

Researching Strategic Management Processes

KW Platts, JF Mills, AH Richards

Cambridge University Engineering Department, UK

MCS Bourne, AD Neely

Cranfield University School of Management, UK

Abstract

It is widely accepted that strategic management research is divided into 'content' and 'process'. Of these general areas, there is much more activity in 'content' than in 'process'. 'Process' research does not lend itself easily to survey methodologies, and this may make researchers reluctant to engage in it. This paper suggests that part of the problem is attempting to carry out research within the discipline of 'science', and that taking an 'engineering' approach may be more fruitful. It sets out a framework for understanding strategic management processes, and presents a methodology which has been successfully applied in researching various strategic processes.

Introduction

During the 1980's and early 90's, research in the strategy area was criticised for its narrow perspectives and lack of industrial relevance. Specific criticisms included a low level of empirical work and theory testing (Camerer,1985; Hill,1987; Swamidass & Newell,1987; Adam and Swamidass,1989; Ward, Keong Leong, & Snyder, 1990) and a lack of relevance to the 'real world' (Susman & Evered, 1978; Mcguire, 1986.)

In order to understand these criticisms we need to explore the types of question that industrial managers ask, and to explore the relationships between these questions and the types of knowledge that strategy research, and to a great extent much of management research, sought to produce.

Industrial managers are faced continually with the need to answer complex questions in managing their respective businesses. Some of these questions can be categorised as 'what or why?' questions. For example, "What are the relationships among demand variability, resource utilisation and throughput times?" However this is only one type of question managers ask. Another large category comprises "how do we?" questions. For example, "How do we design and develop new products? How do we develop appropriate manufacturing strategies? In order to answer these two types of question, managers need two types of knowledge: content knowledge, to address 'what?' and 'why?' questions; and process knowledge to address 'how to?' questions.

What types of knowledge has research in the field of management been directed towards?

Traditionally, much of the research into the management of manufacturing has been done within a scientific paradigm. When addressed from the viewpoint of a scientific discipline, the 'what?' and 'why?' questions (content) predominate. Science is based upon the observation of phenomena, their explanation and ultimately prediction. Scientific method involves experimentation and control of

variables with a key test of repeatability and replication of results. Scientifically biased management research has been aimed at discovering relationships and explaining behaviour.

Research into the management of manufacturing within an engineering paradigm has been less evident. When addressed from the viewpoint of an engineering discipline, the 'how to?' questions predominate. Engineering is concerned with using scientific knowledge, and applying it to the problem of designing and building artefacts or systems.¹ Engineering involves purposeful creation and change, with the key test being, 'does the creation meet the desired purpose in the real world?' Process (engineering) knowledge, addressing the question of 'how to' design and develop changes in organisations is a rich area for research.

These two perspectives on the discipline of management, while fundamentally different in concept, are nonetheless intimately related. Management is, by definition, an applied subject. For it to have a basis which is more than 'custom and practice' it needs scientific knowledge. For it to be useful in the real world, there needs to be engineering knowledge

The recognition of the relatively low level of process based research led us to concentrate on these aspects over the last decade. We began by researching the process of developing manufacturing strategy and then designing performance measurement systems. Colleagues at Cambridge have applied similar research processes to developing new products, developing technology strategy, making make vs buy decisions, and developing international manufacturing operations. The processes resulting from these applications of the process research approach can be seen by reference to the following: Platts, K W and M J Gregory, (1988); Mills, J F, Platts, K W, Neely, A D, Richards H, Gregory, M and M C S Bourne, (1996); Neely, A D, Mills, J F, Gregory, M J, Richards, A H, Platts, K W and M C S Bourne(1996); Probert, D, (1997);Gardiner, G S, Ridgman, T and Gilmour C, (1998); Grant, E B, (1999); Minshall, T H W, (1999); Centre for Technology Management (2000); Pongpanich, C, (2000);

The aim of this paper is not to describe the outcome of the research but to discuss the research process, showing the difficulties that are encountered and presenting research frameworks that can be used to build rigour into this type of research.

Fundamentals of Process Research

It is necessary firstly to state our epistemological stance. We are aiming to create knowledge within an engineering rather than a scientific paradigm. This immediately changes the main criterion by which such knowledge should be assessed, from 'is it true?' to 'does it work?'

The next point to stress is that this type of research sets out to develop and test processes, not the outcomes, ie 'did the process enable the formulation of a manufacturing strategy?' rather than 'did the company develop a strategy which enabled it to obtain improvements in performance?' The reason for taking this approach is to remove as many extraneous effects as possible. If efforts are made to relate the application of the process and company performance following its application, then many external factors need to be controlled or allowed for.

A third factor is the approach to carrying out the testing. Testing in this sense does not have the same type of rigour as testing in the true scientific sense, eg. there is no control, the "tester" is not independent of the test, the test is not repeatable. Operational managers require practical results, they are more interested in development and improvement than in the more static testing required by

¹ Occasionally 'craft' knowledge may also be used. 'Craft' knowledge also answers 'how to?' questions but is based on accumulated experience, on heuristics and experimentation rather than on the application of scientific principles. Further discussion is outside the scope of this paper.

the principles of physical science. Thus the testing becomes as much a refining and developing activity as a verification activity. This clearly illustrates the gap which still exists between the engineering approach of this methodology and the rigorous scientific paradigm. The scientist will clearly feel uncomfortable with the approach, being nagged by the recurring question: "Without controlled testing how can one have any confidence that the process is valid?"

The implication of the above is that criteria relating directly to the process are required. The following criteria were adopted (Platts,1993):

- Feasibility - can the processes be followed?
- Useability - are the procedures, tools and techniques in the process easy to use?
- Utility - is the process worth following?

Frameworks for Process Research

There are a number of definitions of process (Van de Ven,1992). Our working definition of process is 'an intervention to achieve a particular required outcome'. A process is more than merely a procedure. It encompasses the facilitation and the management of the intervention, along with the interaction the intervention has with the organisation. There are four aspects to process (Platts, 1994):

Procedure: the steps to go through, the tools and techniques

Participation: who to involve

Project management: how to control and progress the process

Point of Entry: how to get understanding, involvement and commitment of the actors

A process is undertaken within the context of the organisations' existing internal and external environments and produces outputs, (content), which are both tangible and intangible. Pettigrew, Whipp and Rosenfield (1989) developed a framework for strategic change, embodying context, process and content, and we adopted this to provide a framework for our research data.

Our research revolved around action research oriented case studies, where we worked within case companies to develop and test our processes. We wanted to ensure that the processes we developed were as far as possible not person dependent and so we used a variety of researchers. This required us to pay great attention to ensuring data consistency, which we achieved by overlaying Yin's (1994) model of case study research on the above framework. This enabled us to design common research instruments, within a research design which linked to meta level frameworks. (see figure 1)

The Stages of Process Research

The Process research methodology that we have developed comprises the following 4 stages: creating the process, testing the process with initial researcher's direct involvement, testing the process with initial researcher's indirect involvement, testing the process with other researchers.

A process was originally created from literature review, and interviews with consultants and managers in operating companies. Literature review ensured that the process was adequately grounded in existing theory, while interviews with consultants and managers provided practical input and helped to capture some of the 'craft' skills involved. From these inputs a process was synthesized and written up, usually in the form of a workbook, which would be usable by researchers and practising managers in the subsequent research.

The second stage was the initial testing of the process in a number of companies both to refine and further develop it and to test its feasibility, usability and utility. The research mode adopted was that of action research (Rapaport, 1970) where the researcher not only participated in the activity but sought to direct and influence the way in which the activity was conducted. This stage of the research set out to actively apply the process which had been developed in stage one both to test it, and to develop and refine it in practical situations. As this involved the testing of an approach which prescribed a process different to that which the organisation would normally use, action research was clearly an appropriate method. The role adopted by the researcher was not however that of a consultant who independently assessed the organisation under study, making recommendations based on his observations, but was that of a 'facilitator' who catalysed the process within the subject company. Much attention was paid to ensuring that the personnel within the company participated fully in the process and that any decisions made were essentially theirs. The researcher's primary role was to guide and structure the process; he did not try to impose his views over those of the company.

This stage enabled the testing and refining of the process, but it also raised the question of the extent to which the 'learning' of the facilitators actually affected the process. Were the identified improvements really improvements? Or were they the result of more experienced facilitation by the Cambridge team?

In order to explore this effect the third stage of the research was designed. 'Clubs' of local companies were recruited to apply the process independently of the Cambridge researchers and to report back. The in-company facilitators were given a one-day training course in the use of the process and supplied with comprehensive documentation in the form of a workbook and background material. They then facilitated the process in their own organisations. Cambridge researchers were available for contact by phone to assist in any problems. Although this provided useful results for the companies, and showed that the process could be conducted independently of the original researchers the trial had limited success in terms of providing rich research data. The company facilitators, being motivated by results rather than research, did not exhaustively record process variables, problems, and contextual data. In retrospect, this was not surprising as they were managers not trained researchers.

It was therefore decided to conduct a fourth and final stage using facilitators who would collect reliable data from each application. This implied the use of reliable observers as facilitators and a clearly defined data structure. To achieve this, a network of collaborating academics from universities around the U.K. was created. Members of the network were trained by the Cambridge team, and then pooled research data from multiple applications of the process.

Research Detail

This section describes in more detail, the research data that was collected within the design outlined above.

Context Data

Pettigrew's framework divides context into external (economic, political, business and social environments) and internal factors. For process research of this kind, the internal contextual data is likely to have the most impact and therefore the majority of the research was focused on internal data. Data was collected by multiple methods, primarily semi-structured interview and observation. Detail was as follows:

Antecedent conditions

- What did the company look like? What was its history? What specific past events had had an impact on the organisation and its way of thinking (e.g. loss of major customer, change of leader,

industrial dispute, change of ownership etc.)? What past experience had the company had in working through formal processes (e.g. in developing strategy)? What did they involve and how successful were they?

Resources

- How profitable was the business? Did it have access to funds for future development? Did the management team have sufficient time to devote to this project?

Capabilities

- Did the management team have the capability to undertake the processes? What was the level of education, training and experience of the participants?

Structure

- What was the internal structure of the organisation in terms of formal reporting relationships? How well in practice did this structure represent how the organisation actually worked?

Leadership

- How did the team interact and work with each other? How did they explain specific incidents? What was the 'pecking order'?

Dominant frames of thought

- What were the values and assumptions of the individual (or group) who controlled the organisation? How accepted were these throughout the organisation?

Culture

- How did the organisations' cultures impact on the implementation of the process? How did the members of the organisation relate to the external facilitator? How did the culture help or inhibit participation in the process, and the achievement of consensus?

Politics

- What was the distribution of power in this organisation? Was the management a cohesive group or were there overt or covert power struggles going on?

Process data

A generic questionnaire was used at the end of each meeting to collect data from company participants. In addition, the facilitator completed a pro-forma record of the meeting. The following data was captured:

Procedure: the steps to go through, the tools and techniques.

- How were the tools used?
- What modifications were made to the procedure in application?

Feasibility- could the processes, as described in the workbooks, be followed?

- Did the meetings follow the specified procedure, if not how did they differ?

Useability- were the tools used in the workbooks easy to use?

- Was the process easy to follow, if not, what difficulties were encountered, and what did they result from?

Utility- is the process worth following?

- Did the process produce a "good" output?
- Were the results of the process worth the time put into it?

Participation: who was involved

- Breadth of participation: who attended the meetings? And how long did they stay?

- Opportunity for input: did everyone get a chance to contribute? Was everyone's contribution properly considered?
- Consensus and ownership: what did the participants think of the quality of the meeting results? Did their understanding improve through the process? Did they agree with the conclusions of the meeting?

Project management: how to control and progress the process

- Facilitation: what were the backgrounds, interests and positions of the facilitator(s)? How effective were they in running the meetings? How much did they direct the outcomes of the meetings?
- Timescale: what initial timescale was set for the project? What was the actual time scale achieved for the project?
- Priority: how often were meetings cancelled or rearranged?

Point of entry²: how to get understanding, involvement and commitment of the actors

- How was the project sold to the company? To whom? What main features of the project convinced the organisation to embark on it?
- Was there one prime decision-maker or general enthusiasm for the project?
- Was there an internal sponsor for the project? What was their role?

Content data

To a large extent, a process involving formal tools is self documenting. The worksheets and strategy maps collected data as they were completed during the process. But it was also necessary to ascertain both tangible and intangible results of the process.

Tangible: what plans resulted, what actions changed either directly or indirectly as a result of the process?

Intangible: what individual and group learning occurred? This was gained both from direct observation and from comments made about how the process has given new insight or understanding.

² This data was collected from direct observation, copies of correspondence and diary notes of the 'selling' process

Discussion

This paper has briefly described a research approach to enable an understanding of processes in manufacturing management. Applications of the process result both in change activities within the participant companies and also an increasing knowledge of the particular processes being used and of processes in general.

Because of page limitations, it has not been possible to present all the research instruments and show how these are linked to provide the data outlined above. The full research framework, with cross referencing and data collection instruments runs to 102 A4 pages. The research framework appears to be comprehensive and has provided a structured way of collecting relevant data with which to investigate process. This research approach has been widely adopted within the Institute for Manufacturing in Cambridge, U.K. and has been used by at least 8 other U.K universities. It is hoped that this framework will become widely adopted by other researchers, for then there is the potential to pool data and hence look for more generalisable results. We would strongly encourage researchers, who are worried about the relevance of what they are doing, possibly seeing their research problems becoming more esoteric and less relevant to the world of the practising manager, to spend a period engaged in process research.

However they may feel worried about conducting this style of research as it has often been criticised as being little more than consultancy for the companies involved. The significant difference between this research and consultancy is the attention paid to collecting data, time spent reflecting on the activity, and efforts made to look at the relationships among context, process and content. This can lead to identifying generic aspects of process and of processes tailored to specific interventions.

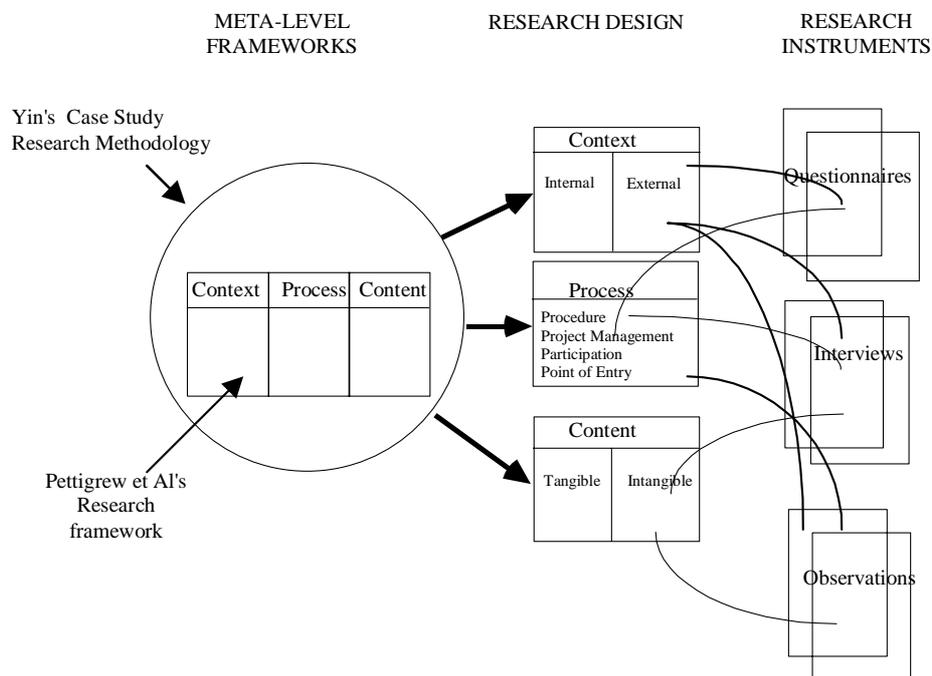


Fig 1 The Research Structure

References

- ADAM E.E. & SWAMIDASS P.M. (1989) "Assessing Operations Management from a Strategic Perspective", Journal of Management, Vol. 15 No. 2.
- CAMERER C. (1985) "Redirecting Research in Business Policy and Strategy", Strategic Management Journal, Vol. 6.
- CENTRE FOR TECHNOLOGY MANAGEMENT,(2000) Technology Management Assessment Procedure (TMAP) , Institution of Electrical Engineers, Stevenage
- GARDINER, G S, RIDGMAN, T AND GILMOUR C, (1998) "Speeding new products to market – a practical workbook for achieving more successful new product development and introduction", Institute for Manufacturing, University of Cambridge, Cambridge
- GRANT, E B, (1999) "Fitness for Transfer – assessing manufacturing technologies for relocation", Institute for Manufacturing, University of Cambridge, Cambridge
- HILL T.J. (1987) "Teaching & Research Directions in Production/Operations Management: The Manufacturing Sector", Int. Journal of Operations & Production Management, Vol. 7 No. 4.
- MCGUIRE J.B. (1986) "Management and Research Methodology", Journal of Management, Vol. 12 No. 1.
- MILLS, J F, PLATTS, K W, NEELY, A D, RICHARDS H, GREGORY, M AND M C S BOURNE, (1996) "Creating a Winning Business Formula", Findlay Publications, Kent
- MINSHALL, T H W, (1999) "Manufacturing Mobility – a strategic guide to transferring manufacturing mobility", Institute for Manufacturing, University of Cambridge, Cambridge
- NEELY, A D, MILLS, J F, GREGORY, M J, RICHARDS, A H, PLATTS, K W AND M C S BOURNE, (1996) "Getting the Measure of your Business", Findlay Publications, Kent
- PETTIGREW A., WHIPP R. and ROSENFELD R. (1989), "Competitiveness and the management of strategic change processes". In "The competitiveness of European Industry: country policies and company strategies" Francis A., Tharakan P. K. M. (Eds.), Routledge,
- PLATTS, K W AND M J GREGORY, (1988) "Competitive Manufacturing", IFS, Bedford,
- PLATTS K. W. (1993) "A Process Approach to Researching Manufacturing Strategy", Journal of Operations and Production Management, Vol. 13, 8, 4-17,
- PLATTS K. W.(1994), "Characteristics of methodologies for manufacturing strategy formulation", Computer Integrated Manufacturing Systems, 7,(2), 93-99,
- PONGPANICH, C, (2000) "Manufacturing Location Decisions – choosing the right location for international manufacturing facilities", Institute for Manufacturing, University of Cambridge, Cambridge
- PROBERT, D, (1997) "Developing a make or buy strategy for manufacturing businesses", Institution of Electrical Engineers, Stevenage
- RAPOPORT R.N. (1970) 'Three Dilemmas in Action Research', *Human Relations*, Vol. 23, No. 6, pp. 499-513.
- SUSMAN G.I. & EVERED R.D. (1978) "An Assessment of the Scientific Merits of Action Research", Administrative Science Quarterly, Vol. 23, December 1978.
- SWAMIDASS P.M. & NEWELL W.T. (1987) " Manufacturing Strategy, Environmental Uncertainty and Performance: A Path Analytic Model", Management Science, April 1987.

VAN DER VEN A. H. (1992), "Suggestions for studying strategy process: a research note" Strategic Management Journal, Vol. 13, 169-188,

WARD P.T., KEONG LEONG G. & SNYDER D.L. (1990) "Manufacturing Strategy : An Overview of Current Process and Content Models", in Manufacturing Strategy The Research Agenda for the Next Decade, ed J.E.Ettlie, M.C.Burnstein & A. Fiengenbaum, Kluwer Academic, Norwell, Mass.

YIN R.K., (1994) Case Study Research, Design and Methods, 2nd Edition, Sage

The support of EPSRC, U.K. for the research on which this article is based is gratefully acknowledged.