

RIGOR AND PRACTICAL USEFULNESS OF RESEARCH IN STRATEGIC MANAGEMENT

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This paper examines the rigor and usefulness of research programs in strategic management. Using a facet analysis technique, 23 research programs are examined on eight criteria reflecting their relative rigor and usefulness. Results show that this field has emphasized the practical usefulness of research results. Some research that is rigorous and has practical usefulness also exists in the field. Suggestions for generating more such research are discussed.

The field of strategic management business policy has emerged from being a pre-theoretic case study-based capstone integrative course, into a reasonably distinct subdiscipline in management studies. A substantial body of knowledge has accumulated over the past two decades which directly or indirectly addresses issues related to strategy formulation and implementation in organizations (Ackoff, 1970; Ansoff, 1965; Chandler, 1962; Lamb, 1983; Grant, 1987; Pennings, 1984; Porter, 1980; Schendel and Hofer, 1979; Thorelli, 1977). The future of strategic management as a viable academic subdiscipline will depend on the scientific quality and practical usefulness of research that is generated in the field. The extent to which the existing strategic management research exhibits these characteristics is an empirical question open for investigation (Saunders and Thompson, 1980).

This study attempts to assess the rigor and usefulness of a sample of research programs in the field of strategic management. Research programs undertaken in the past 25 years are identified. Their rigor and practical usefulness are examined using facet analysis. Implications of the findings for future research are discussed. This study forms part of a larger research program

that explores paradigm development in strategic management through an analysis of dissertations, textbooks, debates and ideology in the field (Shrivastava, 1986; Shrivastava and Paloheimo, 1984). The focus of the present study is not on assessing paradigms, but is limited to examining rigor and usefulness of research, which is one aspect of paradigm development.

THEORETICAL PERSPECTIVES

It is presumptuous at best, and vacuous at worst, to speak of a single set of 'standards' or criteria by which the products of social science research may be evaluated for their scientific validity and practical relevance. Recent metatheoretical analyses of organizational theories and sociological theories suggest that judgements about scientific validity of research programs need to be grounded in assumptions of their underlying paradigm. Every social theory is based on a set of metatheoretical assumptions regarding ontology, epistemology, methodology and the nature of the phenomenon under study. Standards for scientific validity are essentially paradigm based and variable (Astley and Van de Ven,

1983; Burrell and Morgan, 1979; Kuhn, 1970; Mitroff and Mason, 1982).

Similarly, standards for judging the usefulness of research results or knowledge claims depend on the needs of users, and the different ways in which research results are used. In view of these limitations on any set of criteria that may be adopted for evaluating rigor and practical usefulness of research, we acknowledge the refutability of criteria suggested below. However, these criteria reflect a synthesis of ongoing debates in management literature on the issue of rigor versus relevance in research (Evered and Louis, 1981; Luthans and Davis, 1982; Shrivastava and Mitroff, 1984).

The unit of analysis—research programs

Before suggesting a set of criteria for judging the products of research, an appropriate unit of analysis must be determined. Ideally, the unit of analysis should be existing 'theories' in the field (Miner, 1983). But since there are few well-accepted self-contained theories in this area, for the purposes of this study, a 'research program' is used as the unit of analysis. Research program refers to a group of studies focused on investigating a particular aspect of strategic management. A research program delineates the *content domain* that is the focus of research. It implies a set of *research questions* of interest and a set of *research methods* considered appropriate for investigating them. Each research program is based on an identifiable set of underlying theoretical literature. Examples of such programs include the Harvard Business School research program on business history (Chandler, 1962), which contributed to the early development of the field. Another example of a research program would be the 'strategy modeling' approach to studying industry structures and strategic groups within industries (Porter, 1980; Schendel and Patton, 1978; Hatten, 1974).

It should be noted that research programs as conceptualized here can, and normally do, extend beyond the research efforts of the original investigators. For example, Chandler's (1962) thesis regarding the relationship between organizational structure and strategy was examined later by Wrigley (1970), Rumelt (1974), Thanheiser (1974), Channon (1974), Pooley-Dyas (1972), and Hall and Saias (1980). Thus, research

programs may be regarded as streams of research studies which normally have antecedents in some theoretical framework, and are focused on addressing strategic management issues from an appropriate methodological stance. These research programs are used as the unit of analysis in this study.

Criteria for assessing the rigor of research

Assessing the rigor of research programs in an *applied* field like strategic management may be done on the basis of three criteria. The first criterion is the *conceptual adequacy* of the framework that guides the research program. This conceptual adequacy is a function of how well the research program is grounded in theoretical frameworks provided by underlying disciplines, such as economics, sociology, psychology, mathematics, behavioral science, etc. (Burrell and Morgan, 1979; Churchman, 1971; Dubin, 1976). It measures the extent to which research programs apply the knowledge developed in their base discipline to generate theoretically adequate conceptual frameworks, raise theoretically interesting issues and choose appropriate research settings and methods for empirical examination of research questions.

The second important criterion for evaluating the rigor of research programs is *methodological rigor*. Research methods used in strategic management range from subjectively oriented interpretive techniques using qualitative or descriptive data (case studies), to analytical mathematical modeling techniques using quantifiable data. Spanning this range are a variety of mixed methodologies including cross-sectional comparative studies, survey studies and time-series analyses (Duncan, 1979; Hatten, 1979; Yin, 1981).

The relative rigor of individual methods is difficult to evaluate. However, methods can be evaluated on a subjective-objective continuum, as has been successfully done in past studies (Burrell and Morgan, 1979; Dunbar, 1983). Subjectively oriented methods deal with qualitative data, interpretive data analysis and intuitive inferences (Burgelman, 1985; Morgan, 1983; Morgan and Smircich, 1980). Objectively oriented methods deal with quantifiable data, analytical data reduction techniques and statistical inferences (Campbell and Stanley, 1963; Kerlinger,

1973). While both subjectively and objectively oriented methods can be very rigorous, the positivist epistemology which underlies much of the current research in business studies favors objective methodologies as the more rigorous ones (Schendel and Cool, 1983; Whitley, 1984). It should be emphasized here that, while subjectively oriented methods can be and indeed are rigorous, the sociological forces that shape knowledge creation in this field favor objectively oriented methods.

In addition to judging the subjective-objective orientation of methods used in research programs, it would be useful to also assess whether the method used was the 'right' one. However, this assessment is difficult because each research program may use multiple methods, and many different methods may be appropriate for doing a particular study.

The final criterion used for assessing the rigor of research programs is the extent of *accumulated empirical evidence* supporting its theoretical structures. This accumulated evidence lends credibility to research findings and legitimizes them to other researchers and managers. It provides a basis for accepting research findings as being empirically validated and thereby grounded in objective or projected reality (Dunbar, 1983; Thompson, 1956). However, this does not imply that research with empirical support is necessarily useful to decision-makers.

Criteria for assessing practical usefulness of research

The critique of research in the organizational sciences suggests several criteria for judging the practical usefulness of research results (Dubin, 1976; Kilmann *et al.*, 1983). For the purposes of this study organizational decision-makers are presumed to be the primary users of research efforts. They use scientifically generated knowledge for solving problems facing their organizations. The usefulness of strategic management research thus lies in its ability to provide decision-makers with a rationale for making decisions and thereby prompting actions in organizations.

Thomas and Tymon (1982) have described five properties of practitioner-relevant research. We have adapted these properties to generate five criteria for evaluating usefulness of research programs. The first and perhaps the most

important criterion of usefulness is *meaningfulness* or comprehensibility of research results to users. This is a function of the extent to which research findings capture and adequately describe organizational reality. Unless research programs accurately portray actual organizational features and assumptions, their results are unlikely to be understood or used by practitioners (Davis, 1971; Pondy and Boje, 1976; Shrivastava and Mitroff, 1984).

Practitioners are interested in research results that are directly relevant to their organization's goals and objectives. If research programs are formulated using variables that are related to these goals, their results are more likely to be useful (Van de Vall, Bolas, and Kang, 1976; Waters, Salipante, and Notz, 1978). Thus, a second criterion for assessing the usefulness of research programs is the extent to which its primary variables (especially the dependent variables) are relevant to organizational and managerial goals (Cummings, 1978). We call this criterion *goal relevance*.

The third criterion for evaluating usefulness of research programs is their *operational validity* or actionability. This refers to the extent to which research results are operationalizable through concrete actions or decisions. The more abstract and general research results are, the more difficult it is to translate them into actions (Tichy, 1974; Thomas and Tymon, 1982). The tendency of researchers to generate non-specific, generalizable and broadly applicable knowledge reduces the operational validity and goal relevance of research results.

Another criterion for evaluating research usefulness, closely related to the above described notion of action relevance, is the non-obviousness or *innovativeness* of research results. New and non-obvious results are more likely to be useful than old and commonsensical ones. Research programs leading to trivial and obvious research results are uninteresting to practitioners, and generally unusable (Davis, 1971; Gordon, Kleiman, and Hanie, 1978). Innovative research findings elicit the interest of practitioners and motivate them to understand and use research for making decisions.

The fifth criterion for assessing research program usefulness is the *cost of implementation* of research results. Cost of implementation is an important factor in organizations' acceptance of

Table 1. Criteria for assessing rigor and practical usefulness of research programs

Criteria	Sentences for Coding Research Programs
<i>Rigor</i>	<i>Rigor variables</i>
1. Conceptual adequacy	1. The research program is well grounded in a base discipline, It uses a conceptual framework consistent with existing theories in the field.
2. Methodological rigor	2. The program uses analytical methods and objective quantifiable data to empirically examine research questions.
3. Accumulated empirical evidence	3. The research program has generated a substantial amount of accumulated empirical evidence supporting it.
<i>Practical usefulness</i>	<i>Practical usefulness variables</i>
4. Meaningfulness	4. The research is meaningful, understandable and adequately describes strategic problems faced by decision-makers.
5. Goal relevance	5. It contains performance indicators, which are relevant to managers' goals.
6. Operational validity	6. It has clear action implications which can be implemented using the causal variables used in the research program.
7. Innovativeness	7. It transcends 'commonsense' solutions and provides non-obvious insights into practical problems.
8. Cost of implementation	8. The solutions suggested by the research are feasible in terms of their costs or timeliness.

research findings. Prohibitively expensive (in terms of time and money) solutions are unlikely to be implemented in practice because of economic reasons and risks attached to them. An important aspect of implementation costs is the timeliness of research results. If research is not available when needed it may become too expensive to implement later.

The three criteria characterizing rigor, and the five criteria characterizing usefulness of research programs, are summarized in Table 1 (left column).

METHOD

Using the terminology of facet theory (Shapira and Zevulun, 1979), rigor and practical usefulness may be viewed as two main facets of research programs. These facets characterize the phenomenon under study—i.e. research programs in strategic management. Each facet is measured by a set of variables (criteria in this case) which define different aspects of the facet. Within this definitional framework, facet theory allows us to examine the empirical structure of the phenom-

enon. Facet analysis has been used widely for developing profiles and classification systems, and testing hypotheses (McGrath, 1967).

The key objective of the present study is to identify patterns of facets underlying research programs in strategic management. It should be mentioned that this is an exploratory study that empirically examines research programs in the field. A preliminary expectation of this study may be stated as the following mapping sentence:

Research programs in strategic management focus on generating research that emphasizes *practical usefulness* in terms of its meaningfulness, goal relevance, operational validity, innovativeness, and cost of implementation. They attempt to incorporate research rigor through conceptual adequacy, methodological rigor and by generating empirical evidence.

Sample

To assess the rigor and practical usefulness of research programs in strategic management an extensive review of the existing literature was conducted. A list of research programs was identified by grouping individual research papers,

books, and monographs into distinctly identifiable groups representing separate research programs. As a starting point for developing these groups we used the topic subheadings from four recent conferences in strategic management (Schendel and Hofer, 1979; Thorelli, 1977; Strategic Management Society Conferences, London 1981, and Montreal 1982). Additional topic subheadings were derived from recent proceedings of other academic conferences (Academy of Management, 1980, 1981, 1982; and American Institute of Decision Sciences, 1980, 1981, 1982).

By iteratively reviewing identified topics with the literature, 23 distinct research programs were identified. Many of these programs are consistent with the list of 18 research topics provided by Schendel and Hofer (1979). However, we found that there was no one-to-one correspondence between these research programs and the Schendel and Hofer categories. In order to check for comprehensiveness in coverage of research programs we submitted and discussed our list of programs with two faculty persons who were actively engaged in research and teaching in the strategic management area. These discussions led to the clarification of some of the research programs but did not generate any new ones.

These research programs are listed along with the respective Schendel and Hofer (1979) topics, in Table 2, with some representative authors who have contributed to each research program. It should be emphasized that authors' works cited are only examples of studies within research programs; they do not represent all research done within each program. Although these research programs may not exhaustively cover the entire universe of studies in strategic management, they do represent an adequate sample of research efforts in the field. Table 2 clearly shows that the field has underemphasized and virtually ignored some topic areas such as the role of the Board of Directors, goal formulation, strategic management of not-for-profit organizations, research methods, entrepreneurship and new ventures, and public policy. On the other hand, the field possesses research in relevant areas such as business history, and mergers and acquisitions.

Data coding

Representative works within each research program were systematically studied. Brief summaries were made of major articles focusing on their

results, methodology, theoretical perspective, practical implications of the research, usefulness of results, etc. Books and monographs were read and their contents summarized. Book reviews appearing in academic journals were also studied to gain a better understanding of the contents of the books. In addition to the author's training, research and reading in the area, over 125 articles and 50 books were re-examined explicitly for the purpose of coding research programs.

In order to use the criteria of scientific rigor and practical usefulness described above for coding research programs, each criterion was stated as a sentence (see Table 1—right column). Each research program was coded ordinally to signify the presence or the absence of the criteria in the research program. If a criterion was present in a particular research program then that criterion was scored a 'Yes' (value '1' was assigned to it), if the criterion was judged to be absent from the research program it was scored a 'No' (value '0' was assigned to it).

The coding of research programs was done by two independent coders. Each coder made judgements separately on whether each individual criterion was either reflected or not reflected in the research program being evaluated. Since coding was nominal and required judgement only on the presence or absence of a specific criterion in each research program, it was relatively easy to do, and reduced the potential for rater's subjective biases significantly influencing the coding.

Coding by the two coders did not result in perfect matches. While using multiple coders it is important to check for inter-coder reliability. However, this study did not use structured instruments for which we needed to calculate an inter-coder reliability index. Hence, an alternate procedure was used to ensure reliability. Out of the total $23 \times 8 = 184$ possible matches between the two coders, about 29 percent of codes were different, i.e. 71 percent of codes matched. The 29 percent mismatches were given a value of 0.5 (average of the 0 and 1 values). The data thus obtained represented combined judgements of the two coders with a high degree of consensus, and is referred to here as the 'combined data'.

Data analysis

The technique used for the statistical analysis of the data was smallest space analysis (SSA)

Table 2. Research programs in strategic management

Research topics (Schendel and Hofer, 1979)	Research programs	Representative authors
Strategy concepts	1. Alternative policy frameworks	Allison, 1970; Axelrod, 1976; Dror, 1974
	2. Transaction cost economics and market failure	Williamson, 1975, 1979; Dundas and Richardson, 1979
	3. Dialectical analysis	Cosier and Alpin, 1980; Mason, 1969; Mason and Mitroff, 1981; Mitroff and Emshoff, 1979
	4. Organizational learning and strategy	Argyris and Schon, 1978; Duncan and Weiss, 1978; Jelinek, 1979; Shrivastava, 1983
Strategic management process	5. Behavioral process models	Bower, 1970; Carter, 1971; Mintzberg <i>et al.</i> , 1976; Rhenman, 1973
	6. Political process models	Narayanan and Fahey, 1982; MacMillan, 1978; Pettigrew, 1973; Quinn, 1980
Board of Directors	—	—
General management roles in strategy management	7. Management action	Drucker, 1974, 1982; Henderson, 1979; Rothschild, 1979
Goal formulation	—	—
Social responsibility	8. Social issues in strategic management	Murray, 1978; Post, 1978; Preston, 1975; Sethi, 1982
Strategy formulation	9. Analytical models	Ackoff, 1970; Ansoff, 1965; Cyert and March, 1963; Hofer and Schendel, 1978
	10. Competitive strategy and strategic marketing	Abell and Hammond, 1979; Day, 1981; Porter, 1980; Wind and Mahajan, 1981
	11. SWOT analysis	Andrews, 1971; Christensen <i>et al.</i> , 1982; Leontiades, 1983
Environmental analysis	12. Environmental analysis and scanning	Aguilar, 1967; Anderson and Paine, 1975; Bourgeois, 1980; Duncan, 1972; Fahey and King, 1977
	13. Policy delphi	Dalkey and Helmer, 1963; Turoff, 1970
	14. Industry structure modeling	Caves, 1972; Harrigan, 1980; Hatten, 1974; Porter, 1980; Schendel and Patton, 1978
Strategy implementation and evaluation	15. Strategy implementation and evaluation	Galbraith and Nathanson, 1978; Lorange, 1982; Rumelt, 1979; Tilles, 1963
	16. Strategy-structure studies	Chandler, 1962; Channon, 1974; Montgomery, 1979; Rumelt, 1974; Wrigley, 1970
Strategy content	17. PIMS research	Buzzell <i>et al.</i> , 1975; Schoeffler, 1977; Hambrick <i>et al.</i> , 1982; MacMillan <i>et al.</i> , 1982
	18. Experience curve research	BCG 1968; Conley, 1970; Henderson, 1979
Formal planning systems	19. Formal planning systems	Camillus and Grant, 1980; King and Cleland, 1978; Lorange, 1980; Steiner, 1969

Cont'd.

Table 2. Research programs in strategic management *cont'd.*

Research topics (Schendel and Hofer, 1979)	Research programs	Representative authors
	20. Strategic information support systems	King, 1978; King and Cleland, 1978; Radford, 1978
Strategic contr	—	—
Entrepreneurship and new ventures	—	—
Multibusiness multicultural firms	21. International strategic management	Channon and Jalland, 1978; Doz, 1980; Prahalad, 1975; Stopford and Wells, 1972
Strategic management of not-for-profit organizations	—	—
Public policy and strategic management	—	—
Research methods	—	—
Others	22. Business history	Chandler, 1962; Chandler and Daems, 1980
	23. Mergers and acquisitions	Steiner, 1975; Keenan and White, 1982

(Guttman, 1968; Shapira and Zevulun, 1979). SSA is a nonparametric multidimensional scaling procedure which places the correlated variables (criteria in this case) in contiguous positions in an n -dimensional Euclidean space. The distance between any two points corresponds to the order of correlations between the criteria they represent. The SSA algorithm considers all pairs of criteria correlations, to arrive at a graphic representation of the correlations matrix. The logic of SSA is the same as that of cluster analysis. SSA was used because the raw data were scaled nominally, requiring us to use a non-parametric technique. In addition, SSA had the advantage of being anchored, as a statistical technique, in facet analysis theory (Shapira and Zevulun, 1979). Facet theory argues that theoretical structure of any phenomenon can be empirically validated by examining patterns of simultaneous correlations among facet variables that characterize it. In this study, evaluation criteria characterize rigor and usefulness facets of research programs. SSA was used to discover how these facets were patterned in a sample of research programs.

The strength of association between criteria can be judged on the basis of the coefficient of alienation, $(1 - r^2)^{1/2}$ where r is a rank-order

correlation between criteria intercorrelations and their corresponding geometric distances. This coefficient of alienation measures the goodness of fit of an SSA solution. Smaller values of the coefficient of alienation represent a better fit of SSA solution to the original correlations matrix. A value of 0.15 is considered to be acceptable, whereas a value of zero would represent a perfect fit (Guttman, 1968). SSA programs were applied to the combined data described above, as well as to the two separate data sets generated independently by the two coders. This was done in order to validate the analysis of the combined data.

RESULTS AND DISCUSSION

Table 3 shows the means, standard deviations and raw coefficients for the correlations matrix of criteria for the three data sets. The means and standard deviations reflect sufficient variance on all variables, to permit further analysis.

Two-, three- and four-dimensional SSA runs on the three sets of data showed stable consistent patterns in each case. Figures 1, 2 and 3 show the results of the two-dimensional smallest space analysis plot for the three data sets. The original

Table 3. Correlations matrices, means and standard deviations

	1	2	3	4	5	6	7	8	Standard deviation	Mean
<i>Combined data set</i>										
Criterion										
1	0.00								0.4344	0.4348
2	-0.05	0.00							0.4252	0.3913
3	0.31	0.42	0.00						0.4170	0.4130
4	-0.12	0.02	-0.31	0.00					0.3570	0.6739
5	-0.23	0.30	0.46	-0.07	0.00				0.4241	0.5435
6	-0.39	0.28	0.21	-0.01	0.59	0.00			0.4123	0.4783
7	0.05	-0.36	-0.01	-0.12	-0.32	-0.16	0.00		0.3824	0.3478
8	-0.49	-0.06	-0.15	0.29	0.28	0.40	-0.26	0.00	0.2915	0.1957
<i>Coder No. 1 data</i>										
Criterion										
1	0.00								0.5069	0.4348
2	-0.06	0.00							0.5069	0.4348
3	0.18	0.37	0.00						0.4705	0.3043
4	-0.39	0.25	-0.11	0.00					0.4217	0.7826
5	-0.47	0.24	0.39	-0.18	0.00				0.5069	0.5652
6	-0.66	0.21	-0.07	0.29	0.49	0.00			0.5108	0.4783
7	0.48	-0.12	-0.04	-0.65	-0.28	-0.37	0.00		0.4490	0.2609
8	-0.34	-0.08	-0.26	0.20	0.34	0.40	-0.23	0.00	0.3444	0.1304
<i>Coder No. 2 data</i>										
Criterion										
1	0.00								0.5069	0.4348
2	0.10	0.00							0.4870	0.3478
3	0.39	0.58	0.00						0.5108	0.4783
4	0.06	-0.28	-0.21	0.00					0.5069	0.5652
5	-0.04	0.33	0.39	-0.31	0.00				0.5108	0.5217
6	0.04	0.40	0.48	-0.21	0.57	0.00			0.5108	0.4783
7	-0.24	-0.27	-0.14	0.06	-0.04	-0.31	0.00		0.5069	0.4348
8	-0.12	-0.02	0.03	0.12	-0.03	0.09	0.08	0.00	0.4490	0.2609

mapping sentence suggested that criteria should cluster into two regions. This is borne out by all three figures. There are two clear regions: one region which represents useful research with little emphasis on rigor, and the second region which represents primarily rigorous research with some elements of usefulness. Figures 1 and 2 are essentially the same and show convergence between combined data set and Coder No. 1 data.

Analysis of Figure 1

Figure 1 represents SSA graphical representation of correlations matrix generated from the combined data set. The coefficient of alienation for two-, three- and four-dimensional SSA for Figure

1 were 0.1319, 0.0103 and 0.0013, and Kruskal's stress indicators were 0.1018, 0.0065 and 0.0007 respectively.

Variables on the left side of the figure are labelled Region 1. This region represents research programs characterized by four usefulness criteria: (a) goal relevance, (b) operational validity, (c) meaningfulness, (d) cost of implementation, and one rigor criterion—accumulated empirical evidence. This suggests that the strategic management field possesses research programs which have provided practically useful results grounded in empirical data.

Variables on the right side of the figure are labelled Region 2. This region represents research programs characterized by two rigor criteria of: (a) conceptual adequacy, and (b) methodological

SSA Plot for Combined Data Set

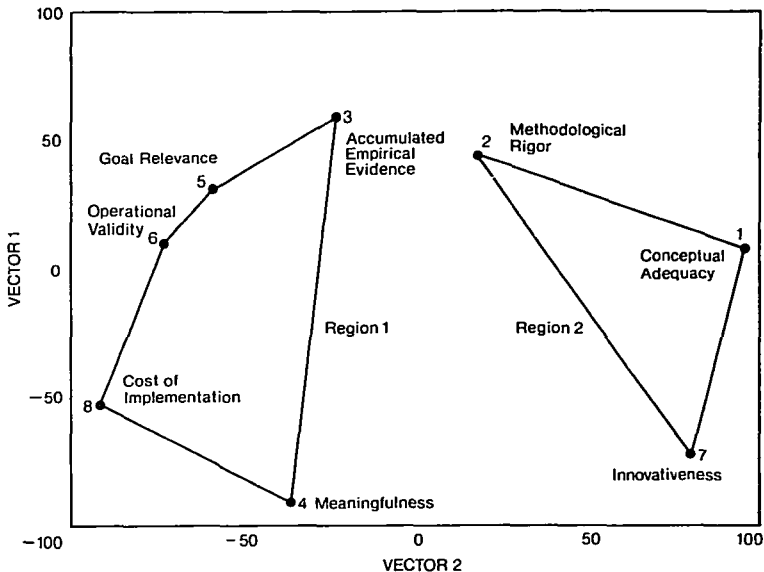


Figure 1. SSA plot for combined data set

SSA Plot for Coder No.1 Data

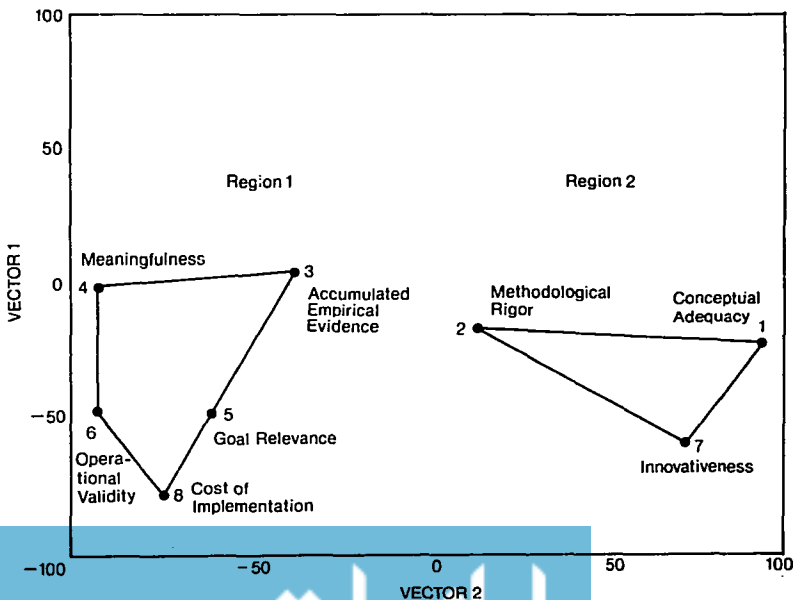


Figure 2. SSA plot for coder No. 1 data

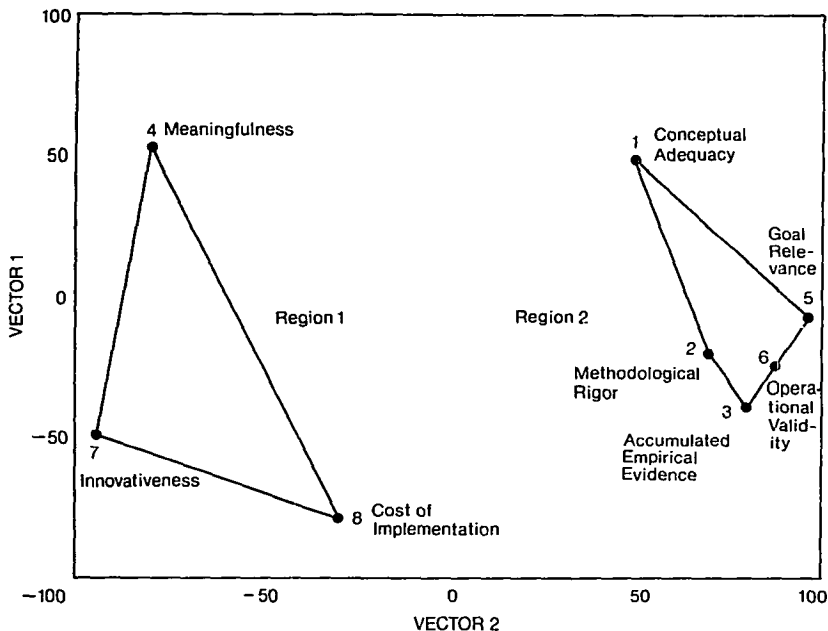


Figure 3. SSA plot for coder No. 2 data

rigor, coupled with the usefulness criteria of innovativeness. This region suggests that the field possesses innovative rigorous research findings.

Analysis of Figure 2

Figure 2 represents the SSA plot of correlations matrix generated from data of Coder No. 1. The coefficient of alienation for two-, three- and four-dimensional analysis for Figure 2 were 0.111, 0.002 and 0.001, and Kruskal's stress indicators were 0.091, 0.001 and 0.0007 respectively. The criteria are grouped into two clear regions. This grouping of criteria is similar to that in Figure 1. Although the relative placement of variables is slightly different (goal relevance and cost of implementation have moved further away from Region 2 and meaningfulness variable has spatially moved towards Region 2), the interpretation of regions largely remains the same as for Figure 1. However, both Figures 1 and 2 are somewhat different from the pattern in Figure 3.

Analysis of Figure 3

Figure 3 represents an SSA plot of correlations matrix generated from data of Coder No. 2. The coefficient of alienation for two-, three- and four-dimensional SSA for Figure 3 were 0.0619, 0.0013 and 0.0012, respectively. Kruskal's stress indicators were 0.0444, 0.0008 and 0.0007 respectively, indicating a good fit. Variables grouped on the left side of the figure labeled 'Region 1', represent research which exhibits the criteria of: (a) meaningfulness, (b) innovativeness and (c) cost of implementation. This region suggests research programs that provide usable research by examining novel and complex business situations with the objective of providing innovative and non-obvious, but feasible, solutions to general management problems (Chandler, 1962; Bower, 1970).

Variables grouped on the right side of the figure, labeled 'Region 2', represent research which combines rigor criteria with usefulness

criteria. The most closely related criteria in this region are: (a) methodological rigor, (b) accumulated empirical evidence, (c) operational validity and (d) goal relevance, with (e) conceptual adequacy as a distantly related variable. This region suggests that the field possesses methodologically rigorous research which is relevant to organizational goals and can be operationalized to support practical strategic decision-making.

The main differences between the two patterns (Figures 1 and 2 versus Figure 3) are in their delineation of the two regions. Region 2 in Figures 1 and 2 represents rigorous and *innovative* research, not necessarily research which has *goal relevance* and *operational validity* indicated by Figure 3. Region 1 in Figures 1 and 2 represents research with four usefulness criteria and the rigor criterion of empirical evidence, whereas the same region in Figure 3 has only usefulness criteria (meaningfulness, innovativeness and cost of implementation). These differences are attributable to differences in coding. However, the larger picture of the field of strategic management is supported by all three data sets. There are basically two types of research programs that have been undertaken in the field. One type emphasizes usefulness of research results and their grounding in empirical evidence. The second type emphasizes conceptual and methodological rigor coupled with innovativeness, goal relevance or operational validity.

Classification of research programs

In a further analysis of data, research programs were classified into the two regions shown in Figure 1. The following procedure was used for classification. Region 1 was represented by variables 3, 4, 5, 6 and 8, and Region 2 was represented by variables 1, 2 and 7.

Each program was assigned two total scores (sums of the scores on the variables in each region). These regional totals were converted into regional ratios by dividing them by the highest possible score for that region, i.e. 5 for Region 1, and 3 for Region 2. The programs were assigned to that region for which their regional ratio was higher. If the regional ratio for *both* regions was less than 0.5 that program was classified as 'unclear'.

This procedure allowed us to classify all research programs uniquely. Ten programs were classified into Region 1, seven into Region 2, and six were unclear. Research programs representing Region 1 included: PIMS-related research, BCG experience curves, industry structure modeling, competitive strategy and strategic marketing, strategy and structure studies, SWOT (Harvard cases), managerial action, political process models, formal planning systems, and international strategic management. Research programs representing Region 2 included: analytical modeling, alternative policy frameworks, dialectical analysis, organizational learning and strategy, transactions cost economics, environmental analysis, and mergers and acquisitions.

Limitations of the study

This study was an exploratory attempt at assessing research in strategic management. Several limitations of the study need to be acknowledged. Despite our best efforts to be comprehensive, research programs included in this study may not have covered every study done in the field of strategic management. This is specially true given the rapidly emerging nature of the field and its unclear and changing boundaries. Some independent studies which do not fall into any of the listed research programs were not included here. Within each program of research only a few studies have been used as representative examples. To reach more generalized conclusions further assessments of research are needed. Future assessments should focus on other units of analysis such as conceptual models, theories and empirical studies in the field, textbooks in the field, dissertations dealing with strategy issues, and key debates in the field.

Another limitation of the study is the nature of coding, which (a) used dichotomous categories for coding each criterion, and (b) was done by two independent coders. A multipoint scale for coding could be developed in future studies, although it would be more difficult to use than a dichotomous scale. If resources permit, a panel of expert judges could be used to do the coding instead of two independent coders. However, the practicality of such a procedure is limited because of the time required to acquaint oneself with each research program and then code it, and also

CONCLUSIONS

This paper has examined some important characteristics of research in strategic management. Data suggest that studies in the field have a dual orientation toward rigor and usefulness. Two implications of this study for future research may be noted. First, results of rigorous research studies can be made more useful if researchers extend them and link them to variables that have clear action relevance and are related to specific organizational goals, such as profitability, steady employment levels, quality of work life, growth in market share, etc. Such extensions may be attempted by the original researchers themselves, or by consultants who specialize in translating research findings into practical procedures. In either case, explicit attempts need to be made to apply research findings to practical problems. These attempts represent a different type of intellectual and social practice which is not common today. It could be facilitated if:

- (a) investigators developed their research designs in terms of variables that are easily relateable to organizational goals;
- (b) investigators tested their research results and their applicability in specific organizational settings—this would require identification of those organizational contingencies that act as barriers to research utilization (Shrivastava and Mitroff, 1984);
- (c) the institutional reward structures under which rigorous research is conducted actively encouraged researchers to apply their results to practical problems.

The field also possesses a large amount of useful research which is meaningful to decision-makers, operationalizable, relevant to organizational goals, and is feasible in terms of cost and time. These research studies could serve as a rich source for generating hypotheses which may then be tested using discipline grounded conceptual frameworks and rigorous research methods. Useful scientific theories could thus be generated and validated by testing propositions found to be

- (a) Adopt innovative methodologies that allow them to incorporate practical insights into their studies. Since many of these insights are qualitative and subjective, appropriate rigorous qualitative methods should be encouraged in this field (Burgelman, 1985).
- (b) Test the conceptual and theoretical adequacy of action norms. Many strategic management practices and norms are grounded in past successes, outdated theories or unquestioned ideologies (Starbuck, 1982). These practices need to be re-examined in light of emerging findings in the field.
- (c) Generate more empirical evidence documenting the contextual conditions within which research results become usable. This will allow researchers to transfer practical insights from one situation to another.

In terms of substantive areas of research that offer opportunities for future work two points may be noted. Firstly, the field has examined a very wide array of topics in the past 20 years. This gives the field its broad and fragmentary character. On the other hand there are many important topics identified as early as 1977 (Schendel and Hofer, 1979), that have received scant research attention. For example, strategic issues pertaining to: the role of the Board of Directors, entrepreneurship and new ventures, not-for-profit organizations, public policy/strategic management interface, goal formulation, strategic control, research methods, and critical assessment of research studies need further work.

There are other topics that can be conveniently added to this list, and offer a real opportunity for expanding the scope of the field itself. Since strategic management is an evolving discipline which is borrowing frameworks and models from economics, industrial engineering, organization theory, sociology and psychology, it has somewhat flexible boundaries. Bringing new research issues and topics on to the research agenda of the field can serve to expand its scope and include in its purview the myriads of environmental and organizational forces that shape firm strategies. However, we do not encourage a promiscuous expansion of terrain. Before researchers embark

upon extensions and new topics it is necessary to take stock and self-reflectively evaluate progress in the field. The lack of critical assessments of strategy research is a conspicuous barrier to more rigorous and useful research.

The field of strategic management seems to be well poised at a potentially high payoff stage because it has accumulated two unique assets. First, it has a vast body of practically useful insights waiting to be corroborated by rigorous research; and second, it has a set of rigorous research programs with operational usefulness which lend credibility to the field. The interactive dependence between rigorous research, its critical assessment, and practical application has characterized progress in other sciences (Poper, 1963). The challenge facing strategy researchers is to develop rational critiques of their field which open up ways for combining rigorous and useful research.

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