asked to do so. This is such an obvious truth, but it is remarkable how few companies actually share their strategic insights, even with middle management, let alone shop-floor workers.

In summary:

- The business model and the strategy are mutually dependent. The model describes how value will be created and the strategy acquires the necessary capabilities.
- Assumptions, hypotheses and strategies should be presented in such a way that a narrative accompanies the numbers so that unworkable ideas cannot be buried inside complex analyses.
- Accumulated business intelligence is of little use unless it is converted from passive to active intelligence by structured models, hypothesized from independent intelligence.
- Any model which provides support to strategic decisions should be accessible, engaging, transparent and flexible enough to cope with the evolving demands that will inevitably be made of it.
- Share all your good ideas with others supporting strategy, and listen to their responses—you will probably learn something too.
- It is essential to secure the engagement of everyone in the strategy process, from the ultimate decision-maker to those who must change their working practices and behaviours to deliver a successful implementation.

This Viewpoint is a personal exploration of what I have learned whilst supporting strategy development. I have come to realize that the analytical precision of the model or the mathematical rigour with which it is created, whilst rarely entirely wasted, are not the key determinants of successful strategy support. This is not a cry of despair from a frustrated disciple of the scientific method. In fact, the application of scientific method—by which I mean testing hypotheses through modelling—is particularly relevant to strategy support.

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What is strategy?


For years I failed to take strategy seriously. Middle managers involved in operational issues told me that strategy was that airy-fairy stuff senior executives did once a year, formulating grand statements that had little or no impact on people in the organization who were providing the goods and services. Each year’s strategic plan was fought over by the senior executives and then filed away until next year’s round of strategic planning.

I believed those middle managers until in the early 1980s I met Peter Hall, who then worked in International Computers Limited, ICL, with the managing director, Robb Wilmot. Robb was a champion of decision support systems, which Keen and Morton (1978) had proposed in their landmark book on the subject. Peter had studied decision analysis at Stanford University and was sure that approach to decision support would be helpful to Robb.

In working with Peter, I soon learned that the ‘airy-fairy’ stuff could crucially impact an organization, confirmed later by the research literature (Coulson-Thomas, 1992). Robb’s vision in 1984, that computers would eventually become commodities and the differentiating factor would be service, was heretical, for ICL mainframes were everywhere in the UK: most universities, government departments and local authorities, and many commercial organizations as well. But how could his vision influence ICL and change its direction?

Over the next seven years decision analysts at the LSE and ICL facilitated more than 70 two-day decision conferences (Phillips, 2007) in ICL, with the majority starting by considering what Peter called ‘MOS—Mission, Objectives, Strategy’. The facilitators would help the group clarify the mission of its organizational unit, identify objectives and develop alternative strategies for achieving the objectives. By developing mission statements for all units that were consistent with ICL’s overall mission of ‘applying information technology to provide, profitably, high value customer solutions for improved operational and management effectiveness’, the hope was that an emphasis on problem-solving rather than just selling main-frames would shift the focus of ICL. It did, and it also drove ICL into collaboration with Fujitsu that later resulted in their being absorbed by the Japanese company.

As a result of these experiences with ICL, I increasingly began to recognize that other organizations with whom I was working were not always clear about their direction. They seemed to be so busy trying to do things right that they had not considered whether or not they were doing the right things in the first place. Objectives were often absent, or unclear; participants in decision conferences felt most comfortable thinking about alternative ways of doing things. I found it difficult to apply the MOS model I had learned at ICL because people in other organizations had different views, even in the same organization, about what mission, objectives and strategy meant.
I began to read about strategy, which revealed there are at least a dozen different views on strategy (Mintzberg and Lampel, 1999; Tsoukas and Knudsen, 2002). As I discussed this on a consultancy assignment with a senior vice-president at Pfizer, Dr Nancy Hutson, she stopped me in the midst of my discourse on the pluralism of strategy with the comment, ‘Strategy is very simple. It’s about what and why, not how or by when’. Taught by your clients! That definition has been more helpful to me than all the books and papers I had read on the topic. There is, of course, much that is useful in the literature, but it was that statement which helped me to develop and test in decision conferences the simple model of strategy that is shown in the figure (above).

In the following explanation of the strategy model, assume that you are facilitating a workshop or decision conference of key players who wish to devise strategies that are expected to resolve important issues of concern to their organization within a fixed time-horizon. One to two years works well for a department-level issue about operational systems, two to five years for concerns of general managers about systems and resource allocation, five to ten years for the managing director concerned about determining the portfolio of products and services, and 10 to 20 years or more for a multi-national organization co-ordinating across operating divisions or companies (Jaques, 1998).

It is often useful to begin with an understanding of Context. There are always external forces that affect the way an issue is framed, the acceptability of objectives, the viability of alternative strategies for achieving those objectives, in fact, every aspect of a strategic view. PESTEL is the acronym for asking your group to consider relevant external events: political, economic, social, technological, environmental and legal. Think, too, about who the major stakeholders and key players are in the situation presented to you by the organization. Create a matrix showing the PESTEL elements as columns, and the stakeholders as rows. Gather information about how each stakeholder might be affected by the column headings, and consider trends or significant shifts for each cell. Write implied demands or constraints on the organization in each cell. Finally, ask participants to scan the matrix to identify external opportunities and threats. For more detail, see Beach (2006), from whom I have adapted this approach.

Next, consider the organization’s Mission, which answers the question ‘Why are we here?’ Commercial organizations sometimes say, ‘To make money’, which provokes me to say ‘By doing what?’ The answer usually identifies products or services and why they are important, as given in the ICL mission to provide information technology to allow their customers to be more efficient. ‘Making a profit’, I explain, ‘is an objective; achieving it allows you to carry out your mission. It is a means to that end, not the mission itself’. (Unless, of course, it is an organization that will do anything to make money, and there are a few of those around.)

That discussion leads into a discussion of the organization’s Core Values: what it is they deeply care about, for the core values will influence objectives, and help to shape acceptable strategic alternatives. At this stage it is sometimes useful to quote the research of Collins and Porras (1996), who found that enduring organizations are guided by their core values, not by making money. It was George Merck, the founder of the well-known pharmaceutical company, who said that ‘Medicine is for the people. It is not for the profits’.
Understanding strategy requires clarity about where the organization is NOW. Filling in the PESTEL table is a beginning, but the emphasis there is on the external world. One way to develop a shared understanding about the current reality in participants’ organization is to conduct a SWOT analysis focused on the issue of concern. Participants are invited freely to express internal Strength and Weaknesses covering the organization’s people, structures, processes and technology, and to identify external Opportunities and Threats. Listing them on flip charts for all to see, enables the group to begin to build an appreciation of how they might deal with the organization’s issue of concern.

Some groups are very inwardly focussed, perhaps reflecting the preoccupations of the larger organization. If so, a Scenario analysis might help to broaden perspectives about the external environment. A brief scenario analysis that can be completed in a couple of hours begins by asking participants to think of key events, regarding the issue of concern, that have occurred in the past. Record the events on several flip charts, a different flip chart for each past time period corresponding to the time-horizon required for new strategies to resolve the issues of concern. Ask the group to scan the flip-charts and extract the key themes or trends, and identify the major uncertainties. Divide the group into three sub-groups and ask each to construct a short paragraph describing the external environment at the end of the defined time-horizon. Each paragraph should address the key themes or trends, resolve the uncertainties, and perhaps include a major unexpected, but plausible, event. In reviewing those paragraphs, participants will be helped to broaden their views and to loosen anchors on their own past experiences.

This may be a good point to explore Strategic Intent: what the organization wishes to become in the future, where it is going and what its key objectives are. Prahalad and Hamel (1989) argue that establishing a challenging vision for the organization, creating a sense of urgency by amplifying weak signals and providing the training and resources to meet the challenge, are necessary ingredients for creating effective change in an organization. It is strategic intent, or vision, or corporate purpose, whatever your client wishes to call it, that provides direction and ensures resources are used to best effect. A single obsession, like Robb Wilmot’s drive to provide computing power to solve problems, sustains organizational effort over extended periods of time. Very often strategic intent is expressed as a set of objectives, and the Goals become measurable objectives, whose time-horizons should correspond to that of the group you are working with so that the goals are meaningful. It is these goals that focus the efforts of individuals and align decision making. The magnet metaphor is intended to emphasize the aligning nature of strategic intent, which allows for different paths to be taken. And it is by reaching a series of shorter-term goals that realizes the longer-term vision, or as Prahalad and Hamel (1989) suggested, ‘Running a marathon in 400-metre sprints’.

One way to identify strategy options is to return to the SWOT analysis and ask the group to suggest strategies (which begin with verbs) that will build on the strengths, fix the weaknesses, grasp the opportunities and stave off the threats (by neutralizing them or turning them into opportunities). And the opportunities and threats should link to the PESTEL analysis and to the scenario analysis. At any stage, it would be useful to introduce the notion of critical success factors: those things that absolutely must be done well, at the relevant level in the organization, for the organization to succeed (Hamel and Prahalad, 1990). These are often difficult to put into words, but the effort is usually worth the trouble as making them explicit can lead to deepening understanding of those things that really matter for the organization’s survival, as making effective, innovative drugs has been crucial to Merck’s survival.

Some groups prefer to start by defining NOW, others look at Goals, some benefit from reformulating Mission or Vision. All of these are parts of a Strategic Management Cycle, which can start with dissatisfaction at any of the following stages. Iterating through these stages constitutes the continuous process of testing achievement against strategic intent, then adjusting strategies and plans to accommodate changed circumstances.

<table>
<thead>
<tr>
<th>Mission</th>
<th>Why are we here? What is our reason for existing?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objectives</td>
<td>What do we wish to achieve?</td>
</tr>
<tr>
<td>Goals</td>
<td>Objectives expressed in measurable terms.</td>
</tr>
<tr>
<td>Strategies</td>
<td>What must we do to achieve the goals and objectives, and why?</td>
</tr>
<tr>
<td>Plans</td>
<td>How shall we do it, and by when?</td>
</tr>
<tr>
<td>Operations</td>
<td>Doing it!</td>
</tr>
<tr>
<td>Results</td>
<td>Outcomes judged against goals.</td>
</tr>
</tbody>
</table>

For example, I am often asked to help an organization prioritize the many projects and programmes that have been put forward by various groups. Resources are limited, and it will not be possible to fund all the proposals, so priorities are required to enable next year’s budget to be agreed. Here, the starting point seems to be Plans—what are the things we should be doing next year? The organization often appears to be lost in a forest of too many trees. To solve the prioritization problem, it is helpful to lift the view, gaining a helicopter view of the territory, by asking about objectives. When I asked this question of one UK Local Authority, they were quick to reply, as they had already agreed them: (1) to build successful communities, (2) to protect the environment,
and (3) to provide good quality services. Each of those objectives was fleshed out with four bullet points, which indicated possible strategies for achieving the objectives. For example, the four strategies for building successful communities included improving community facilities, promoting active lifestyles, encouraging local employment opportunities and supporting the voluntary and housing sectors.

With objectives and strategies already agreed, the elected leaders of the Council could then prioritize the proposals put forward by the various service groups. Each proposal was appraised against the objectives and scored for the extent to which it supported one or more of the four strategies under the relevant criterion. Swing weighting of the criteria followed, and the resulting multi-criteria decision analysis (MCDA) model established priorities by dividing the overall benefit score for each proposal by its forward cost. Sensitivity analyses showed how robust each proposal’s priority was to differences of opinion among the Council members. As a result of these explorations, the Council agreed to implement many of the projects, referred some back to the service groups with recommendations for improving them, and dropped a few others.

Another organization had engaged senior staff in an extensive and thoughtful visioning process, guided by Balanced Scorecard principles (Kaplan and Norton, 1996), which resulted in a set of objectives, but the staff could see no clear way to relate these to strategies. In a decision conference, the objectives were translated into criteria that satisfied MCDA requirements, and strategies were then scored against the criteria. At the end of the exercise, the senior executive commented, ‘Now I see how to live the strategy’.

My model of strategic intent, coupled with an MCDA model, provides a way to make strategy meaningful at the operational level in any organization. Thinking about what is to be done and why, before considering how and by when, makes strategy the job of everyone at all levels in every organization.

References


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Does OR have a role in global population growth strategy?


The Earth’s capacity to carry people is limited, and for the first time in our history, we are approaching that limit. Our population was around 6.8 billion in 2009,1 and is predicted to reach eight to eleven billion in 2050, and may continue to rise after that (United Nations, 2004). The United Nations (UN) and the World Wildlife Fund estimated that a world population of around three billion is sustainable indefinitely, so we are already in the unsustainable zone (Hails et al, 2006). The consequences of further increase will be more poverty, famine, disease, and even wars, as more people compete for finite resources; a greater likelihood of catastrophic climate change, which will hit the poor first, and worst; and losing our remaining wildernesses, along with their flora and fauna.

But are these predictions accurate? Should we be concerned about it in an operational research (OR) journal in 2010? I believe that is the biggest issue facing us all, and that almost nothing has been done to address the problem, because it is controversial.

The paper explores the role that technology plays in population growth, and the role that OR might have in supporting technical solutions, and arguably, in making the problem worse. It then asks whether OR might not

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1The American billion, $1 \times 10^9$, a British milliard, is used throughout.