EDITORIAL

OR and fast decision-making

In an increasingly turbulent and competitive environment, flexibility and quick responses become increasingly important requirements for organizational success. This is an oft-repeated and widely-accepted view; but what are the implications for OR? Are there any? Clearly, there might be if OR is perceived by potential clients as being most appropriate when there is time to deliberate carefully, or where performance in a system can be improved gradually over a period of time. In times of rapid change this perception of OR could lead to reduced confidence in the relevance of OR expertise where important decisions need to be made quickly – say in days or weeks, rather than months.

There are a number of reasons for believing that OR has less to offer in turbulent, competitive environments. In the past OR has been particularly successful in relatively stable (albeit growing) industries, where an emphasis on efficiency is an appropriate way to improve organizational performance. It is not difficult to think of many interventions which have produced substantial savings by improving the efficiency of existing activities. This often implies looking for large-scale activities where even small percentage improvements can mean large savings. Successful interventions here usually involve substantial input from the OR scientists over many months, if not years, especially if one includes subsequent development and maintenance of decision-support systems. Of course, this is all well and good as long as the organization continues to require the activity in question. However, if the strategic ball-game changes, much painstaking OR work can be overtaken by events when major changes occur in the organization's activities. In such circumstances, OR can become marginalized or, worse, even irrelevant.

Yet it is natural for OR groups to focus on work of this kind, and consequently not surprising if OR is perceived to be an activity where long-term projects are the norm. Indeed, there are a number of factors which push OR groups in this direction. An obvious factor is the size of the activity under scrutiny. The greater the scale of activity, the more data to be collected, the more people to be interviewed, the more variations to allow for, the more complex the decision-support systems design, the more stages in the implementation process, etc. In addition to the size of the potential savings, big projects, and hence long-term studies, may have the attraction of being more satisfying and intellectually challenging to the practitioners involved. Long-term studies also have the advantage of helping to keep the OR order-book full: not only directly, but also indirectly, by increasing the visibility and credibility of the OR function over a long period.

Often these concerns translate into a willingness to institutionalize the OR intervention. This process can be accompanied by increasing sophistication of associated decision-support systems. As a system is used over time, and as the decision-makers learn to use it, additional features are requested by clients (and may even be anticipated by enthusiastic model-builders), basic assumptions become buried under increasing levels of detail, and use of the system becomes more routine and bureaucratic. This is not to say that such interventions cease to be useful or that they lead to reduced flexibility in operations. Often the ongoing value of such systems is that they facilitate efficient flexibility in particular operations. A potential concern is that, as such systems become more sophisticated, they become more difficult to amend in the face of major qualitative changes in the nature of the operations they serve. The process is not dissimilar to the tendency of planning systems to become over-formalized and potentially ineffective when it comes to significant changes in strategy. Entrenched, over-rationalized planning systems are by-passed by top management concerned with the real strategic issues. The challenge is to manage ongoing development of a decision-support system so that it continues to be valuable even under changing conditions.

Many management problems may not be put to the OR function because the perceived likely response-time is too long. There may be a perception that OR involvement will lead to a detailed study of the current system, development of information systems or forecasting capability over several months, followed by an even longer period of systems testing and incremental introduction of new systems. This is of limited value if a decision is needed in weeks rather than months.

It is significant that OR practitioners have themselves coined the phrase "*quick and dirty*" OR. The implicit assumption is that OR interventions which are carried out rapidly tend to be "impure" in a rational (or, if you prefer, scientific) sense. For example, conventional ways to speed up analysis include cutting corners, limiting data collection, limiting the number of alternatives considered, ignoring aspects of the system under scrutiny, and otherwise simplifying analysis and model construction. All of these can reduce the thoroughness and integrity of analysis. However, the value of a quick bit of analysis which produces worthwhile, if not maximum, improvement in performance, is often recognised by managers and OR practitioners alike. Even so, the drive to undertake a thorough analysis is strong: so that, faced with a requirement for rapid analysis, a common solution is to avoid a "dirty" approach by employing a small army

of outside consultants for a (hopefully) short, but hectic, period of study. For a manager concerned with making "fast" decisions in a turbulent and competitive environment, even this approach may not be very appealing, especially if one knows circumstances are subsequently likely to change.

A possible response to requests from managers for assistance in making decisions quickly is to argue the need for more time to undertake the analysis "properly". Where the organization's environment allows, this may constitute sound advice; but in a competitive and turbulent environment speed of action may be crucial. Another strategy is to sharpen skills in providing apposite, parsimonious analysis. A third strategy is to examine, in a general way, *what* managers need in order to make "fast" decisions, and to consider how OR might meet some of these needs. In this context, Kathleen Eisenhardt's recent study of decision-makers in 12 microcomputer firms makes interesting reading. Eisenhardt explored the ways in which managers make fast yet high-quality strategic decisions. Paradoxically, she found that "fast" decision-makers use as much, and sometimes more, information than their slower counterparts. However, there was a crucial difference in the *kind* of information used. "Slow" decision-makers rely on planning and information about the future, while in contrast, "fast" decision-makers look to information about current operations and the current environment, which is reported with little or no time-lag. Eisenhardt cites the case of one firm where the vice-president for finance runs a simple financial model of the firm at least weekly. Although the model is simple, it allows the firm's executives to see, rapidly and frequently, the effects of possible decisions on basic operating results. Continually tracking information in real-time allows managers to spot opportunities and problems sooner, and, argues Eisenhardt, helps managers develop their intuition because they learn to recognise and manipulate patterns of information.

Eisenhardt also found that there is a fundamental difference in how "fast" and "slow" decision-makers treat decision alternatives. Fast decision-makers develop multiple alternatives, but analyse them rapidly, relying on comparative analysis which reveals relative rankings and sharpens preferences. In contrast, slow decision-makers tend to analyse few alternatives, but do so in greater depth.

Finally, fast strategic decision-makers link focal decisions with other key choices and tactical plans. Fast decision-makers, says Eisenhardt, " ... maintain a

cognitive map which they can readily describe or sketch on a piece of paper. At most, fast decision-makers stitch together a 5–10-page document describing the relationship among choices and tactics." Such an integration process helps to provide a better understanding of alternatives and potential conflicts with other decisions.

If one accepts the foregoing observations as being generally applicable, then there are clear pointers here for OR groups concerned to support fast decision-making:

- Move into the provision and presentation of apposite real-time management information;
- Emphasise services for generating and comparing multiple alternatives rapidly; and
- Provide means for helping managers integrate their thinking about important decisions.

Plenty of OR techniques are already concerned with precisely these requirements. Associated with this orientation is an implicit move away from project-based work to the provision of a service with an attendant willingness and ability to respond rapidly to requests for help. The activities of an in-house OR group might then consist of ongoing, long-term development of generic decision-support tools, coupled with frequent, short-term projects applying the tools in a variety of decision situations.

Apart from responding to an existing need for fast decision-making, a shift in emphasis to a service of this kind might actually encourage faster decision-making in organizations where it does not already exist but is sorely needed. A difficulty for OR groups is how far to move away from the security of large projects in an organizational environment firmly wedded to "slow" decision-making.

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For the interested reader

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