed proper planning in important research projects and obtained necessary cooperation from the relevant sectors of the community. The first vice-chancellor had notably made the strategic decision in having the university located in the present site, able to anticipate possible problems which guided the formation of the present university structure and the timely development of a university system of a good standard. The tradition of good leadership foresightedness and competence by vice-chancellors has been carried on to date. This was made possible through the appointment of Key Senior Staff and the support of the competent staffs of the university.

Weaknesses/limitations. Being a non-autonomous institution in terms of finance, the university faces many limitations as follows:

- 1/ The new government policy on students intake has limited the university in having a free hand in recruitment. Due to limitations in the governments purse to pay staff, universities are allowed to have only prescribed number of intakes. This inhibited natural expansion due to needs.
- 2/ The smallness of physical buildings and residential facilities has limited a larger intake.
- 3/ The increment of fees imposed on foreign students has inhibited the registration of higher number of student intake into Britain and into this university.
- 4/ Limited national research funds have also intensified competition for research funds and limited number of research projects which could be conducted in the same sectors.

The list of the strength and weaknesses, opportunities and threat (SWOT) factors is in the Table 1.

TABLE 1. A List of SWOT Factors as Constructs

(a)	Lack of data to be used for long term projections
(b)	Uncertainty of funds from government
(c)	A centrally placed university
(d)	Having quality staff
(e)	Having quality students
(f)	Favourable organisational structure
(g)	Superior design of courses/sandwiches
(h)	Constraints on student numbers
(i)	Physical building facilities limitations
(j)	Keen competition for research funds
(k)	High fees for overseas student
(l)	Inflation
(m)	Unemployment situation
(n)	New technology
(o)	Competition with other universities
(p)	Changes in government plans
(q)	Standards requirement on courses
(r)	Fluctuating demand for courses
(s)	Changes in demographic variables
(t)	New partners/ventures
(u)	Balance of payments

ALTERNATIVE STRATEGIES

Given the objectives, targets, strength, weaknesses, opportunities and threats the following 8 alternative strategies were arrived at:

- 1/ To maximise research activity

- 2/ To maintain or improve quality of students intake
- 3/ To build on strengths on research programme
- 4/ To move into promising fields of research
- 5/ To secure maximum economy in operations derived from existing competitions.
- 6/ To increase overseas students number.
- 7/ To increase involvements with private sector.
- 8/ To reduce dependence on government funding.

ANALYSIS

Expositions of two major aspects of the analysis, i.e. the cognitive map and the number of dimensions perceived and their percentage variance are made here.

The Dimensions and their Percentage Variance. In examining the results, as shown in table 2 two major dimensions emerged from the strategies and factors forming a total variance of 62.06% a joint total of 37.62% from dimension 1, and 24.44% from dimension 2. The prediction using two main dimensions is 62.06% accurate and can be explained by one major and one minor dimension. The relative importance of the strategies was based on this level of accuracy

TABLE 2. Total Variance of Dimensions

Dimensions	Total Variance
1	37.62
2	24.44
Total (1 + 2)	62.06

Corporate Strategy Mental Map (CSMM). The rating of strategies (elements) against the SWOT factors (constructs) yielded the values of loading of constructs as shown in table 3 and the values of loading for elements as shown in table 4. The values of loading of elements were used in the construction of the (hereby called) Corporate Strategy Mental Map (CSMM). This map is a circular chart comprising of two axes representing two dimensions and the coordinates of the elements or strategies. It portrays the priorities of strategies and their clusterings.

1/ Axes of the Mental Map

Values of loading of dimension 1 formed the 'X' axis and that of dimension 2 the 'Y' axis. The verbal label of the positive and

TABLE 3. Five Most Important Constructs in Each Dimension

Dimensions	No	Constructs (factors) Description	Values of loadings
1	m	Unemployment situation	- 0.96
	s	Changes in demographic variables	- 0.96
	e	Having quality students	- 0.88
	q	Standards requirements on course	- 0.88
	g	Superior design of courses/sandwiches	- 0.83
2	j	Keen competition for research funds	- 0.89
	p	Changes in government plans	- 0.86
	n	New technology	0.85
	i	Physical building limitations	0.83
	d	Having quality staff	0.80

negative continuum of the axes were made based on the factors. These factors had the highest values forming themselves into a group of factors with similar characteristics. This labelling based on the grouping of highest values of factors as in table 3, was repeatedly done on the two axes.

As shown in table 3, each of the five of the most important constructs in each dimension was dissimilar in description or characteristics but some of them can be clustered together to form a similar theme.

The constructs or factors no. 'e' and 'g' of dimension 1 can be said to carry a similar theme i.e. the 'strengths' of the university. For clarity of presentation, this can be used to label the positive end of the first dimension or 'X' axis of the mental map.

Similarly construct no. 'j' and 'p' carried the theme of 'threats', whilst that of 'n' the 'opportunities'. The axis for the second dimension, can therefore be labelled 'opportunities' (positive end) and 'threats' (negative end).

2/ *Locations (coordinates) of strategies (elements)*

After having constructed and labelled the axes of the mental map the coordinates of the strategies (elements) were plotted using their

values of loading as shown in table 4. This results in the Corporate Strategy Mental Map as shown in figure 2.

TABLE 4. Values of Loading of Elements (Strategies) of a University in England

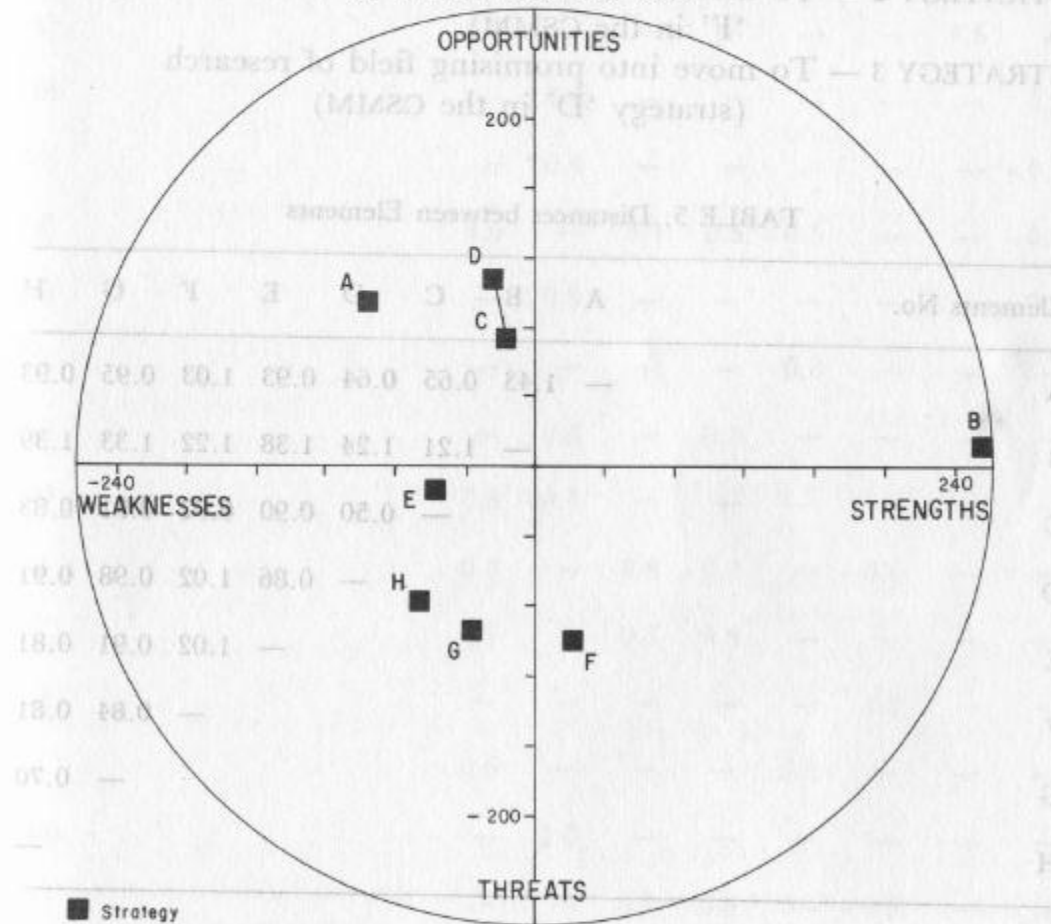
No	Elements (Strategies) (Descriptions)	Dimension 1	Dimension 2
A	To maximise research activities	0.7494	0.9091
B	To maintain or improve quality of students intake	- 2.5173	0.1281
C	To build on strengths of Research Programme	0.1700	0.7752
D	To move into promising fields of research	0.2200	1.0619
E	To secure maximum economy in operations derived from existing competitions	0.5755	- 0.1240
F	To increase overseas students number	- 0.2070	- 1.0005
G	To increase involvement with private sector	0.3605	- 0.9557
H	To reduce dependence on government funding	0.6490	- 0.7942

The strategies can be related to one another as indicated. Some would be strongly related to others whilst some would not. As shown in table 5, only strategy C (To build on strengths of Research and Programme) is related to strategy D (To move into promising field of research). A loading value of 0.5 is taken as indicating a relationship, the lower the value, (beginning with 0.5) the higher the relationship. A relationship of 0.5 is represented with a single linking line, whilst 0.4 a double one and so on until 0.1 being represented with 5. A weak linkage was found between strategies C and D as shown in figure 2.

READING THE CORPORATE STRATEGY MENTAL MAP

The strategy of highest priority in the mental map could be found in quadrant bordered by two positive parts of vertical and horizontal axis i.e. the north east quadrant. Conversely the least important strategy to adopt could be in the south east quadrant. The rest of the

FIGURE 2: CORPORATE STRATEGY MENTAL MAP
OF THE UNIVERSITY OF BATH



- | | |
|--|---|
| A - Maximisation of research activities | E - Securing maximum economy in operations derived from existing competitions |
| B - Improvement of quality of student intake | F - Increasing number of overseas student |
| C - Building strengths in research programme | G - Increasing involvement with private sector |
| D - Moving into promising fields of research | H - Reducing dependence on government funding |

FIGURE 2. Corporate Strategy Mental Map of A University in England

quadrants contained the midway strategies. In each quadrant, the importance of a strategy depended on the influencing factors.

CHOICE OF STRATEGIES

Given the opportunities and strengths of the university, there were a few priority strategies which could be adopted as shown by the Corporate Strategy Mental Map. In their order of importance the most important strategies were:

STRATEGY 1 — To maintain or improve quality of students intake (strategy 'B' in the CSMM)

STRATEGY 2 — To increase overseas students intake (strategy 'F' in the CSMM)

STRATEGY 3 — To move into promising field of research (strategy 'D' in the CSMM)

TABLE 5. Distances between Elements

Elements No.	A	B	C	D	E	F	G	H
A	—	1.43	0.65	0.64	0.93	1.03	0.95	0.93
B		—	1.21	1.24	1.38	1.22	1.33	1.39
C			—	0.50	0.90	0.92	0.91	0.83
D				—	0.86	1.02	0.98	0.91
E					—	1.02	0.91	0.81
F						—	0.84	0.81
G							—	0.70
H								—

It was indicated that strategy 1 and 2 were related to students quality and intake followed by strategy 3 which was research orientated. This order of priority was considered strategic for the university to undertake, given the SWOT factors. They emerged to be the more important ones out of the proposed eight.

STRATEGIES AND THE SWOT FACTORS

Based on the cosine values as shown in table 6, relationships between strategies and factors can be traced.

STRATEGY 1 — To maintain or improve quality of students

This strategy is strongly related to seven important factors (cosine values of 0.7 and above) i.e. 'unemployment situation' (factor m), 'changes in demographic variables' (factor s), 'standards requirement on courses' (factor q), 'having quality students' (factor e), 'a centrally placed university' (factor c), 'superior design of courses' (factor g) and 'fluctuating demand for courses' (factor r).

TABLE 6. Relationships between Constructs and Elements Expressed as Cosines
(A University in England)*

Constructs/Elements	A	B	C	D	E	F	G	H
(a)	0.6	—	—	—	—	—	0.6	—
(b)	—	0.6	—	—	—	—	—	0.6
(c)	—	0.8	—	—	—	—	—	-0.5
(d)	0.6	—	0.7	0.5	-0.5	—	—	-0.6
(e)	—	0.9	—	—	—	—	—	-0.6
(f)	—	—	—	—	0.8	—	—	—
(g)	—	0.8	—	-0.5	—	—	—	—
(h)	0.8	-0.5	—	—	—	—	—	—
(i)	0.8	—	0.6	0.7	—	-0.6	—	—
(j)	0.7	—	0.7	0.9	—	—	—	—
(k)	—	—	—	—	—	1.0	—	—
(l)	0.6	—	—	—	0.6	—	—	—
(m)	—	1.0	—	—	—	—	—	—
(n)	—	—	0.7	0.9	—	-0.5	—	—
(o)	—	0.6	—	—	—	—	—	-0.7
(p)	—	0.5	—	-0.6	—	0.6	0.7	0.7
(q)	—	0.9	—	—	—	—	—	—
(r)	—	0.7	—	—	—	—	—	-0.6
(s)	—	1.0	—	—	—	—	—	—
(t)	—	—	—	—	—	—	0.7	—
(u)	—	—	—	—	0.7	—	0.7	—

*Only values of 0.5 and above are listed here. A cosine value of 0.5 is taken as indicating a relationship. In this case, the lower the value, the lower the relationship.

STRATEGY 2 — To increase overseas students intake

There is one important factor which has a fairly-strong relationship with this strategy and this is 'high fees for overseas students' (factor k).

STRATEGY 3 — To move into promising fields of research

The factors strongly associated with this strategy are 'keen competition for research funds' (factor j), 'new technology' (factor n) and physical building limitations (factor i).

CONCLUSION*

The CSMM charted out the positions of all the strategies conceptualised by the subject, therefore formed a quantified point of reference of one's cognitive map. The map also showed the priorities of strategies thus indicating their importance.

The emplacement of priorities of strategies formed the strategic choice of CSP formulation. The order of the choice appeared to be consistent with the expectations of the subject and the implementation of strategies in the the university.¹ This indicated the sharpness of the Repertory Grid technique as a tool of strategic choice.

The ratings made by the subject on all the simultaneous factors had also incorporated other implicit considerations of the subjects values, organisational ethos and style.

The technique provided a speedy method for top management decisions. Minor alterations by the Board of Directors on the CEO's strategies can be accomodated speedily by rerating the affected part of the repertory grid and reanalysing the grid data.

In considering numerous interrelated factors, and the simultaneity of strategies and factors, a non-verbal tool would be an effective mode of measurement — as was fulfilled by the Repertory Grid Technique in this study. This strengthened the commonly believed positive attribute of the technique being non-verbal. In this case the 'technique was shown to be a highly suitable basis to make the strategic choice in a CSP formulation. Since it could also include implicit consideration such as values, ethos and style which are too lengthy to verbalise.

The study showed that application of CSP to an organisation in the public sector is possible given crystallised objectives, policies, strengths and opportunities, some knowledge of the ethos and style of the university with respect to resources management and future direction of the university. These information can be embodied in the decision makers of an organisation which could

¹Verified through personal communication from the subjects subsequent to the study.

take the form of a person or persons or the Board of Directors (BOD) who are well informed on matters of the organisation. The personality/ities become the 'integrator' in a CSP. In this case a person became the 'integrator' to formulation of CSP. This role is found to be very important in a situation where interrelated factors and strategists were considered simultaneously, as is the case of the successful formulation of Twiss's model. In situations where there is an entrepreneurial management style, the 'integrator' plays an important role. Similarly in large organisations where one or a few top officials are dominant, this CSP formulation approach would be immediately applicable. However in situation where domination of control is more decentralised, this approach may have to be repeated vertically or horizontally amongst top management in control.

This approach of arriving at the selected strategies among so many as singled out by the CSMM made in this study is hoped to give some contributions to the literature of that part of the CSP formulation — the strategic choice — whose literature has been known to be scanty and not fully developed. The strategic choice adopted in this study is also hoped to have fulfilled the SWOT approach in the most desirable way since all the desired parameters are integrated in the CSP consideration.

The approach adopted in the study has potential to be applied to other situations particularly universities in Malaysia. A wide scope in its application is also open to manufacturing firms where most of the basic CSP components, e.g. objectives, targets, inputs, and markets are clearer and quantifiable to fit into a CSP formulation.

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