Process of Strategic Operations Planning improved by Action Research

I Sadler[1]

[1] School of Management, Victoria University of T., Australia,
E-mail:ian.sadler@vu.edu.au;

ABSTRACT: *Strategic Operations Planning has been well defined but rarely carried out in practise. A suitable planning process for busy, operationally-focused managers is considered likely to improve the extent of implementation.. A process should incorporate logistics of the whole supply chain as well as internal operations. The present process uses action research, in which an external facilitator stimulates and supports a team of manufacturing and related managers to formulate strategic plans. Four process applications in the Australian meat industry enabled the team of managers to produce strategic plans and provided rich research data.*

Keywords : action research, planning process, operations, logistics.

INTRODUCTION AND REVIEW

Work by numerous researchers (Hayes and Wheelwright 1984; Hill 1989) has closely defined the content of strategic operations planning but such functional planning has not often been carried out. An eminent researcher (Skinner 1992) stated that formulation of operations strategy by firms is limited. This low rate of implementation is probably caused by limited research into a suitable process to support busy managers, unaccustomed to strategic thinking. Research by Platts and Gregory (1990) used action research in strategic operations planning in their Manufacturing Audit Approach (MAA). The present process is a development and extension of the MAA. It uses action research (AR) in which an external facilitator stimulates and supports a team of managers from a manufacturing company to formulate strategic plans**.** It is argued that a suitable process must incorporate logistics of the whole supply chain as well as internal operations because responsibilities of the operations function extend into both supply of materials and distribution of finished products.

There is no generally agreed process to support the derivation of competitive criteria, current operations status and policy decision in each area required to formulating an operations strategy (Voss 1992). Such a process would enable a team of managers to concentrate on producing a shared vision of the direction in which they want to take manufacturing operations and the actions required to get there.

Present knowledge of strategic operations planning is based on Hill's (1989) definition of the tasks needed to form operations strategy by changing manufacturing policies in the areas of process choice and infrastructure choice but only provide limited support for the team of managers in the strategy formulation process. Fine and Hax (1985) provide a five-part structure that covers all the tasks required by operations management to develop operations strategy but their structure gives limited support for the tasks required. Menda and Dilts (1997) worked in a pharmaceutical company with a group of managers to link multi-functional viewpoints. They provided considerable support to the operations managers and exposed significantly different views among the managers but their empirical work did not follow all the steps required to form an effective operations strategy.

Platts and Gregory (1990) developed the Manufacturing Audit Approach (MAA) to support the formulation of operations strategy. The MAA provides a set of worksheets which are progressively completed during a workshop. Platts and Gregory use an action research methodology which is highly likely to improve management processes. '*In action research, the researcher not only participates in the activity but seeks to direct and influence the way in which the activity is conducted*' (Platts 1993). Platts' criteria to assess whether a process provides a practical, procedural set of steps are feasibility, usability and utility. Further work by Platts et al. (1998) has shown that effective processes to change manufacturing systems must address four requirements: procedure, participation , project management and point of entry.

The best methods available for strategy process research are reviewed. Such research cannot be carried out at arm's length from the firm because the fundamental questions being addressed, such as the relationship between its decision processes and its competitive position, require studies from within. Chakravarthy and Doz state (1992): '*Strategy process research needs a range of more intrusive methods including questionnaire surveys,*

field studies, and action research'. Action research (AR) is a suitable research method because it allows the researcher close contact with the team carrying out strategy formulation. Foster (1972) defines AR as: '*a type of applied social research differing from other varieties in the immediacy of the researcher's involvement in the action process and the intention of the parties, although with different roles, to be involved in a change process of the system itself. It aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable framework.'* Susman and Evered (1978) state that: '*Action research can be viewed as a cyclical process with five phases: diagnosing, action planning, action taking, evaluating, and specifying learning'*. Thus AR appears to provide the best method to research strategic operations planning although its use in such situations has been very limited.

The research situation requires collaboration between the researcher and a team of company managers to formulate an operations strategy. AR allows the researcher to observe at first hand interaction between managers during meetings and to get to know them over an extended period. It is difficult to envisage any other methodology that would provide such a rich picture of the strategy formulation process. Other methods, such as interviewing managers after the event or getting them to speak about the process at a conference, fall down on this criterion. AR is supported because it gives easier access to firms. My experience shows that businesses are frequently keen to use action research so that access to the formulation process is not difficult. The price paid for action research is the investment of time and energy by the researcher. He/she has a lot of work to do, much of it in support of the company's operations plan rather than directly on his/her own research. Hence, for a given amount of research effort, fewer field applications can be carried out.

Having considered action research in general, due emphasis must be given to Platts' (1990, 1993) use of AR in the MAA: '(In testing the audit approach) *researchers set out actively to apply the process which had been developed 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*.' Platts and Gregory were successful in their research (1990) and their work supports the methods suggested by other relevant researchers (Eden and Huxham, 1988). Hence, action research is concluded to be the best method available to assist managers to formulate operations and logistics strategy.

Existing planning processes provide considerable support for the formulation of strategic operations and logistics plans. Four types of support for manufacturing strategy formulation are defined as follows:

- The provision of help in carrying out each task, such as defining the task and providing aids, such as worksheets, to guide its completion (Platts 1993, p. 8),
- External facilitation provided by researchers being present during formulation (Platts and Gregory 1990),
- Tailoring the process to the company by researchers amend the process to suit closely its needs, and
- Group consensus obtained when a group operates democratically to formulate strategy.

The present investigation seeks to improve the steps which the planning team follows, the involvement of customers in the process and the extent to which the process is tailored to suit particular enterprises. The process developed in the present work is known as Strategic Operations and Logistics Planning (SOLP) and is also called the 'Game Plan', a name which appeals to practical managers. The research is relevant to manufacturing industry because it provides a planning process for an industry which previously lacked operations and logistics planning. It provides a tailored planning process, which enables meatworks operations managers and managers of other functions to apply their own experience to derive operations and logistics strategies. The process is expected to increase the competitiveness of certain companies in the Australian meat processing industry, particularly in the processing of beef, lamb and pork. The process also aims to assist managers to improve their strategic decision-making ability. The next section describes the use of Action Research to investigate whether strategic operations and logistics planning (SOLP), which comprises facilitation of team meetings and structured interviews with team members, provides an improved process.

METHOD AND APPLICATION

This section describes the method used to test a process of Strategic Operations and Logistics Planning and the way in which SOLP was applied in three Australian meat processing plants. The approach used is action research (Foster 1972) in which the researcher engages closely with company managers over a period of time to assist them to derive strategic action plans for a number of product families. Each application of SOLP takes about three months to carry out. Managers' understanding of strategic operations and reactions to the process are observed during meetings and separate interviews. The extended contact with team members, and repeated use of the process, provides longitudinal observation of the enterprise and its managers.

Action research requires the researcher to be involved in the strategy formulation as a facilitator. This meant that he is part of the change process and assists in achieving the aims of the team members, although his role is different to theirs. This collaboration with team members aims to assist in resolving a company problem, the lack of a strategic operations and logistics plan. AR uses a process of SOLP in which company managers define the direction and strategic options required by their operations and logistics functions. The team of managers meet together on a regular basis to construct the strategic plan. The researcher is present at each meeting but the managers retain full responsibility for the resultant action plans. He is able to observe interaction between managers during the meetings and his presence is natural, not forced, because of his role as a facilitator.

Action research is preferred to other methods because it allows close contact with strategy formulation in a natural way. It allows the researcher to get to know all the players over an extended period. Other methodologies would not provide such a rich picture of the strategy formulation process. Interviewing managers after the event or getting them to speak about the process at a conference, fall down on this criterion. AR requires a large investment of time by the researcher but this investment is considered worthwhile to obtain access to active strategy formulation. It allowed the researcher to test whether a proposition is supported in an industrial situation and then to investigate whether replication of the supported proposition can be achieved in further situations. Within the methodology of AR, case research and structured interviews were chosen as the two methods of data collection. The case study is defined as an empirical enquiry which investigates a current phenomenon within its actual context. It uses theoretical propositions to guide data collection and analysis. McCutcheon and Meredith (1993) recommend greater use of case study research to close the *gap "between operations management research's prescriptive advice and workable answers for managers*".

Each application of Strategic Operations and Logistics Planning is treated as a case study. Information gathered during the process and from interviews is used to investigate theoretical propositions, which in turn support or deny the research hypotheses. The structured interviews with each manager in the team, see Table 1, form the second method of data collection. The process was carried out four times in three Victorian meatworks. It was carried out in two beef abattoirs (referred to as 'Flock' and 'Wilson', names disguised for confidentiality). The SOLP process was then extended to incorporate all partners in the integrated supply chain (Sadler, 1999) and applied twice in a Victorian smallgoods company, referred to as 'Bradley'.

The ability of the SOLP process to improve the strategic actions of the managers involved was measured by asking their views on a number of decision matters which would indicate their performance. Feedback on managers' views through structured interviews, was the main method chosen. Each team member was interviewed by the researcher twice, before and after each SOLP process. In addition, two senior managers or directors at each meatworks were interviewed at least six months after the process was completed. These interviews used a set of questions framed to obtain their views on the research propositions (refer Table 1 below). The advantage of such interviews lies in the confidential, one-on-one contact which permitted the respondent to reflect on his/her actions. A further advantage was the multiple sources of data for each SOLP process. Obtaining data by interviews relied on judgment and openness on the part of the respondent and this is believed to have been achieved in this research. The climate in the interviews was supportive and relaxed.

PROCESS OBSERVATIONS AND INTERVIEWS

Observations of the process were made by the researcher/ facilitator during all meetings of each SOLP process application. These observations point to the total support which the process provides to the team (Sadler 1999). Structured interviews were also conducted by the researcher with each team members at the start and end of each process (Sadler, 1999).

A visit was made to each meatworks over six months after the SOLP process finished to pose a number of deeper questions to two senior managers at each to determine their attitude to the effect of the process on their company and to throw light on the research hypothesis. Table 1 documents selected responses to these questions by:

- the Managing Director and the Financial Controller at Flock Meatworks,
- the Marketing and Operations Directors at Wilson Meatworks, and
- the Operations and Organisation Development Managers at Bradley Smallgoods company

All six responses by managers and directors show a positive appreciation of the effect of the SOLP process on their companies. The responses at Flock show a high regard for the improved motivation of managers and outcomes achieved through the process and the Wilson responses are appreciative of improved motivation of team members, although the outcomes were narrower at Flock. The Bradley responses demonstrate that the managers were very pleased with the process because it helped them to reduce barriers between operations and

marketing departments and to revitalise a product family so that turnover increased by $A 4 million. Analysis of the meaning of these outcomes and comparison with outcomes at the other meatworks is given below. In the next section, the amount of support for research propositions provided by the process applications and the interviews in all three meatworks are discussed.

'Question'	Flock		Wilson		Bradley	
	MD	**FC**	**SMD**	**OD**	**OM**	**ODM**
Outcomes						
a. $ spent	$M 1.5	-	-	-	$M0.4	NoRes.
b. Processes changed	Yes	-	Yes	-	Yes	Yes
c. Team Relations	NotKnow	Yes	-	-	Yes	Poss
d. Member Actions	-	Yes	Yes	Yes	-	Poss
Management targets gained through Game Plan?	Yes	No	Yes	-	Yes	Yes
Is Facilitator important?	V.Yes	V.Yes	V.Yes	Yes	V.Yes	V.Yes
Strategic initiatives since?	Yes	Yes	-	Yes	Yes	No
Did Game Plan improve Operations & Logistics performance?	Do Not Know	Yes	Yes	Yes	Yes	Yes
Team get longer view?	Yes	Yes	Partly	Yes	Partly	Partly
Did strategies affect performance?	Partly	Yes	Poss	-	Yes	Yes
Legend Poss Possible (midway between Yes and No) V. Yes Very important						

Table 1 Comparison between 'later' question responses at each meatworks

SUPPORT PROVIDED BY THE PROCESS

An important aim of the SOLP process is to provide greater support for team members to formulate strategies. This section details four improvements in support: external facilitation, group consensus, tailoring the process, and development of Action Plans; and it discusses four propositions which support the research hypothesis.

External facilitation was provided for all processes following the example of Platts and Gregory (1990), and extending it to a series of workshops over a period of time. The researcher was present at all meetings to assist team members in following the SOLP process. The planning team benefits by:

- being taught the process, step by step,
- being able to concentrate on direction and content, rather than process,
- having more autonomy to examine novel solutions because the facilitator has no internal power,
- having their concerns met by answers and examples, and
- being given motivation and stronger direction until their own motivation and process knowledge are built up.

It is not possible to compare the present research with SOLP processes without external facilitation but the esteem in which the facilitator was held was evident, particularly at Bradley meatworks. The essential nature of facilitation was observed at all three meatworks. Neither Flock nor Wilson would have considered carrying out operations planning without assistance. Facilitation was also very important at Bradley, where the team is currently undertaking its fourth application of SOLP, and had previously spent over a million dollars on consulting help without key performance indicators improving (Operations Manager, 1998). Hence external facilitation is considered to be an essential and successful part of the SOLP process.

Providing a climate in which *group consensus* was likely to be attained by team members was a major aim of the SOLP process. Platts et al. (1998) recommends '*individual and group participation* (in strategic operations planning) *to achieve enthusiasm, understanding and commitment'*. Members whose views have been heard by the team are believed to be more likely to be committed to implement the team's Action Plans. The presence of an external facilitator without responsibilities in the company's management structure provides the opportunity

for normal command structure to be set aside during the SOLP meetings. Consensus was certainly obtained at Flock, and at Bradley in the second process. This is indicated by process observation and by the results of the interviews conducted at the end of the SOLP process. There was insufficient sharing of ideas at Wilson to engender consensus. Instead the sub-groups were dominated by the respective Directors. It is believed that a reasonable, though not complete, degree of consensus was reached during the first process at Bradley.

Considerable efforts were made to *tailor* each process to the particular company by choice of the planning team, by amending competitive criteria and policy variables and by the agenda used during each meeting. Tailoring of manufacturing strategy process to different sizes of companies is also being carried out by Platts et al. (1998). This tailoring in the meatworks appeared to be sufficient for the teams at Flock and Bradley. Team members at Wilson requested a much simpler process with fewer steps. It is likely that a much simpler method, cutting out many of the worksheets and processes, was required for all members to understand the whole process at Wilson and hence contribute to its results. This request was denied since it was believed to remove the essence of the SOLP process. Tailoring is intended to fit the process to the individual team without losing its essential steps.

Time-phased *Action Plans* (AP) were developed as the last worksheet in the formulation process to provide greater support to SOLP team members. Previous work (Platts and Gregory, 1990) generated the actions required to implement strategy without converting these actions into a time-phased action plan. The MAA culminates in an action worksheet which does not time-sequence the actions required to implement the strategy. The AP worksheet lists policy areas in the rows of the table and a time scale of three years across the width of the worksheet. An AP worksheet is filled out for each product-channel family. When the actions required are placed in sequence in the body of this worksheet, managers find the result very convincing. All the necessary information is available for a manager to implement his/her parts of the plan. The provision of the decisions for a particular product family supports good communication both within the team and, more widely, through the organisation. Once team members see a completed AP, this increases their motivation to review and complete the SOLP process to provide similar plans for other important product families. Action Plans have proved to be important in the successful implementation of operations and logistics strategies at Flock and Bradley. The partial success of SOLP at Wilson is considered to result from the limited training of management at that company and the lack of resources available, rather than any weakness in the support provided for the process.

The contention that action research engenders an effective Strategic Operations and Logistics Planning process is supported by three propositions, see Figure 1. These propositions are supported by responses to a number of questions posed to each team member at the start and end of each SOLP application. Proposition 1 (see Figure 1) is supported by managers' views, expressed in interviews, and by the operational results achieved when the action plans were implemented. It lends support to this hypothesis because an ineffectual research technique would be less likely to have these outcomes. Proposition 2, 'Implementing SOLP leads to observable end results, is supported by process observations and by responses of managers after the SOLP process to the first question in Table 1. It also lends support to this hypothesis because such an ineffectual technique would not enable teams to obtain the planning outcomes described.

Responses to questions about Proposition 3 (Figure 1), 'process observations support effectiveness', provide strong evidence that AR gives important assistance to the SOLP process. AR provided a natural environment in

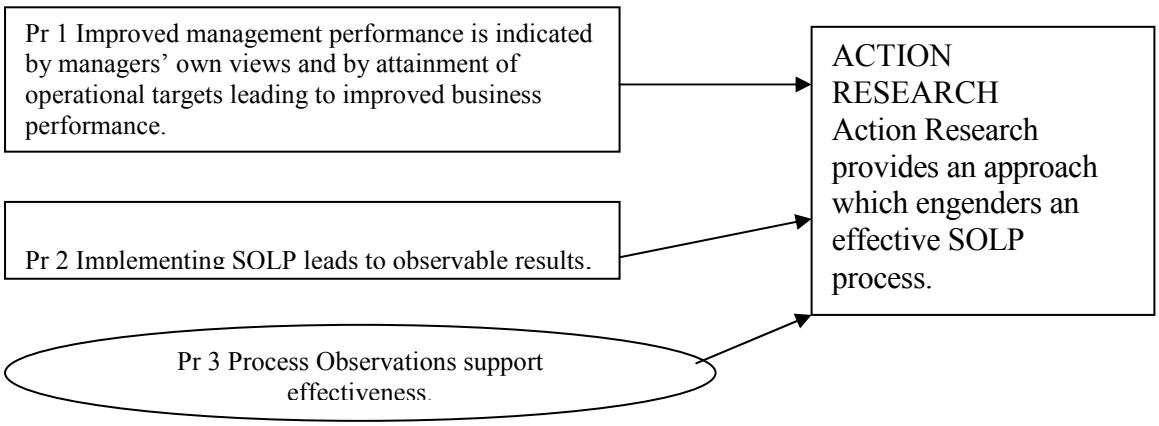

Figure 1 Links between propositions and the research hypothesis

each application in which researcher and team members can work together to achieve their separate, non-conflicting aims. It enabled the steps of SOLP to be taught and provided motivation for members to complete the process until they achieve motivation by an understanding of the potential, valuable outputs. Action research was a strong factor in the creation of democracy between team members, which is very important for idea-generation and commitment to the outcomes. For example, at Flock the facilitator kept the Managing Director out of the first discussion of export sales to enable a more democratic input by other team members. At Wilson, members gained a shared vision and reached consensus by filling in the strategy derivation and action plan worksheets (Sadler, 1999). AR enabled the facilitator to tailor the process to the particular needs of team members in terms of rate of progress, content of worksheets and the steps included. Together these observations indicate that proposition 3 strongly supports the hypothesis.

The research hypothesis 'AR provides an approach which engenders and effective SOLP process' is considered to be valid because all three propositions support it.

CONCLUSION

This research is significant because it provides:

- a process which is effective in, and tailored to, the meat industry;
- an external facilitator to help managers formulate strategic operations and logistics plans; and
- information about a process of concurrently planning operations and logistics in a meat industry supply chain.

The choice of action research as the research method is an important factor in the effectiveness of the SOLP process and hence it should be considered by researchers in operations and logistics strategy areas. AR, in which the researcher acts as a facilitator to the planning team, is an excellent method of obtaining valid access to an industrial situation over a period of time. It provides richer research information than that available from other methodologies. By using Action Research with an external facilitator, firms can improve the autonomy of individual team members contribution to strategic planning.

REFERENCES

Chakravarthy B.S. and Doz Y. (1992) Strategy Process Research: Focusing on corporate self-renewal, *Strategic Management Journal*, **13**pp. 5 -14.

Eden C. and Huxham C. (1988) 'Action-oriented strategic management', *Journal of the Operational Research Society*, Vol. 39, No. 10, pp. 889-900.

Fine C.H. and Hax A.C. (1985) "Manufacturing Strategy: A Methodology and an Illustration", *Interfaces*, **15(**6), pp.28-46.

Foster M. (1972) "The theory and practice of action research in work organisations", *Human Relations*, **25**, pp. 529-556.

Hayes R.H. and Wheelwright S.C. (1984) *Restoring our Competitive Edge*, Wiley, New York.

Hill T. (1989) *Manufacturing Strategy: Text and Cases*, Irwin, Homewood, Il.

Menda, R. and Dilts, D., (1997), "The manufacturing strategy formulation process: linking multifunctional viewpoints", *Journal of Operations Management*, **15**, pp. 223-241.

Platts K.W. (1990) *Manufacturing Audit in the Process of Strategy Formulation*, PhD dissertation, Department of Engineering, University of Cambridge.

Platts K.W. (1993) 'A Process Approach to Researching Manufacturing Strategy', *I.J. of Operations and Production Management*, **13**(8), pp.8.

Platts, K.W., Mills, J.F., Neeley A.D., Bourne, M.C.S. and Richards, A.H. (1998) 'Processes: an engineering approach to manufacturing management', Proceedings of the International Symposium on Manufacturing Strategy, '98, ed. Katayama, H., Tokyo, pp. 150-155.

Platts K.W. and Gregory M.J. (1990) 'Manufacturing Audit in the Process of Strategy Formulation', *I.J. of Operations and Production Management*, **10(**9), pp. 6-26.

Sadler, I. (1999), Strategic Operations and Logistics Planning of Australian Meatworks, PhD thesis, Department of Management, Monash University.

Skinner W. (1992) 'Missing the links in manufacturing strategy',*Manufacturing Strategy: Process and content* , Voss C.A. (ed.), Chapman & Hall, London, pp. 13-28.

Susman G.I. and Evered R.D. (1978) "An Assessment of the Scientific Merits of Action Research", *Administrative Science Quarterly*, **23**, pp. 582-602.

Voss C.A. (1992) 'Manufacturing strategy formulation as a process', *Manufacturing Strategy: Process and content*, Voss C.A. (ed.), Chapman & Hall, London, pp. 121-132.