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ABSTRACT

Administrators and scholars from 10 countries attended a global change seminar at St. Andrews University in Scotland. The purpose was to introduce a systematic and rigorous planning methodology to enhance success in moving forward into a complex, turbulent, and uncertain future. The focus of the methodology was the identification, analysis, and evaluation of alternative future states of an organization's environment and the sources of change within it. At the seminar, participants were grouped into four simulated organizations: a liberal arts school, a comprehensive university, a national advisory committee, and an international organization focusing on higher education. The purpose of the simulation was to learn how to use a planning process to link environmental scanning information to the formulation of institutional strategy, how to assess the position of an educational organization in the external environment, how to delineate alternative futures of that environment, and how to define the strategies necessary to adapt to a range of anticipated changes in the external environment. This paper defines the perspective of the alternative futures approach to planning, along with the methodological assumptions underlying the approach and the model used. The planning team reports from three of the simulated organizations are presented to illustrate application of the model. Includes 111 references. (JDD)

GLOBAL CHANGE: IMPLICATIONS FOR THE FUTURE OF HIGHER EDUCATION

Proceedings of an International Planning Seminar[1]

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GLOBAL CHANGE: IMPLICATIONS FOR THE FUTURE OF HIGHER EDUCATION

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The last decade, indeed, the last year, has been an extraordinarily turbulent time in Western civilization. This has been a period when fundamental rules, the basic ways we do things, have been dramatically altered. For example, with the fall of the Berlin wall and concurrent social and political changes in Eastern European countries, our world is substantially different. Suddenly, the European economic community is focusing on how to incorporate Eastern Europe, NATO is striving to convince the Soviets that it poses no threat, and Western politicians are attempting to substantially cut defense department budgets built up over the past 40 years in response to the Soviet threat. In the language of futurists we have experienced a paradigm shift.

Adam Smith (the pen name of a contemporary Wall Street economist) in *Powers of the Mind*, defined paradigm as "A shared set of assumptions. . . .the way we perceive the world. . . . [it] explains the world to us and helps us to predict its behavior."

Paradigm shifts signify dramatic collective change that upset people's worlds because the assumptions, the rules they lived by, are changed. When paradigm shifts occur, people have to learn new rules even while suffering from the effects of old rules. The build-up of US Forces in Saudi Arabia, for example, was hampered by inadequate sea and air lift capability, a capability not developed sufficiently because the implications of the old paradigm called for prepositioning war materials in Europe as opposed to ferrying them across if "the balloon went up " (Besides, after paying for "star wars" and for airplanes capable of evading sophisticated Soviet radar, there was not that much left over!)

To anticipate the future, we must look for signals of impending paradigm shifts. There were signals that the Berlin wall would come down. It was well-known that the sentiment for unification was strong in both West and East Germany; indeed, the West German Constitution had reunification as a major goal and the West German government never officially acknowledged East Germany in order to make it clear that East Germany was not considered a foreign country. But the strongest signal occurred in August 1989 when Soviet leadership did not support the East German government in its attempt to stem the flow of its citizens to West Germany through Czechoslovakia. This population surge was like a hole in a dike; the dike fell; the rest is history.

What global signals exist that portend an impending paradigm shift that could affect higher education? This question served as the focus for a group of senior administrators and scholars from some 10 countries who attended a week-long seminar at St. Andrews University in Scotland last June. The purpose of the seminar was to introduce participants to a systematic and rigorous planning methodology that will enhance success in moving forward into a complex, turbulent, and uncertain future. The focus of this methodology is the identification, analysis, and evaluation of alternative future states of an organization's environment and the sources of change within it.

The Global Change Seminar

At the global change seminar participants were grouped into four simulated organizations: a liberal arts school, a comprehensive university, a national advisory committee, and an international organization focusing on higher education. The purpose of this simulation was to learn:

- how to use a planning process to link environ-

mental scanning information to the formulation of institutional strategy

- how to assess the position of an educational organization in the external environment

- how to delineate alternative futures of that environment

- how to define the strategies necessary to adapt to a range of anticipated changes in the external environment

In this special edition of the *SRHE International Newsletter*, we will first define the perspective of the alternative futures approach to planning we used in the seminar, the methodological assumptions underlying this approach, and the alternative futures approach to planning model. We then illustrate the use of this model through describing the results of three of the planning teams of the four simulated organizations. [The fourth planning team did not submit a report in time to meet the publication deadline.2]

Overview of the Alternative Futures Approach to Planning

The alternative futures approach to planning is analogous to the planning process used by battlefield commanders. Commanders scan their external environment with electronic and human sensors to identify enemy tendencies (trends) and potential actions (events) that would affect their ability to accomplish their mission. Using these data along with intelligence summaries and staff judgments, they design operational plans adaptive to the dramatic shifts that are a natural result of the conditions under which they must operate. They know that to base total strategy on only one view of what the enemy will do is to invite disaster. Strategic planning, like the best operational planning, seeks to reduce uncertainty by considering what is likely to happen along with possibilities of what could happen.

Although we are not concerned with the "enemy," we should remember that the word "strategy," is derived from the Latin *strategia*, meaning generalship. Like generals, we must be aware of trends, potential paradigm shifts, and potential events in the environment that may affect our success in accomplishing the mission.

Leaders recognize a central tenet of strategic planning: that organizational performance is dependent upon finding the appropriate match between the organization and its environment. Accordingly, the planning objective is to find or create an alignment between the threats and opportunities inherent in the environment and the strengths and weaknesses of the organization. The effectiveness of our planning will largely depend upon how well we identify, monitor, and correctly assess the impact of major developments in the external environment in juxtaposition with internal systems.

Conventional planning models are weak in identifying and assessing the effect on the institution of external environmental changes. The underlying premise of such models is that future changes in the external environment will reflect the rate and direction of present trends. By using such models, administrators are led to assume that the future will reflect the past and present—that a "most likely" future will emerge over time, in essence a "surprise-free" future.

To base the institutional strategy of colleges and universities solely on the assumptions of a "most likely" future, however, ignores the possibility of alternative futures occurring as a result of unanticipated paradigm shifts, also knows as events. The consequence of such "surprise" events is that operational plans must be abandoned or, at the very least, continually adapted to unexpected shifts in the external conditions under which higher education must naturally operate.

The unique feature of the alternative futures approach to planning is the requirement to identify potential events and to think through their implications for higher education if they should occur. By systematically identifying, forecasting, and taking into account the implications of critical trends and events—and their interrelationships—we will expand our vision and, therefore, be able to develop a more anticipatory, proactive, strategic plan.

Methodological Assumptions

The assumptions upon which the alternative futures approach to planning is based are as follows (Boucher and Morrison 1989):

a. It is not possible to predict the future, but it is possible to forecast events in terms of their probability of occurrence. It is also possible to forecast whether trend levels will increase, decrease, or stay virtually the same over the period in question. This enables planners to account explicitly for varying degrees of uncertainty.

b. Forecasts must sweep widely across possible future developments in such areas as demographics, technology, economics, and politics.

c. Forecasts must take into account the interrelatedness of the areas noted above and across international, national, regional, and local dimensions. For example, an agricultural innovation leading to greater crop production in an underdeveloped country may lead to political stability in that country. Or, a significant increase (or decrease) in OPEC oil prices will dramatically affect the economy of the industrialized countries, which in turn will affect . . ., etc.

d. The planning objective is to improve our understanding of possible future global environments within which colleges and universities will be operating in the next ten to thirty years. This provides an enriched and more informed background against which to examine the strengths and weaknesses of higher education, thus encouraging flexibility in objectives. Having examined more than just the most likely developments and with a continuous and ongoing mechanism for scanning external trends and events, the organization can be proactive in how it staffs and structures itself. Although the future can never be surprise-free, this method can significantly reduce uncertainty and can keep our decision-makers well informed.

e. The primary purpose of developing and analyzing multiple futures is to assess goal alternatives in a complex and uncertain planning environment. The process articulated here does not replace conventional forms of analysis. Instead, it complements other information resources that help higher education leadership evaluate institutional missions, objectives, resources, capabilities, ongoing programs, and current strategies.

f. Good forecasts derive primarily from human judgment, creativity, and imagination, not mathematical extrapolations based upon historical data. Mathematical trend forecasts have their bases in previous or existing interrelationships of variables and therefore rest upon an assumption that the future will be like the past. This assumption becomes more untenable as we proceed into the future because events may occur that can affect the prior interrelationships among variables or trends themselves.

A model based upon these assumptions is shown in Figure 1. Basically, the model states that from the experience of organizational leaders or through environmental scanning, leaders identify issues or concerns that may require attention. These issues/concerns are then defined in terms of their component parts — trends and events, which are then forecast. These activities constitute the beginning of an external analysis.

An internal analysis is also conducted. This analysis consists of defining the organizational mission, performance indicators, and strengths and weaknesses. Merging this analysis with the external analysis constitutes strategic long-range planning.

This merger may be conducted in several ways. The traditional approach is to consider the results of the internal analysis in the "most likely" future, a future derived from forecasted trends and events that are expected to occur. This approach provides little consideration to developments less likely to occur.

The distinction between the traditional approach to long-range planning and the alternative futures approach is that the latter approach forces us to think of the implications of possible developments that, if they

occurred, would change our future. As shown in Figure 1, there are two paths to this approach. The simpler path is to conduct a trend and an event impact analysis of the implications of these potential external developments on the mission, performance indicators, and strengths and weaknesses of the organization. A more sophisticated approach to merging an external analysis with the internal analysis is to examine the implications of the current internal analysis in a series of alternative scenarios generated from the univariate trend and event forecasts through cross-impact analysis.

In cross-impact analysis, the interrelationships of trends and events are made explicit by conducting a pair-wise examination of the impact of events on events and the impact of events on trends. Alternative futures are generated from events occurring over the planning time-frame according to prespecified criteria. For example, one future may be generated by having events occur when their estimated probability reaches 35%. Another future may be generated when their estimated probability reaches 50%. And so on. By deriving alternative futures, institutional leaders can conduct a more rigorous and robust examination of the possibilities facing the organization. This examination will result in a list of implications and corresponding plans for each alternative. The bottom line is that when these plans have been derived, we can examine them for their own merits. We should be able to say, *Hey, this is pretty good; we really ought to be doing x, y, and z now!*

Finally, the planning process is iterative. We must continually scan to identify signals of change not identified previously, or changes in the probabilities of events or in trend levels in the trend and event set. We

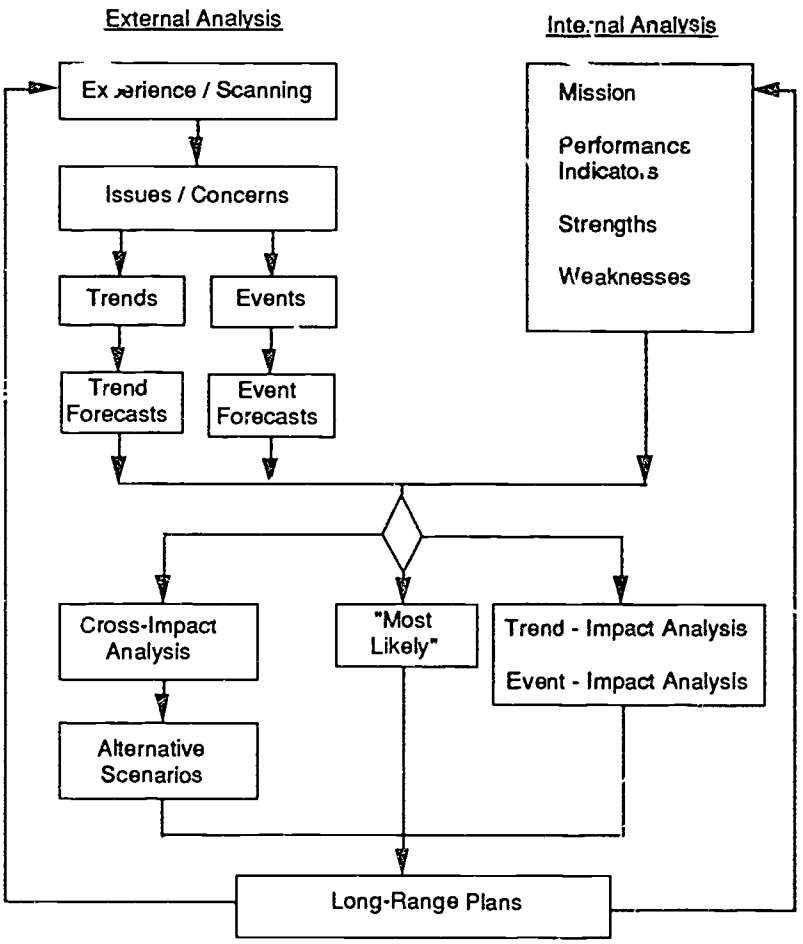

Figure 1. THE ALTERNATIVE FUTURES APPROACH TO STRATEGIC PLANNING

must also continue to collect data specified by the performance indicators, and to be alert to changes in mission as well as in strengths and weaknesses.

With this background, the planning teams in the seminar went to work. Over a four-day period they systematically went through the following series of exercises:

- Describe the organization profile (name, mission)
- Conduct an internal analysis
  - Describe the mission (who, why, what)
  - Identify performance indicators (e.g., internal trends that describe how well the organization is doing)
- Conduct an external analysis
  - Identify those trends that define the context of the organization in the future; select the five most critical trends as the trend set for further analysis
  - Forecast two trends
    - State the assumptions behind the forecast
    - Derive the implications of each forecast for the organization
  - Identify those potential events that, if they occurred, would impact on the future of the organization; select the five most critical events for the event set for further analysis
  - Conduct a cross-impact analysis of the impact of each of events on the probability of each of the other events in the event set
  - Conduct a cross-impact analysis of the trends and events on five performance indicators.
- Conduct an impact network of one event, listing first, second and third or higher order impacts of this event if it should occur and derive the implications of this analysis for the organization.
- Write at least two scenarios
- Derive the implications of each scenario for the organization, resulting strategic options and proposed action plans.

The remainder of this report focuses on how the teams merged an internal and external analysis to produce a strategic long-range plan for their simulated organizations. We begin by reporting the proceedings of the polytechnic university, PITS, then report the proceedings of a national advisory group, SACRED, and conclude with the proceedings of an international organization, WOLFE.

Pie-in-the-Sky (PITS) Polytechnic

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PITS Polytechnic is an urban institution of approximately 5,000 FTE (3,000 full-time, 2,000 part-time) located "somewhere in Western Europe." It offers a comprehensive array of programming (vocational, technical, professional, diploma/degree) to clientele from a wide access base, including many "non-standard" students. It has faculties in business, nursing, engineering/applied science, humanities and visual/fine arts.

Internal Analysis: Mission

PITS has a reputation for providing access to both traditional and non-traditional, full-time and part-time students. It emphasizes community service. It aims not only to prepare clients for the workforce but to foster their personal enrichment and provide them with the tools of responsible citizenship. Its emphasis is on education and training rather than knowledge generation and research. To this end, it endeavors to maximize the flexibility of its programming and to offer short courses, sandwich courses, etc.

Performance Indicators

The five main indicators by which PITS will measure its performance are:

1. the number of diplomas and degrees granted annually
2. unit costs, both absolute and relative to those of sister institutions
3. attrition/retention rates
4. income generation from various sources
5. job placement rates

External Analysis: Critical Trends

After a brainstorming session in which possible future trends were listed indiscriminately on a flip-chart, the group prioritized (by voting) the five major trends most likely to occur in the 1990's:

PT1 (for PITS Trend Number One): the changing age profile of student clientele, especially a growth in the 25-45 age group

PT2: the critical impact of the high technology explosion on the European economic structure

PT3: an accelerated need for reiterative training

PT4. a re-distribution of funding resources, with governmental cutbacks

PT5. increased political destabilization throughout the world

The two trends judged to have the greatest potential impact on PITS were selected for forecasting over the ten year planning period. These were:

PT1: the increasing proportion of 25-45 year cohort

PT2: the increased economic impact of high technology sectors (e.g., information technology, biotechnology, materials, energy)

The PITS planning team indexed each trend at 100 for 1990. The median R2 forecasts for these two trends were that the proportion of 25-45 year olds in the PITS market area would increase 20% by the year 2000 and that the impact of the high technology sectors would increase 130% by 2000.

The core assumptions with which the planning group operated were known demographic data, general awareness of patterns of technological innovation, and predicted increased skill requirements for a high technology workforce.

The primary institutional implications of these trends were identified as follows:

From the increasing proportion of 25-45 year cohort

1. increased demand for new courses requiring curriculum revision across all faculties
2. changed student expectations requiring new pedagogies and recognition of experiential learning for credit
3. emergence of new target clientele requiring new marketing strategies and rethinking of industrial liaison
4. need for staff development in "state-of-the-art" technologies—probably more part-time staff from industry

The implications of PT2, the increased economic impact of high technology sectors, were as follows.

1. increased demand for industrially relevant training (a demand requiring new courses and programs)
2. likely loss of high quality academic and technical staff to industry
3. need to update capital equipment, perhaps in collaboration with industry
4. need to offer fewer industrially relevant programs
5. need to restyle physical facilities

Critical Events

To forecast significant events of the 1990's, the group engaged in the same process as it had for trends: non-brainstorming possible events and listing them on a flip-chart, followed by prioritization. The five most critical events selected were:

PE1 (for PITS Event number one): massive anti-pollution legislation enacted by the European Community

PE2: establishment of a single European market in 1992

PE3: a private consortium from industry establishes its own institution which competes directly with PITS industrial training courses

PE4: a breakthrough is made by PITS Physics Department in formulating and patenting the first superconductor material

PE5: a three-year long European drought circa 1997

The team conducted an event-to-event cross-impact analysis and concluded that PE2 (single European market) will be the most far-reaching event and that PE1 (anti-pollution legislation) will be the most sensitive to influence by others.

Discoveries From Process to this Point

1. The group became increasingly aware of the need for absolute and explicit clarity in formulating descriptors of trends and events. Much of the disagreement within the group arose from vague phrasing and the consequent variant interpretations it generated. For example, most group members had very different perceptions of what will be entailed by the single European market after 1992.

2. It was noted that after the initial round of forecasting, there was a distinct move to consensus in the second round, as team members explained and at-

tempted to justify their projections. This was obviously helped by the level of trust and open-mindedness that characterized the group.

Cross-Impact Analysis of Trends and Events on Performance Indicators

The next step was to assess the impact of trends and events on performance indicators. The point of this activity was to anticipate how performance indicators would be affected by the projected major trends and events of the 1990's. Here a simple plus (+), zero (0), minus (-) scale was used to indicate whether the event/trend would impact positively, negligibly, or negatively on organizational performance.

As might be expected, the two events forecast to have negative impact on all five organizational performance indicators were the establishment of a private educational consortium and the drought of 1997. The population bulge of 25-45 year olds was seen as having positive impact in all areas. High technology was perceived as improving degree quality and numbers, reducing unit costs and attrition, and generating contract income, but militating against employment rates. Anti-pollution legislation was envisioned as working to the benefit of the institution in all areas except unit costs, which it might possibly drive up, and attrition, where impact would be negligible. The superconductor was seen as being a big money-maker, but driving up unit costs (all that research investment!), it would have little or no effect on other areas of organizational performance.

Lessons Learned

1. Once again, the need for absolute clarity was reinforced. For example, some members of the group were unsure as to whether 25-45 age cohort bulge would be accompanied by shrinkage in other cohorts (i.e., will the population pool grow or remain stable?). There were also variant interpretations of the meaning of "unit" and "unit cost."

2. The question was raised whether performance indicators are appropriate instruments for impact analysis. For example, setting performance indicators tends to make the institution focus its energies on those outcomes alone (much as a student might "cram" for an exam), at the expense of other unpredicted and unindexed but possibly felicitous developments. Also, if institution falls short in one or more of the performance measures, does this necessarily mean that the whole long-term strategy should be scrapped?

3. The variant forecasts generated by the process reflect the fact that behind the whole analysis (for all its objectivity) lurk human beings. They are themselves instruments of impact and, within any team, judgements are likely to be as varied as the experiences and backgrounds of individual team members.

Forecasting the Effects of One Event

In order to chart the ramifications that each forecast factor would have on institutional planning, the team participated in "visual impact networking." The initial event or trend was recorded on a flip-chart, and the team then brainstormed first, second, and third order impacts to lay the foundations for scenario writing.

The principal lesson learned from this process was not to leap to immediate conclusions, but to view apparently insurmountable problems as opportunities rather than obstructions. For example, the team's immediate response to the prospect of a private sector competitive consortium was defensive. Internally, substantial changes in subject areas, staffing, personnel policies, and reward mechanisms were proposed. In program areas where direct competition with the new institution was predicted, consolidation and retrenchment would be the order of the day. External strategies such as political lobbying to contain the new private institution were suggested.

However, as the group moved from first to second and third order responses, the strategies proposed became less reactive, more proactive—and indeed interactive.

The challenge of competition was seen as a stimulus to produce new programming and delivery techniques, to seek alternative clientele, to espouse co-operative arrangements with sister polytechnics and indeed the new institution, and even to offer accreditation services to the consortium! In other words, an immediate response entailing major surgery was modified to one where much of PITS original mission could still be fulfilled, though by different means.

Scenarios

The team then devised two scenarios, one a "demonstration" scenario and the other an "integrated driving force" scenario. The demonstration scenario envisions an end-state in the future and then describes a distinct and plausible path of events that could lead to that end-state. The goal set by PITS Polytechnic is to be the sole institution of its kind in the region by the year 2000.

In the early 1990's, PITS faces three challenges:

1. The impact of hi-tech developments, especially in superconductivity, new materials, computer sciences and bio-technology will be felt. PITS should consider several strategies in response:

    a) Develop closer collaborative relation ships with industry.

    b) Tap industry for equipment donations and grants.

    c) Develop retraining programs for faculty/staff.

    d) Recruit new faculty in new technology areas.

    e) Consider establishing an institute to facilitate interdisciplinary research.

2. The impact of growth in the 25-45 age cohort will be felt. PITS should consider several strategies in response:

    a) Expand evening course offerings.

    b) Otherwise accommodate part-time students.

    c) Expand the Extension Course Division.

    d) Employ sandwich course and block release programs to facilitate both student and faculty collaboration with industry.

3. Opportunities growing out of political and economic restructuring in Europe abound. PITS should consider strategies to exploit them:

    a) Expand extension course operations as well as establishing satellite campuses in East Europe.

    b) Target East Europe for student and faculty recruitment.

    c) Concentrate on programs in Public and Environmental Health, Information Technologies, and Business Management.

In 1994, a private consortium consisting of Citroen, BASF, SNCF and Phillips will be formed to train students in communications and electrical, chemical, and automotive engineering. PITS initial responses will include:

1. Development of articulation agreements whereby PITS would provideinitial training, with the consortium providing advanced training.

2. Targeting of clientele not served by the consortium.

In 1997, after three years during which the articulation agreements work reasonably well, major anti-pollution legislation applicable throughout the United States

of Europe is passed and PITS faculty achieve a breakthrough in superconductivity research. In renewed negotiations with the consortium, PITS points out the high costs of compliance to environmental legislation and offers vaguely defined collaborative arrangements regarding developments in superconductivity. In return, the consortium will dissolve itself and allow PITS to subsume all its training programs The consortium agrees.

By 1998, PITS has all of its expansion and new programs in place and is offering on-site training programs for former consortium members.

Action Plans Derived from Scenario One. The PITS planning team derived the following implications for preparing the following action plans.

1. PITS will hire a new president who will catalyze the institution's *ad hoc* planning group to construct new curriculum, develop close collaborative ties with industry, initiate recruitment in East Europe, and plan major expansion of the Extension Course Division and evening programs.

2. As a result of PITS' closer ties with industry, special budgets will be created for new equipment acquisition, faculty/staff retraining, and new faculty hiring.

3. By the end of the decade, PITS will have established itself as the paragon of European polytechnics.

Scenario Two: The Integrated Driving Force Scenario

The integrated driving force scenario attempts to link the two major trends and five major events identified by the team. It divides the 1990's into three time zones: 1991-1993; 1994-1996; and 1997-2000. Driving the decade are three forces in particular: the increase in the 25-45 age cohort; the massive increase in hi-tech industries' contribution to the GNP; and the European single market.

The early years of the decade will be educationally "bullish," with the single market stimulating economic growth, especially hi-tech, and causing demand for technical training. Another factor in the early going will be the opportunities for technological training of the Eastern European workforces caused by ongoing de-communization. Even without these stimuli, it will be advisable for PITS to retain its currency with judicious upgrading of facilities, programming, and faculty.

In the mid 1990's, storm clouds will gather. A private consortium of major industrial conglomerates will establish a network of private polytechnics that will encroach on PITS' client pool. Initial responses will be defensive: revision of mission statement, increased networking with other public institutes; political lobbying, market analysis to determine new clientele (non-standard, part-time, non-resident and overseas students), rethinking of delivery methods, and restructuring of support services.

However, around this time PITS expects its Physics Department to patent the superconductor it has been working on. This will put PITS in a strong position to initiate collaborative and co-operative ventures with the private group.

Should this breakthrough *not* occur as forecast, then PITS will have to cede its hi-tech programming to the consortium and focus on the "softer" options of social sciences and environmental studies.

The final years of the decade will be blighted by a catastrophic European drought. This, and the accompanying anti-pollution legislation, may deflect money away from higher education into survival/emergency funding. However, if its superconductor is market-ready by this point, PITS will be well placed financially to launch new programming in agricultural and environmental technology. These initiatives may receive further impetus from the rapid implementation of the anti-pollution legislation in late 1997. If the superconductor factor does not come into play, PITS may

have to resign itself to a period of plateauing enrollments and survival-mode operation, or even major retrenchment and decline.

The Actions Plan Derived from Scenario Two. The PITS planning team developed the action plan from the implications of this scenario into three three-year cycles as follows:

1. 1991-93: major capital investment, curriculum restructuring and staff development to meet the needs of an expanding 25-45 age cohort for hi-tech training, and to exploit possibilities of exporting programs to and attracting students from Eastern Europe.

2. 1994-96: institutional self-study, including re-examination of mission statement, to determine path to the end of the century; increased networking with other public polytechnics; political lobbying to contain private competition; market analysis to identify new clientele; radical overhaul of delivery methods and restructuring of support services to accommodate new clientele.

   Options (dependent on superconductor):

   a) initiation of "benevolent hegemony" with private sector

   b) retreat from hi-tech competition to the safer ground of non-hi-tech programing

3. 1997-2000

   Options:

   a) using superconductor-generated revenue, launch "state-of-the-art" programming in agricultural and environmental technology to meet the drought challenge

   b) failing this, consolidate, retrench, retreat, survive!

Southerland Advisory Commission Reviewing Educational Developments (SACRED)

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Recorder[4]

Southerland is a developing Africa nation, distinguished by the following characteristics.

- dependence on primary industries
- a population with a young age profile
- evolving political culture (predominantly democratic)
- under developed educational infrastructure (4% participation in higher education)
- multi-linguistic and multi-cultural
- great variation in socio-economic status vis-a-vis fertility,morality rates
- high percentage of un-and-under qualified teachers

Southerland's nationally prescribed goals are to

- increase the participation rate in higher education
- improve the quality and economic relevance of higher education
- increase participation in political decision making
- provide more opportunities for basic education
- improve opportunities for technical education

SACRED is a national advisory commission to the Southerland government and particularly to the Southerland Department of Education. Its work focuses upon higher education nation-wide, although through its strategic planning processes, based upon an alternative futures approach, broad consideration is given to Southerland's total education system.

Internal Analysis

The mission of SACRED is to assist the government to achieve universal access to higher education "within the context of the individual's potential to benefit." SACRED also established the following performance indicators by which the Southerland Department of Education might monitor and evaluate the achievement of its overall mission statement:

- accessibility of colleges and universities to the population
- ratio of personal computers to students
- ratio of building space to enrollment
- number of special programs (e.g., literacy/ numeracy refresher programs)
- student continuation rates through programs (drop out/survival rates)
- assessments of teacher performance
- qualitative measures of effective delivery
- utilization of buildings and material resources (e.g., average number of hours per week class rooms are used)
- program costs per graduate
- student perception of the quality of education

External Analysis

The SACRED planning committee identified the following five critical trends:

ST1: State subsidy to higher education institutions

ST2: The ratio of desktop computers (PCs) to full-time equivalent student numbers (FTEs) in higher education

ST3: The stability of the political environment in Southerland

ST4: The demand for access to higher education

ST5 The extent of dissatisfaction with higher education programs by students

In the time allowed for planning, the commission forecast two trends, ST1 and ST2. The level of ST1, state subsidy to colleges and universities, was seen to increase (in constant dollars) to the year 2000. The level of ST2, the PC to FTE ratio, was seen to double by the year 2000. The implications of these trends were as follows:

- need for an increased subsidy to higher education institutions
- greater need for cost effective use of government subsidy (effectiveness, efficiency, economy)
- a growing blockage of student access
- greater pressure on private organizations (e.g. industry), to donate to higher education institutions as the state's contribution to higher education institutions declines in relative terms; and a corresponding expectation that the strategic direction of colleges and universities will become more influenced by non-state stake-holders

Given this analysis, SACRED's planning team made the following recommendations:

- develop a national campaign to encourage private sector organizations to enter partnership with the state in supporting higher education
- write a national statement by government leaders giving commitment to a policy of power sharing in relation to higher education funding
- grant greater freedom to all higher education institutions to change their own mission statements (redefinition of roles and functions) in the light of forecasted trends
- introduce a program of national cost effectiveness to ensure that colleges and universities maximize resources and rationalize expenditure
- develop alternative community-based higher education learning opportunities (more open learning and distance learning models)
- target state subsidies for programs linked with economic regeneration

Critical Events

The SACRED planning team identified the following five critical events:

SE1: new plentiful, man-made, basic food-stuff is produced by a bio-tech breakthrough (cheap solution to the ongoing food shortage crisis)

SE2: gold dumping—the major gold producers flood the gold market as a short-term expedient thus creating a global economic crisis—massive unemployment ensues. Southerland national unemployment rate increases within one month from 30 to 50%

SE3: following a meeting of heads of state, a stable political coalition of southern hemi-

sphere countries is established (quasi-federal system)

SE4. breakthrough in new mass contraception technology acceptable to the mass of the population. Within 5 years a significant drop in the birth rate trend is noticed. Average family size drops 50% (from 6 children to 3)

SE5. new strain of the AIDS virus detected. Immediate increase in death rate in both adult and child populations

Cross-Impact Analysis

Using cross-impact analysis, the commission concluded that an economic crisis (e.g., gold dumping) would have the greatest impact on Southerland. When the commission conducted a impact analysis of two trends and five events on five performance indicators (PIs), the following outcomes emerged:

- An economic crisis (e.g., dumping) had the highest impact on the selected performance indicators
- The Ratio PCs: FTEs had the higher impact of the two chosen trends on performance indicators

Lessons learned

- the selection of performance indicators was critical
- some events cancel the impact of other events
- the group tended to explain impacts in terms of strongly held paradigms of experience reality
- group members with similar experiences tend to create fewer alternative forecasts
- the importance of the following questions: what are the external factors facing a nation in terms of education? What global events override national strategies

Impact Network

The SACRED planning team conduced an impact network of the implications of gold dumping:

1. First Order Impacts
   - loss of foreign earnings
   - increased unemployment
   - exchange rate collapse
   - import restrictions
2. Second Order Impacts
   - review higher education funding cuts
   - restrictions on the availability of educational equipment
   - restriction on overseas travel
3. Third Order Impacts
   - restriction of teacher recruitment
   - reduced volume of research
   - rationalization of higher education programs
   - inappropriate training (quality) of teachers
   - request aid from WOFHE (re: international group)
4. Fourth Order Impacts
   - development of alternative higher education strategies (community based, TV link ups, etc.)

- cancel external ..sultancies (e.g. PITS' overseas program)

5. Fifth Order Impacts

- export Southerland's higher education program

Scenarios

The S. CRED planning team developed two scenarios. The first scenario was derived by taking events SE1 and SE4 (see above), and brainstorming first, second and third order impacts on the critical trends and performance indicators developed earlier. This process created some interesting contradictions and some creative action plans. Generally the scenario was not completed but it appeared that Southerland might need to abandon its initial mission statement and strategic objectives in favour of a survival plan focused upon health care for its citizens.

The second scenario was developed by choosing events SE2, SE3 and SE5 (see above) and applying the same methodology. In this scenario, more optimistic action plans were forecast. Such forecasts suggested economic growth, political consensus and a gradual increase in higher education participation.

General Conclusions

Given the relatively small size of the SACRED planning group and the similarity in the personal biographies of its members, creative alternative futures did not emerge as readily as might have been expected. The application of the alternative futures methodology by the group was fascinating and insightful. The sharing of ideas and experiences during group sessions was rewarding, especially given the liberating nature of the main tasks confronting the group. While the outcomes of the role play were incomplete, experiences derived from the use of the planning methodology were challenging and they stimulated greater understanding of planning processes.

World Organization for the Future of Education (WOFHE)

Louise McDonald Perica
Lancaster University
Recorder[5]

WOHFE is an international organization designed to aid co-ordination and co-operation in global higher education. WOFHE serves all institutions, organizations and individuals concerned with higher education. Its *raison d'être* is:

- The need for such an organization, which does not exist at this time. Current organizations are fragmented and parochial.
- Effective international higher education is crucial for global sustainability, for quality of life and for the development of human potential.

Goals

WOFHE aims to establish and maintain an international database, accessible online, for matching conference-goers and available funding.

WOFHE intends to develop links and act as a clearinghouse for a variety of issues pertinent to higher education including:

- international cultural exchange
- co-ordination and co-operation in higher education
- mobilization of international funding
- sharing of innovative models and ideas
- developing the role of higher education in global issues

Performance Indicators for WOFHE

- Membership numbers
- Diversity of membership
- Size of database (i.e., level of usage; number of subscribers)
- Amount of money available for distribution

Critical Trends

WT1: Environmental degradation continues

WT2: The global population continues to increase

WT3: The knowledge explosion continues, with major developments in the fields of information technology (IT), artificial intelligence (AI) and biotechnology

WT4. The diversity of colleges and universities in the world continue to increase

WT5: Conflicts, particularly in the Middle East, Africa and Asia increase

Forecasts of Two Trends

The WOFHE planning team forecast two trends: WT3 (knowledge explosion) and WT4 (number of colleges and universities). The median estimate for WT3 was that there would be a 100% increase in knowledge base between 1990 and 2000. Moreover, it was thought that the developments in the fields of IT, AI etc., will be made easily accessible and sufficiently inexpensive for their widespread adoption by society. The median

estimate for WT4 was that there would be a 30% increase in the amount of diversity of colleges and universities worldwide by the year 2000. This forecast was based upon an assumption that an increasing number of private organizations and individuals would enter into the field and that there would be a demand for their services.

Critical Events

The WOFHE planning team identified the following critical events:

WE1: A breakthrough in artificial intelligence, creating the interactive electronic teacher

WE2: A global epidemic of another infectious disease

WE3. The collapse of Western economies

WE4: UNESCO becomes an effective, apolitical organization

WE5: Escalation of Middle Eastern hostilities seriously disrupts supplies of crude oil

Cross Impact Analysis

The primary results of the cross-impact analysis exercise were as follows:

- The economic collapse of the Western financial system and war in the Middle East were seen as having the greatest impact on the other events.

- Diversification in higher education providers and the knowledge explosion had a positive impact on WOFHE's performance indicators.

Impact network

The WOFHE planning team chose to do an impact analysis that indeed higher education institutions would be 30% more diverse in the year 2000 than they were in 1990. The first order impacts of this event were the creation of a new group of education providers, with the consequent need to introduce them to the extant WOFHE user group through international meetings. This would require additional research and the subsequent expansion of the WOFHE database.

The second order impacts were the need to foster and encourage the development of both formal and informal networks amongst the WOFHE clients, old and new. The new clients will create a need to develop research priorities within WOFHE, as diversification of providers will mean a diversification of the means of providing education. There would also be a need for more contact within international higher education, to keep abreast of the new developments.

Third order impacts were a need to decide who does the research and the need to provide funding for such activities.

Fourth order impacts were publishing and disseminating the results of the research, meetings and conferences.

All of this was within a framework dominated by the need to find financial resources to support all these activities.

Scenarios

The WOFHE planning team developed two scenarios based on several environmental assumptions:

- No major world conflicts
- By mid-90s the EC is successful, and includes several Eastern European states
- With the end of the Cold War, funding is freed from defense budgets
- Information technology development is freed from defense sector resulting in a commercial techno-boom
- Trends towards moderation in extremist religious organizations
- Multi and trans-national organizations see long term value in increased investment in education, in particular international education

- Mrs. Thatcher is not the only role model for thenew generation of women in international leadership positions

The two scenarios described below forecast the failure of WOFHE in the face of a successful UNESCO (Scenario A) which absorbs what remains of WOFHE or the establishing of WOFHE as a creditable organization, (Scenario B) with international recognition of its expertise and its significant role in international education.

TWO SCENARIOS FOR WOFHE

GLOBAL EVENTS	SCENARIO A	SCENARIO B
1994 - Three Latin American countries elect leaders with careers in the university sector	WOFHE brings together new leaders from Asia and Latin America with EC and Eastern Europe	WOFHE responds to the fiscal crunch by raising funds from non-government sources, specializing in a narrower set of services and increasing visibility
1993 - China and Japan change leadership - woman PM elected in Japan	WOFHE has key role in directing IT techno-bloom and expands its data-base and research functions	
1995 - A third of EC states have women premieres	Recession causes smaller nations and TNCs to make harder choices about funding education	WOFHE initiates discussions with and identify mutual interests and overlapping services - reviews mission
	WOFHE's growth limited by funding restrictions	
1996 - Two international summits. the environment and education l lead to UN action	UN holds more international conferences run on WOFHE models	WOFHE responds to East European needs faster than UN
1998 - UN elects an environmental and education orientated president (another woman)	Competition between WOFHE and UN for conerences and funding, WOFHE top staff turnover - two retire, two to UN	WOFHE proposes to act as special agent for UN to capitalize on existing expertise within WOFHE
2000 - US elects a woman president who is committed education and environmental issues		UN sends senior staff to WOFHE for training
2001 - UNESCO is redirected and becomes an effective international body	WOFHE decides to transfer its database to UNESCO by 2005	WOFHE signs formal aggreement with UN, with agreement that 'deal is off' if UNESCO reverts to 20th century paradigms

ENDNOTES

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