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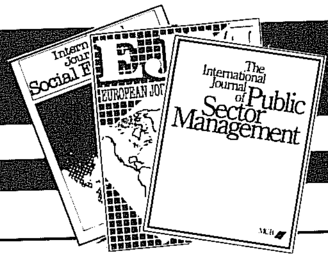
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EXECUTIVE SUMMARY

Strategic Alliance Evolution and Global Partnerships

Peter Lorange and Johan Roos, Norwegian School of Management

Managing strategic alliances also means understanding the underlying dynamics of how alliances work and function. One major characteristic of a strategic alliance is that it undergoes an evolutionary process; it grows and changes over time for a number of reasons. This article outlines how and why strategic alliances evolve, from shared partnerships to those where one partner is dominant and subsequently to alliances that have developed into independent autonomous entities.

A model of a general evolutionary pattern for alliances is proposed. During Phase 1 of its life, the alliance may be seen as a 'shared' strategic alliance between parents with each parent having an active and typically complementary role. In Phase 2, one of the partners continues performing a set of functions on behalf of the venture, becoming relatively more 'dominant' while the other gradually becomes relatively more passive as the joint venture organisation takes over more and more of the value-creating functions on its own. It should be pointed out that these relative changes in partners' tasks should be anticipated in the strategic alliance agreement and should be seen as natural and pragmatic. The emergence of a Phase 3 stage, where the strategic alliance plays the role of a more or less fully autonomous free-standing entity, is often the natural next step.

The authors then apply this generic model to the case of companies which pursue a *global* competitive strategy using the avenue of strategic alliances or partnerships. Three global alliance patterns are identified; global dominant, global shared and global independent. Aspects of the nature, behaviour and evolution of these three global alliance types are explored.

Several examples from international business are given to illustrate how dynamic alliances can be and also to show that, while a general evolutionary pattern is followed by most alliances, certainly not all fit the pattern and for a variety of reasons. Two of the examples cited included FiatGeotech and SAS Airlines. The FiatGeotech example discusses an alliance between Fiat (Italy), John Deere (USA) and Hitachi (Japan), all producers of earth-moving machinery. This example also gives a glimpse into an alliance that is strong because of the shared synergies between the three firms as well as a superior understanding of the dynamics of alliance.

In the commercial airline industry Scandinavian Airline Systems (SAS) — itself formed as a joint venture between the three Scandinavian countries' national airlines — provides an example of a global dominant partner. SAS has turned the potential disadvantage of a small home country base into an offensive global strategy by orchestrating a network of strategic alliances with other smaller airlines in Europe, the East and the Americas. This has allowed, among other benefits, SAS to offer its passengers one-stop services to most parts of the world with a minimum waiting time.

EXECUTIVE SUMMARY

Strategic Alliances in Practice: The Case of Aer Rianta and Aeroflot

Derek Keogh, Aer Rianta

The political and economic changes in Eastern Europe are providing Western industrialised countries with trading opportunities that are potentially attractive yet fraught with difficulties. In the foreseeable future joint ventures, co-operative agreements and strategic alliances are likely to be the most effective ways for many companies to do business in Eastern Europe. The Western partner is provided with access to a marketplace which has many complex characteristics, while the Eastern partner enjoys a transfer of management, marketing, production, technological and financial know-how. Aer Rianta, Ireland's National Airports Authority, has been involved in such a strategic alliance in the Soviet Union with Aeroflot for a number of years. It has been highly successful for both parties and has proven to be the springboard for a range of commercial activities. This article outlines the background, development, difficulties and benefits involved in this relationship.

The origins of the partnership go back over a decade. Aeroflot was a regular user of Shannon Airport for refuelling stops. A scheme to store fuel of Soviet origin at Shannon and a number of subsequent fuel bartering arrangements enabled Aeroflot to reduce substantially its hard currency commitments. Thus with the advent of *perestroika* it seemed natural that the two companies would explore avenues of possible partnership in the Soviet Union. Currently Aer Rianta has nine different business ventures trading successfully in the Soviet Union with Aeroflot and a range of other partners. Activities include running duty-free shops, a supermarket, bars, catering, in-flight duty-free sales, construction, import/export, accommodation rental and computer assembly.

The success or failure of a joint venture depends upon many different variables including the ability to achieve integration of cultures, styles and personalities. One of the major stumbling blocks for Aer Rianta was the lack of understanding of the concepts of service and quality — the concept of the customer as king is a somewhat alien notion in the Soviet Union. Changing these approaches involved intensive reorientation and training of local staff as well as a lot of role modelling by Irish management and front-line staff. If Soviet staff proved to be highly adaptive and willing to learn, Irish management and staff were, for their part, highly motivated and zealous.

Finding the right partner is the first crucial consideration in a joint venture in the Soviet Union. It is important to ensure that the prospective partner is not made up of "yesterday's men" and that both partners share the vision of what the joint venture is seeking to achieve in terms of objectives, quality, value-for-money, long-term versus short-term profitability and so on. The first joint venture is the hardest. Aer Rianta's experience has been that it can take a considerable length of time to complete a first joint venture agreement, whereas additional agreements can be easier. This has to do with "learning the ropes and establishing a trust" on both sides and also with the benefits of establishing a reasonable track record.

EXECUTIVE SUMMARY

Europe 1992: A US Perspective on the Implications for Business

Ronald S.J. Tuninga, Rutgers University and
Arthur Sybrandy, Penn State University

The changes taking place in the European Community are important for American international competitiveness. The combined members of the EC are by far the largest foreign investors in the US and play a major role in world trade. Further, the EC represents a sizeable market. The imminence of this Single Market has given rise to fears among US business managers of a shift in competitive strengths, a rise in protectionism and a "Fortress Europe". A study of 115 US business executives by personal interview examined their concerns, perceptions, and knowledge of Europe 1992.

In order to determine the executives' familiarity with the European Single Market, a twofold approach was used: the respondents' subjective or own assessment, and an objective rating using specific questions to measure the respondents' actual knowledge. Less than a third of the respondents rated themselves as either familiar or very familiar with Europe 1992. This is a low percentage especially considering that more than 50 per cent of the respondent companies already had some involvement in the European market. Further, this subjective self-rating showed little correlation with the results of an objective Guttman scale which measured the respondents' actual knowledge. The implication is that many US managers underestimate the need for hard factual information about the Single Market. That this lack of knowledge is unacceptable and indeed dangerous is highlighted by the fact that when asked to compare areas in the world impacting on US business, respondents placed the highest scale value on the European Community.

Almost half of the respondents agreed with the statement that the unification of the European Community would lead to a Fortress Europe and concern was expressed about possible protectionist measures. However the data was inconclusive and indicated as much an anxious uncertainty about developments in Europe as the conviction that barriers would in fact go up. Technical and fiscal barriers were seen as potentially the most important.

In examining functional business areas it was generally agreed that marketing is the function that will be most affected by the Single Market. Interestingly, within the ambit of marketing, logistics/distribution was perceived to be the activity that would be most affected; marketing research and promotion/advertising would likely be least affected. Considering these directives directly relating to the transport sector, the authors conclude that the restructuring of industries will have implications for the flow of goods and services far beyond the European Community.

EXECUTIVE SUMMARY

The Managerial Setting of the Product Deletion Decision

Susan Hart, University of Strathclyde

Many studies of product elimination conclude that the effectiveness of such decisions would be improved if they were given greater support from top management and considered as contributing to overall company objectives. It has also been argued that there is no need to develop a specific policy for product elimination as deviant products can be detected through the existing managerial control mechanisms and dealt with accordingly. One of the reasons for this theoretical quandary may reside in the confusion as to the level within companies at which product policy exists.

This article seeks to clarify this issue: firstly, by reviewing the extant literature on product planning and considering how product elimination might, in theory, fit into this activity; and secondly, by reporting the findings of a field study on the managerial setting of the product elimination decision in UK manufacturing companies. These findings are from the first part of a wide-ranging examination of product elimination decision making entitled Project Dropstrat.

Based on this research, the product deletion decision was considered along two domains: the main type of product planning activity employed within the firm, and the managerial locus of the actual product deletion decision. Product planning tended to be of two types. One labelled *systematic review planning* focused on the annual plan or budget and on the objectives and means of achieving it. The other labelled *operational control planning* was more frequent and included activity such as weekly and monthly reviews of a product's performance versus target, cost and price assessments, product development/review committee meetings and so on.

In turn these two approaches to product planning took place within two broad organisational mechanisms or modes, one marketing-based, the other with a broader management focus. Each mode is described and the extent to which product deletion fits into each is examined.

Product planning processes, it was found, were not in general geared for product elimination. Control activity rather than annual or systematic review activity triggered rationalisation policy. Deletion decisions appeared to be largely *ad hoc* in many of the firms. Indeed much top level management activity appeared to be absorbed by deliberations on the fate of products that might well have been eliminated *before* reaching the crisis stage. If product elimination processes and structures could be effectively set up and delegated, top management would be more able to concentrate on planning changes to the whole range (new products, replacements, modifications and deletions), effectively resolving problems before they become urgent.

EXECUTIVE SUMMARY

A Computer Modelling Approach to Analysing Competitive Reaction

Bruce Curry and Luiz Moutinho, Cardiff Business School

Applications of "conventional" computing techniques to marketing problems are now commonplace. Spreadsheets, databases and other specialised software are to be found in abundance and have proved their worth many times over. The focus of this article, however, is with the newer technologies of artificial intelligence. These include expert systems or knowledge based systems in which the "intelligence" of the computer comprises a set of if. . .then rules.

Expert systems have been applied to logistics, distribution, pricing and international negotiation. The authors here address strategic decision making and competitive reaction. The aim is to produce interactive computer models which incorporate as much "intelligence" as possible so as both to make the user's task as easy as possible and to dig more deeply into the decision-making process.

This intelligence or knowledge can be built into a model using a variety of different programming languages and advanced computer techniques. However a crucial question is how to obtain such intelligence in the first place. The authors have therefore sought to ensure that their models have a sound theoretical basis.

But it is also important that the decision maker's own knowledge plays a significant role and that he/she should not view the model as an indecipherable "black box". The final generation of a decision requires the user's subjective judgement. Thus the models provide wide ranging *what if* facilities, bringing them closer to the authors' concept of an "intelligent spreadsheet".

Intelligence is also built into the models using an intelligent front-end — a natural language interface. The competitor firms in the model are assumed to respond to certain stimuli, programmable by the user. These stimuli and responses are found in the "script" or "scenario" for the industry which is based on possible competitive behaviour. The pattern matching and windowing facilities of the Smalltalk/VPM language used in the model pick out the stimuli for each firm from the script and show the user the consequences of this scenario.

Strategic Alliance Evolution and Global Partnerships

Peter Lorange and Johan Roos, Norwegian School of Management

Abstract

Managing strategic alliances also means understanding the underlying dynamics of how alliances work and function. One major characteristic of a strategic alliance is that it undergoes an evolutionary process; it grows and changes over time for a number of reasons. This article outlines how and why strategic alliances evolve, from shared partnerships to those where one partner is dominant and subsequently to alliances that have developed into independent autonomous entities.

A model of a general evolutionary pattern for alliances is proposed. The authors then apply this generic model to the case of companies which pursue a global competitive strategy using the avenue of strategic alliances. Three global alliance patterns are identified; global dominant, global shared and globally independent. Aspects of the nature, behaviour and evolution of these three global alliance types are explored. Examples from international business, including FiatGeotech and SAS Airlines, are discussed.

INTRODUCTION

Understanding the dynamics of strategic alliances can obviously help firms (large or small) compete better in the international market. This understanding has an inward-oriented as well as an externally-oriented dimension. Only by understanding and constantly monitoring the internal processes that make alliances work and function, can managers stay abreast of how their alliances are performing externally and can more accurately forecast likely events in the future.

Strategic alliances are, of course, an integral part of domestic and international business and are of many types. In Figure 1 we see the strategic alliance options in terms of initial interdependence at the stage they are formed — from high and hard to reverse, at the bottom, to low and easy to reverse, at the top. But, regardless of what type of strategic alliance we are dealing with, it will typically never remain stable. Quite the contrary, alliances tend to evolve over time — they always represent a state that is in transition towards something else — and for a number of reasons.

Figure 1
Strategic Alliance Options in Terms of Degree of Initial Independence between the Parent Firms at the Time of Initiation.

Low interdependence

Ad hoc, informal co-operative venture

Recurring, formal co-operative venture

Project based joint venture

Joint ownership

Mergers and acquisitions

High interdependence

In this article we will discuss the evolutionary patterns of strategic alliances by introducing a general model of evolution. As we shall see, the direct interdependence between the partners tends to lessen over time. Instead they establish an interdependence as co-owners of an increasingly autonomous entity, which, in a sense, creates interdependence among their overall portfolio strategies. We will then expand the discussion into the area of *global* strategic alliances to see how the generic model might fit such partnerships.

EVOLUTION OF STRATEGIC ALLIANCES

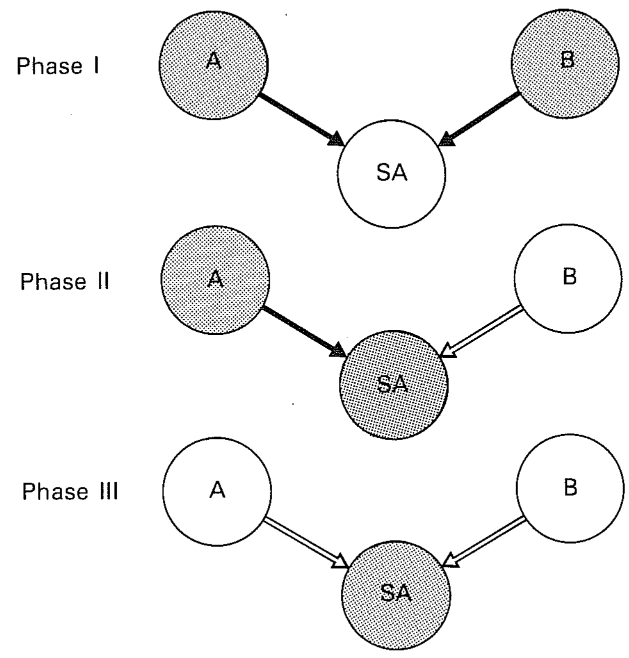
When considering a strategic alliance it is useful to draw analogies with organic entities that grow and develop in nature (Harrigan, 1986). Just as we observe in nature, so the strategic alliance must receive energy on an on-going basis — in this case from its parents — so that it can grow from an offspring into a working adult entity. The initial strategic alliance organisational entity needs stimuli so that it can grow and evolve over time. Implicit in comparing a strategic alliance with the birth and growth of a child is a need to see how the strategic alliance's relationship with its parents changes over time — from total dependence in early childhood to eventually becoming an independent, free-standing adult on its own (Lorange and Roos, 1991).

There are several rationales for this evolutionary pattern. For example, a learning process typically takes place allowing the unique traits of each parent to be picked up by the strategic alliance itself (Lyles, 1982). Also, the strategic alliance is frequently under pressure to adapt to new environmental opportunities and to respond to environmental threats in its competitive arena. This often takes time, and may involve a great deal of effort, particularly if such adaptation is to take place through extensive co-ordination of the two parent parties (Chakravarthy and Lorange, 1991).

The strategic alliance may also develop a need for its own organisational identity in order to attract, retain, and motivate human talents (Killing, 1983). Over time, the parents may develop more and more confidence in each other and in the strategic alliance as they become better acquainted and see that the strategic alliance is viable. They may then feel comfortable transferring more and more tasks to the joint venture/ child (Schaan, 1983).

A typical evolutionary pattern for strategic alliances is depicted in Figure 2 (Lorange and Roos, 1991). In addition to illustrating three evolutionary phases, the figure also pictures the gradual, decreasing involvement in *direct* strategy execution and decision making or the parent company's part. It also illustrates the emergence of a full-blown, independent strategic alliance organisation. Finally, it illustrates the changing position of the strategic alliance as part of the strategies of the parents; from being an integrated part of their business strategies to becoming part of their portfolio strategies.

Figure 2
General Evolutionary Pattern for a Strategic Alliance



Note: The parents are labelled A and B, respectively. The strategic alliance is labelled SA. The shaded circles depict organisational entities that are actively involved in the joint value-creation. The solid arrows depict active relationships between the parents and the strategic alliance.

The Authors

Peter Lorange is President of the Norwegian School of Management, Oslo. He was previously Director of the Wurster Center for International Management Studies at the Wharton School of the University of Pennsylvania. He has served as a Professor at the Stockholm School of Economics, IMEDE in Lausanne, and the Sloan School of Management at MIT.

Dr Lorange has written or edited eight books including: The Challenge of Co-operative Ventures, Co-operative Strategies in International Business, Corporate Planning: An Executive Viewpoint, Implementation of Strategic Planning, *and* Strategic Control. *He has also written more than 50 scholarly articles. In addition, he is serving or has served as an editor of a number of journals, including:* Sloan Management Review, Management Science, Journal of International Business Studies, Strategic Management Journal, Journal of Business Strategy, Planning Review *and* Human Resource Management Review.

Johan Roos is an Assistant Professor at the Norwegian School of Management and a Research Associate at the Norwegian Institute for Research in Marketing, both in Oslo. He completed a doctoral thesis on co-operative venture formation processes at the Stockholm School of Economics in 1989. He is co-author, with Peter Lorange, of Strategic Alliances: Formation, Implementation and Evolution *(Basil Blackwell, forthcoming 1991),* The Challenge of Cooperative Ventures *(1987), and five scholarly articles on strategic alliances.*

Phase I

Let us first consider the three circles that are positioned vertically along the centre of Figure 2. During Phase I of the strategic alliance's life, one sees the alliance as a shared strategic alliance between parents with each parent having an active role. Typically these roles are complementary; one partner will, for instance, be providing the technology while the other might be contributing the market contacts and customer access. Thus, most of the strategic alliance's physical activities get carried out by one partner or the other. The strategic alliance itself can be seen as not much more than a skeleton organisation at this early stage. One might think of the strategic alliance as analogous to a strategic programme being executed by different departments and divisions within a firm. In order to be successful, the programme manager, or the joint venture manager, must demonstrate an ability to draw on resources from throughout the organisation. Such managers typically have little or no resources directly at their exclusive disposal.

After a while, however, it is often the case that one partner becomes increasingly more dominant in the role of executing the strategic alliance's tasks. The reasons are that while learning takes place, it may turn out to be easier to lessen the type of inputs that one partner provides, at least in the short run. When it comes to adaptive pressures it may similarly be that these turn out to fall primarily within the domain of one partner's skills, say for instance, marketing. This leads this partner to become relatively more active than the other, and so on. The relative balance between the partners therefore might change. For instance, the partner who provides the marketing input, and in a given case happens to be physically closest to where the fire is burning for a particular strategic alliance which is facing severe problems in the marketplace, may maintain a large proportion of the hands-on market-related activities. Alternatively the other partner, who is providing the technology, may become relatively less active over time after the initial technological learning has been completed and the know-how transferred.

It could, of course, be the other way around, namely that the partner who provides the technology remains relatively more active over time due to unforeseen problems and challenges in the technology area. Some possible reasons for this could include new research intensity or the launching of new technological developments. When the strategic alliance itself has been able to create a specialised marketing force of its own, based on one partner's initial market support, training, and door-opening in a relatively stable marketplace, this parent may now be allowed to become relatively less active.

Phase II

We thus often see a typical evolution of the strategic alliance into a Phase II stage, where one of the partners continues performing a set of functions on behalf of the joint venture, becoming *relatively* more dominant, while the other gradually becomes relatively more and more passive as the joint venture organisation takes over more and more of the value-creating functions on its own over time. It should be pointed out that these relative changes in parents' tasks should be *anticipated* in the strategic alliance agreement and should be seen as natural and pragmatic. Further, there will typically be unforeseen external events, calling for an exceptional effort in one partner's domain of expertise, that create these role asymmetries. It is *not* a reflection of one partner being more important and the other being relegated to secondary status. If the evolution of a strategic alliance leads to the outgrowth of such perceptions, then it goes without saying that the strategic alliance will be in trouble.

It should also be pointed out that the evolution into Phase II can be slowed down, or even prevented, if both partners have a strong wish to remain active in delivering their inputs into the strategic alliance's activities. This might at times, of course, be a viable option. It should be stressed however, that over time this may require quite heavy, even excessive, co-ordination among the partners. Managing a business in such a hands-on fashion may indeed become too stressful in the long-run for the parties involved. Typically, the ability to adapt in a speedy fashion might be impaired. The hands-on co-ordination between the two parties that will be called for over a long period of time may, however, eventually lead one or both of them to see the light and to initiate a search to gradually extricate themselves. By finally being able to transfer more and more functions to the strategic alliance itself, the co-ordination involved in the operation of the strategic alliance will be thereby simplified.

It can indeed be a painful process for partners as they gradually come to see the need for such an evolution through experiencing such stresses and co-ordination processes. It is often the case that strategic alliances are terminated after a period of time if both partners wish to remain active and none wish to accept this evolutionary process; it often turns out to be too stressful to maintain this form of project-based strategic alliance as a viable going concern concept. Unfortunately, static and rigid legal contracts may also contribute towards such lack of dynamism and adaptation (Salbu, 1990).

It could also be of course that a strategic alliance is formed directly as a Phase II-type, as we shall later see in our global alliance discussion, with one partner designated as being relatively more dominant and the strategic alliance organisation, also by design, performing significant tasks by itself from the start. It could, for instance, be that one partner has an active interest in a particular business and is seeking a somewhat more passive partner to provide general support as well as financing. It could also be that the more passive partner provides some sort of proprietary but readily transferrable technology, an often unique know-how.

A Phase II-type of strategic alliance also tends to evolve, but it may still be difficult for the strategic alliance to adapt sufficiently well to new opportunities. This is particularly true given that these adaptation challenges now will have to be handled *partly* by the emerging strategic alliance's organisation itself and *partly* by the more active parent's organisation. Co-ordination of the split adaptation tasks between the more active partner and the growing strategic alliance organisation can thereby also become stressful over time. To cope with this, the strategic alliance per se can gradually be given the lion's share of the adaptation responsibility and then the independence to carry it out.

Phase III

The emergence of a Phase III-type evolution stage, where the strategic alliance plays the role of a more or less fully autonomous, independent entity, is often the natural next step. In this case too, it could very well be that an evolution into a Phase III stage does not materialise in practice, owing to the fact that the lead partner wishes to remain active, and, as we have discussed, does not want to countenance any evolutionary process. As one can imagine, this might again lead to friction and unnecessary stress, with slow and ill-timed adaptive moves being the potential result. Thus a termination of the strategic alliance after Phase II could also result.

The issues of establising an exit for a particular partner, so he can eventually get his investment back is a final potential evolutionary basis. By establising a self-sustained organisational entity, it will be possible for a partner to sell out, analogous to selling a stock position in a going concern. Withdrawal from a strategic alliance during the middle of its evolutionary development, on the other hand, may be difficult, as it might seriously jeopardise the value-creation that is taking place in the alliance.

It is critical to understand the various types of strategic alliance initiation situations, as well as the potential evolutionary patterns that might lie ahead. By understanding *where* one starts and *what* the evolutionary options and pressures are likely to be, one can be better prepared to allow the evolution to be a harmonious one. If these evolutionary issues are not addressed, one runs the risk of accidentally and prematurely terminating the strategic alliance, owing to the unnecessary handicaps and stresses that will be imposed on the venture. This could also block the evolution of the alliance.

When observing this generic evolutionary model one cannot fail to be struck by the fact that there is so much determinism in the evolutionary pattern being described. This raises the question of whether such a strong, simple evolutionary pattern can be generally expected to be normal and valid. While more empirical testing is necessary, several clinical studies do lend merit to the model (Lorange and Roos, 1991; Root, 1984). Still, it is clear that management action and intent is critical, and one cannot expect that this should follow such a neat pattern in real-life settings. The generic model should thus only serve as a conceptual guiding light to a more tailor-made and narrowly focused examination of evolutionary issues within the context of any particular strategic alliance at hand.

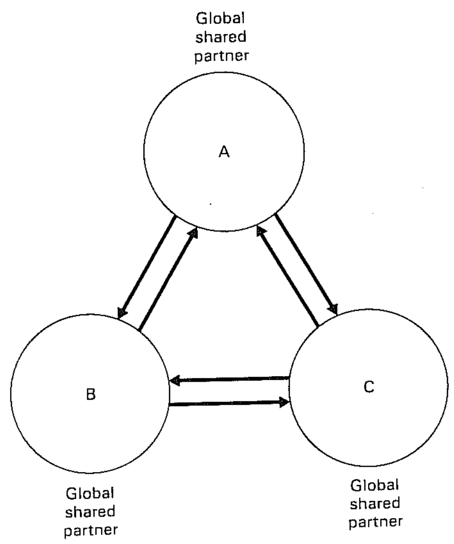
With this in mind, let us now move to a discussion of *global* partnerships, and examine several examples.

GLOBAL PARTNERSHIPS

It is perhaps useful to observe that global strategies which use the route of strategic alliances tend to be executed in three fundamentally different ways, and that these seem to be similar to our generic evolution model prototypes. We shall now explore aspects of the nature, behaviour and evolution of these three global alliance types. We shall not explore the rationale for such strategic alliances here, and merely refer to others (Contractor and Lorange, 1988; Bartlett and Ghoshal, 1989).

Leading firms may, for instance, wish to pursue a global strategy through the development of a network of links with several local/native firms. Each of these links are on a one-to-one basis, with a local partner in several particular countries. The total of these alliances provides the organising

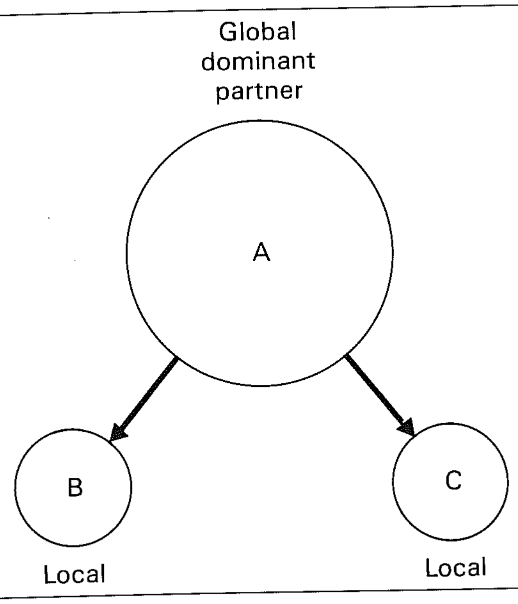
Figure 3
Global Dominant Partnership, with One Partner (A) Entering Several Separate One-to-one Partnerships with Local Partners (B) and (C)



firm with a global network, and this firm then becomes the *dominant* partner in the network which is built up as the sum of several one-to-one relationships (Figure 3). Typically, it is a unique resource, such as the superior technology of the dominant partner, that holds this network together.

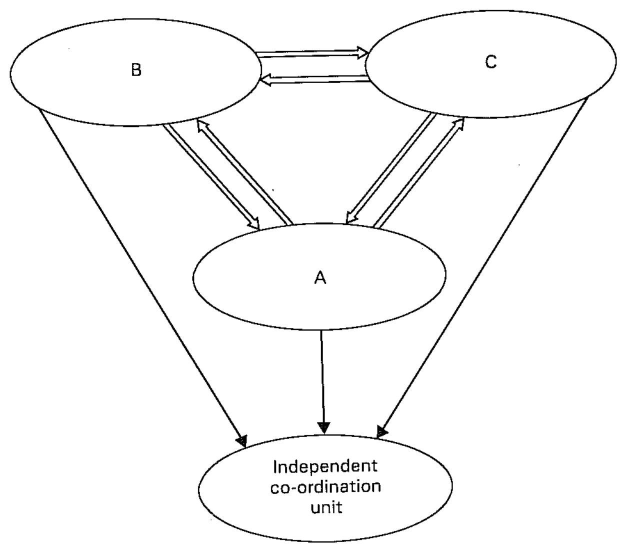
A second approach is for several prospective partners, with relatively equal and/or complementary strengths, to combine in a *shared* way in order to form a common global network with a strategy based on give-and-take from several firms (Figure 4).

Figure 4
Globally Shared Partnership Where All Partners (A, B and C) Have Complementary Roles



A third, and perhaps final, approach is the *independent* status of the strategic alliance entity that can emerge when the above mentioned alliance types evolve over time. This entity oversees and co-ordinates the operations of the various alliances formed initially by one or more firms in a dominant or a shared approach (Figure 5). When strategic alliances become so complicated and burdensome to manage in a dynamic world because of the inherent frictions in the network created, a separate free-standing entity can often be a natural evolutionary choice as a vehicle that can manage the alliance for all of the partners.

Figure 5
Independent Global Partnership Co-ordinating and Running the Strategic Alliance



A further point of clarification is called for before we begin a more detailed discussion of these three global partnership types. Global alliances will generally start out with one dominant global partner, which is analogous to strategic alliances of the Phase II stage of the generic model, and then typically evolve into a shared mode as a result of transfer of tasks owing to learning, adaptation, strengthening measures, and so on — similar to our Phase I model. Perhaps, finally, it may evolve into an independent strategic alliance, analogous to our Phase III archetype.

Global Dominant Strategic Alliances

In a global dominant strategic alliance one partner is the distinct driving force behind the co-operative strategy in question. Each local partner is merely a participant with this firm in its particular country arena. The organising partner may typically dominate the alliance in several ways. It may have a sustained relative advantage over its prospective partner(s) in terms of critical parts of the value chain (Porter, 1986) by possessing a strong technology and/or a strong brand name, for example. This may result in specific scale and/or scope advantages for the dominant partner in that it benefits from the cumulative effects from all of the one-to-one partnerships on a global basis.

Coca Cola, with its protected secret syrup ingredients and its strong global brand and image, is clearly dominating its franchise-based alliances worldwide through both scale *and* scope advantages. Another example of this type of alliance can be found in the early phase of the strategic alliance between Hitachi Construction Machinery and Fiat- Geotech (for the European market), and John Deere (for the North American market) in hydraulic excavators (Lorange and Roos, 1991). Hitachi was the dominant player through its technological advantage, particularly in hydraulic systems, which it also manufactures for its partners. Here Hitachi enjoys a scale advantage.

A third example is ARCO Chemicals (Lorange, 1991). This firm has strong patent protection in a particular chemical component and also proprietary know-how in process technology. It has a series of local joint ventures in various Far Eastern countries to manufacture and distribute an ingredient for gasoline in each local market. Here ARCO Chemicals enjoys a scale advantage in R&D. Also, through the decision to maintain production capacity at such levels that it can supply each particular local market and nothing more, ARCO is able to instill some sort of geographical territory discipline to prevent its partners from excessively competing with each other. Of course, when the firm owns its own brand and has a proprietary technology as well, such as Coke, it is possible to obtain *both* scale and scope advantages — a particularly advantageous situation.

We can see from these examples that a dominant strategic alliance can have strong similarities to a franchising system, where the dominant partner is the systems designer and integrator. Each local partner will operate within something analogous to a franchising package.

This very *explicit* global dominant strategic alliance design does not, however, have to be motivated entirely by competitive motives. It may, of course, be motivated by the fact that a particular host country *insists* on local participation. Examples of such practices can be found in several South-East Asia countries, in India, in Mexico, and in several other parts of the world. Here, the local partner may become part of a network that consists in part of wholly-owned subsidiaries and in part of joint ventures.

It may also be practical to have local participation because of entirely different local business practices in a given country. Local contacts, access to governmental relations, etc., may be very important and hard to gain unless done through a local partner, as, for instance, in particular countries in the Middle East or Asia (Root, 1984).

In the commercial airline industry we see how Scandinavian Airline Systems (SAS), itself formed as an alliance between the three Scandinavian countries' national airlines, has turned the potential disadvantage of a small home country base into an offensive global strategy (Ghoshal, 1991; Olaisen and Revang, 1991). The airline has a small, peripheral home base with weak bargaining clout on landing rights. Still, it has managed to orchestrate a network of strategic alliances through its links with British Air Holdings, Finnair, and Swissair in Europe, with All Nippon and Thai in Asia; and with Continental, Canadian Pacific and Lan Chile in America. This has allowed SAS to offer its passengers one-stop services to most parts of the world with a minimum waiting time. To further strengthen its ability to serve its business customers, SAS has also developed a worldwide hotel chain mostly through strategic alliances with local hotels but also through a 40 per cent ownership stake in Intercontinental Hotels. This provides SAS with an additional advantage — and bargaining strength — relative to its several airline partners.

Having an ownership stake in a network partner is a practice that SAS seems to follow when it can. Swissair and Finnair also are in negotiations to gain an ownership stake in SAS. Such cross-ownership arrangements can have particularly strong stabilising effects on a co-operative network. We see that SAS has been able to create a global strategy by means of putting together a series of strategic alliances into its own overall meta-system. This is a global position which would have otherwise been impossible to achieve because of regulatory constraints, resource limitations, and time.

The dominant type of strategic alliance has a number of advantages. At one level, it represents a relatively quick way to implement a global strategy that might be more difficult to do on its own. To go it alone might indeed not be a viable option at all. Resources needed may be exorbitant. To bring together the necessary complementary skills may take too long a time. And, in part, it definitely can be easier to adapt locally by means of a strategic alliance with a local partner. Indeed, this mode represents a true transnational profile that can provide a capability for better general political adaptability; one can have the benefits of being *both* local *and* global. Also on the global competitive scene, it can be easier to obtain a first mover advantage by using dominant strategic alliances (Doz and Prahalad, 1987; Lorange and Probst, 1987).

Typically, while it will be an advantage for the dominant partner to maintain this type of an alliance over time, the local partners may come to see it differently. Above all, they may resent the on-going dominance of their partner. This may be particularly so if they come to believe that the dominant partner is no longer doing a good job in maintaining the core. Several factors, however, contribute to keeping the alliance intact. It may be hard for the local partner to develop its own full-scale advantages. FiatGeotech, for example, would have had a hard time manufacturing the hydraulic components for their excavators on their own, and they would not have been able to achieve sufficient scale in their own operations. In fact, Hitachi Construction Machinery, the Japanese partner, through its established position to supply the key components for the hydraulics systems to both FiatGeotech and John Deere thus prevents any particular joint venture partner from developing its own scale advantages.

The dominant partner will typically have the interest and capability to continue developing its scale and/or scope advantages through maintaining a strong technology, providing new products that the partners can see in the pipe line, and/or, of course, continuing maintenance of its brands and image. All of these activities can represent important factors in preserving a partner's dominant role and creating long-term stability in this type of global competitive network.

Shared Global Alliances

While global dominant alliances can continue to perform well with one dominant partner in charge over an extended period of time, there are still several different reasons for potential deterioration in the longer run, all of which can lead to the creation of a gradually more and more shared strategic alliance. One reason may be a lack of territorial discipline, that is, the dominant partner may have less and less control over exports from an alliance with a local partner as it develops into a strong, self-going entity. The child might be capable of competing with the parent! Fuji-Xerox, for instance, definitely has the full range of capabilities today to be a global player in its business on its own, and it would not be meaningful for its partner Xerox to act as if it dominates this strategic alliance. It may also be that the formerly dominant partner can no longer afford a heavy resource input role, which perhaps was the case when Chrysler sold out part of its share in Mitsubishi Motors. Perhaps, also, the local learning from the dominant partner is accomplished and it is no longer needed as extensively, given that it no longer possesses a core competence or black box that is globally unique and thus can no longer hold a global network together.

And, of course, we may have situations where various substantial parties may feel that they have different prospective *complementary* roles in a global strategic alliance, where dominance by *one* partner may not be acceptable or appropriate by another strong firm for an extended period of time. For instance, strong firms may strive to complement each other in co-developing and sharing new technologies, co-developing and sharing new products, and/or sharing markets, based on the premise that both partners are so strong on their own that they *could* have gone it alone if they wished to. An example of this, although not entirely based on strategic alliances between separately owned firms, but rather between different entities in a large multinational conglomerate, is General Electric's global medical equipment business. In its US organisation, large and complex CT-scanners are developed and manufactured. In Japan, lighter and less expensive CT-scanners are developed and manufactured through a joint venture with Yokogawa Electric called Yokogawa Medical Systems. In Europe, the French-based Thompson, an acquisition, develops and manufactures the complementary ultrasound equipment. Taken together the three product lines represent *one* complete range of products and services. All three organisations sell this complete range in their home continents. Here indeed is a *shared* partnership!

As in the dominant alliance relationship, the shared partnership has many advantages. While it may take more effort to delineate the division of labour to obtain the basis for co-operation, the up-side is that the future success of the alliance is based on a symbiotic relationship where all parties must contribute at the edge. Thus, decision making is more or less equal and the partners must agree on all significant future development issues. This type of global alliance also gives the partners incentive to keep contributing to the partnership as each must play an active and complementary role (Lewis, 1990).

The current relationship between FiatGeotech Italy, Hitachi Japan and John Deere USA is an example of a strategic alliance that has grown over time into a shared global partnership, both through direct investments in jointly-owned facilities and through shared commitments to new product line developments (Lorange and Roos, 1991). While it could be argued that Hitachi still remains the *primus inter pares* because of the level of its financial investment in *two* separate manufacturing entities, one in Europe (with Fiat) and one in the USA (with John Deere), the technology transfer and level of product sharing gives the other two partners a firm equal footing — the network of alliances does indeed start to evolve into a globally shared one such as the one depicted in Figure 4.

Independent Global Partnerships

It may well be that the co-ordinating pressures of a globally shared strategic alliance easily become heavy, particularly if the alliance is facing stiff competition globally from major integrated competitors. Hitachi-Fiat-Deere, for instance, face formidable competition from such successful globally oriented firms as Caterpillar and Komatsu. As a natural response to this the partners have established a co-ordination centre located in Singapore, i.e., a central ground. Conceivably, this organisational entity may become more and more active when it comes to impacting the strategic alliance's adaptation moves and overall strategic development. Thus, maybe an *independent* strategic alliance is in the making — being managed in quite an analogous manner to a Phase III archetype in our evolutionary model.

SAS, which we referred to earlier, seems to represent the quintessence of such an independent strategic alliance. It is a partnership between the Swedish National carrier ABA (which owns 3/7), the Danish DDL (2/7 ownership) and the Norwegian DNL (2/7 ownership). An entirely autonomous organisation has however been established which runs the strategic alliance as if it were to be an autonomous firm. The result is an alliance that has proven itself able to adapt effectively to new circumstances and to map out new strategic directions. Interestingly, as we discussed earlier, SAS, itself an independent global strategic alliance, has become a dominant partner in a number of other strategic alliances, making it the linking pin in a global dominant alliance network.

Perhaps such an independent global partnership might be seen to represent a particularly potent form of competitive entity in the global scene of the future. It *both* enjoys the benefits of *global* scale and scope advantages, similar to a multinational corporation with wholly owned operations, and the benefits of being run as *local*, an advantage the multinational cannot easily duplicate. For instance, the Fiat-Hitachi-Deere-made excavators are seen as European in Europe, US-made in North America and Japanese in Asia. They have established a local image based on a global foundation! These transnational alliances, global networks, may indeed be the winners of the future (Lorange and Roos, 1991; Heenan and Perlmutter, 1979).

CONCLUSION

The tendency for an evolutionary pattern in how we expect strategic alliances to develop over time has important implications for managing such alliances. For instance, at the outset of forming a strategic alliance, we must recognise that the strategic alliance agreement one enters into might be expected to change, and we must even have a notion of *what point in time* it might shift. In other words, the formation process should include an open discussion of the expected dynamics of the venture. The decision makers in *both* parent companies should not be surprised at the subsequent requirements for task adjustments which may result in an increasingly independent entity.

When a strategic alliance is in operation we have pointed out how evolutionary thrust might come from several forces. Learning is one. The need to establish a self-sustained capacity to adapt to changes more rapidly is another. Organisational morale is a third. These factors, and others, all add to evolutionary momentum. Given the fact that the two parents will *not* be expected to relinquish their degree of direct involvement at the same rate and at the same time, but that instead an asymmetry will be established based on whichever partner will have to contribute the most in the case of unexpected crises, another source of evolutionary power may have been set in motion. It may become important for both of the partners to become a permanent "universe".

The evolutionary path also has to do with the specific business' and resource's role in the two partners' business portfolios. If the nature of the resources are such that they are likely to remain a core part of a parent's existing portfolio in the near future, it may be more difficult to see how a strategic alliance might evolve into an independent organisation. Such an evolution requires that both partners give up relevant resources to the strategic alliance. If these resources (physical, organisational or human) are the basis for the firm's operations this might jeopardise the firm's "raison d'etre" (Barney, 1991).

On the other hand if the resource in question is likely to become a commodity type in the future, there is typically much less of a problem with the creation of an independent entity. In this case, we might expect that the specific resources are already more broadly diffused in the industry and, therefore, may be of less strategic value to the partners. We thus see that there might be considerable pressure between forces that work towards accelerating an evolution and forces that might slow or retard it. If this conflict becomes too strong there might indeed be a strong likelihood of the breakdown of the strategic alliance. The evolutionary perspective in our conceptual model is also consistent with other authors' findings. In her concluding remarks, for instance, Harrigan (1986), stated that "joint ventures are a transitional form of management — an intermediate step on the way to something else."

The three archetypes of global strategic alliances, dominant, shared and independent, also seem to follow the same broad evolutionary processes, although, as we have now seen, not necessarily always exactly according to the generic model. In the first evolutionary phase, strategic alliances between multinational firms are often dominated by one partner. Over time, however, some of these alliances gradually evolve into more shared co-operation between two or several equal partners. The main reason for this is to gain political credibility in several key markets — a task hard to do through one company's dominance. And finally, as in our generic model, the alliance could evolve into global partnership led by a separate, independent entity.

When it comes to the question of global strategic partnerships, there seems to be several, potentially strong, advantages which can make such arrangements prototypes for successful future global firms. First, such alliances may represent a vehicle that can create scale and/or scope advantages necessary for the parties involved to be competitive on a global basis against wholly-owned global firms. Such partnerships might also require less resources and could be put together in a shorter time period than a wholly-owned global strategic organisation. Third, the global partnership approach allows for local identification, in that local partners from various parts of the world are involved. This gives the strategic alliance more adaptive clout *vis à vis* the various national environments than a wholly-owned multinational might be able to achieve.

Acknowledgement

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Strategic Alliances in Practice: The Case of Aer Rianta and Aeroflot

Derek Keogh, Aer Rianta

Abstract

Joint ventures, co-operative agreements and strategic alliances are likely to be the most effective ways for many Western companies to do business in Eastern Europe in the foreseeable future. Aer Rianta, Ireland's National Airports Authority, has been involved in such a strategic alliance in the Soviet Union with Aeroflot for a number of years. It has been highly successful for both parties and has proven to be the springboard for a range of commercial activities. This article outlines the background, development, difficulties and benefits involved in this relationship.

INTRODUCTION

The political and economic changes in Eastern Europe are providing Western industrialised countries with trading opportunities that are potentially attractive yet fraught with difficulties. In the longer term such trade will take the form of direct investment and acquisition of existing enterprises in Eastern Europe. However in the foreseeable future joint ventures, co-operative agreements and strategic alliances are likely to be the most effective ways for many companies to do business. The Western partner is provided with access to a marketplace which has many complex characteristics, while the Eastern partner enjoys a transfer of management, marketing, production, technological and financial know-how. Aer Rianta, Ireland's National Airports Authority, has been involved in such a strategic alliance in the Soviet Union with Aeroflot for a number of years. It has been highly successful for both parties and has proven to be the springboard for a range of commercial activities.

Aer Rianta is a state-owned company charged with managing and operating Ireland's three main airports at Dublin, Shannon and Cork. Its revenue from all activity amounted to IR£200 million in 1990 and it employs almost 3,000 staff in a diverse range of activities at home and abroad. Apart from actually managing airports, the company designs, builds and maintains passenger terminals, runways, hangars and other airport infrastructure. It operates duty-free shops, bars and restaurants, hotels, police and fire services, cleaning services and car parks, and among its ancillary activities are a fuel company, a college of hotel management and a mail order firm. It is interesting to observe that the world's first duty-free shop was opened at Shannon Airport in 1948. This followed the signing of the Chicago Convention in 1944 which extended the tax-free status of ships in international waters to include aircraft and airports. Ireland's lead was quickly followed by other airports around the world. From that tiny single counter shop at Shannon has grown the major retailing industry that duty-free is today and which in Ireland is worth over IR£65 million and which worldwide generates sales in excess of $13 billion.

Most other airport authorities in the world provide commercial activities at their airports through concessions and franchises. Aer Rianta does almost all of it itself. As a result the company has unique credentials to present to prospective partners in Eastern Europe. Firstly it is a national authority, with all this implies to outsiders in terms of answerability and long-term staying power; secondly it can bring to other airport authorities a comprehensive knowledge of planning, operational, technical and commercial options; and thirdly, as well as specialised expertise in airport matters, it has practical know-how about a broad range of business activities. Thus it can approach clients with a range of stand-alone products or with proposals that are either vertically or horizontally integrated, i.e. it can plan, design, execute and manage a particular operation, or it can manage a diversified range of activities side by side. In the current situation in Eastern Europe where an enormous variety of options present themselves to sometimes confused decision makers, Aer Rianta is therefore an attractive potential partner because of this built-in flexibility and the variety of its business experience.

"Aer Rianta wants to establish itself as the best organisation in the world in the field of managing airports and associated commercial activities". This in essence is Aer Rianta's mission statement. Because opportunities for expansion in Ireland are limited the company has identified a four-pronged development strategy and all the elements of this strategy are embodied in its activities in the USSR:

- Quality as an overriding value in all activities
- Diversified products
- Integrated development based on branding
- Long-term emphasis on the international dimension.

ORIGINS OF A PARTNERSHIP

The fifteen republics which form what was until recently called the Soviet Union cover an extremely large area, with 11 different time zones and practically every climate imaginable. It takes eight hours to fly from Moscow to Khabarovsk in the East (a possible location for new Aer Rianta activities) while Moscow is actually closer to Dublin than to Tashkent, the fourth largest city in the USSR and a location in which Aer Rianta will open shortly.

Aer Rianta's main partner in the USSR is Aeroflot, the Soviet national airline. Aeroflot is the world's largest airline with over 5,000 commercial aircraft. It carries over 200 million pasengers annually and also manages 120 airports. By comparison with the USSR and Aeroflot, Ireland and Aer Rianta are tiny. Nevertheless, Aer Rianta has at present nine different business ventures trading successfully in the Soviet Union with Aeroflot and a range of other partners. It employs 225 Irish people and 450 Soviets in these activities and had a revenue of over IR£46 million in the Soviet Union in 1990.

Aer Rianta's association with Aeroflot dates back almost 20 years. Because of the importance of transit traffic to Shannon, it had established a marketing unit there in the 1970s to promote the use of the airport for technical stops. Aeroflot became a regular user of Shannon for refuelling stops throughout the 1970s but ceased operations when aviation fuel prices became too high. Following understandable disappointment at the airline's withdrawal, Aer Rianta executives devised a plan to store fuel of Soviet origin at Shannon so that Aeroflot could reduce its hard currency commitments. Shannon is located close to a deep-water estuary and an international fuel company had already established a refuelling facility there involving the pumping of fuel oil from oil tankers at a nearby jetty through a pipeline system into tanks located at the airport.

The proposal put to Aeroflot was that Aer Rianta would invest in a similar system for Aeroflot use. Fuel would be shipped by surface from points in the Baltic Sea to this oil jetty and would be pumped through a dedicated pipeline system to special storage tanks at the airport. When Aeroflot aircraft landed, they would be refuelled from this source and would pay a handling charge per gallon of fuel related to the fuel handling costs and Aer Rianta's capital costs. A small profit would be built into the charges but Aer Rianta's real profit would come from the normal landing and other charges related to transitting the airport. Following some initial scepticism a five-year agreement with Aeroflot was signed in 1979 under which the Soviet Airline agreed to put 300 services through Shannon in the first year of the agreement, rising to 750 in the third. The new operation commenced in July 1980 and the arrangement was an instant

The Author

Derek Keogh is chief executive of Aer Rianta, Ireland's National Airport's Authority. He joined Aer Rianta in 1969 from the Department of Transport and Power and held various positions before becoming chief executive in April 1988.

He is a Fellow of the Chartered Institute of Transport and a member of the Irish Marketing Institute. He is currently on the National Executive Committee of the Confederation of Irish Industry and on the European Board of the Airports Association Council International.

success, yielding significant hard currency savings to Aeroflot and equally significant additional revenues to Aer Rianta and the Shannon region. Between 1980 and 1982, the number of Aeroflot flights increased from six weekly to 20 weekly with correspondingly increased benefits to both sides.

The relationship took a further step forward in 1983 when a barter agreement was signed under which quantities of Soviet fuel were made available to Aer Rianta at an agreed price per gallon. All fuel sold to other carriers by Aer Rianta was then offset at the agreed rate against handling charges and other airport fees due by Aeroflot. This arrangement had the further advantage from Aeroflot's side of reducing to an absolute minimum hard currency transactions associated with each refuelling at Shannon. It had the additional advantage from Aer Rianta's viewpoint of giving a source of attractively priced aviation fuel with which to entice other operators to use Shannon for technical stops. This arrangement has worked so well for both parties that Aeroflot will operate over 2,000 flights through Shannon in 1991, uplifting over 30 million gallons of fuel and bartering a further 9 million gallons which Aer Rianta in turn will sell to various customer airlines. Aer Rianta could in fact sell much more fuel, but the Soviet side has limited the supply. The success of these arrangements for both parties over the years has helped to nurture a trusting relationship between Aer Rianta and Aeroflot, a factor which has been of key importance in the subsequent ventures.

JOINT VENTURE

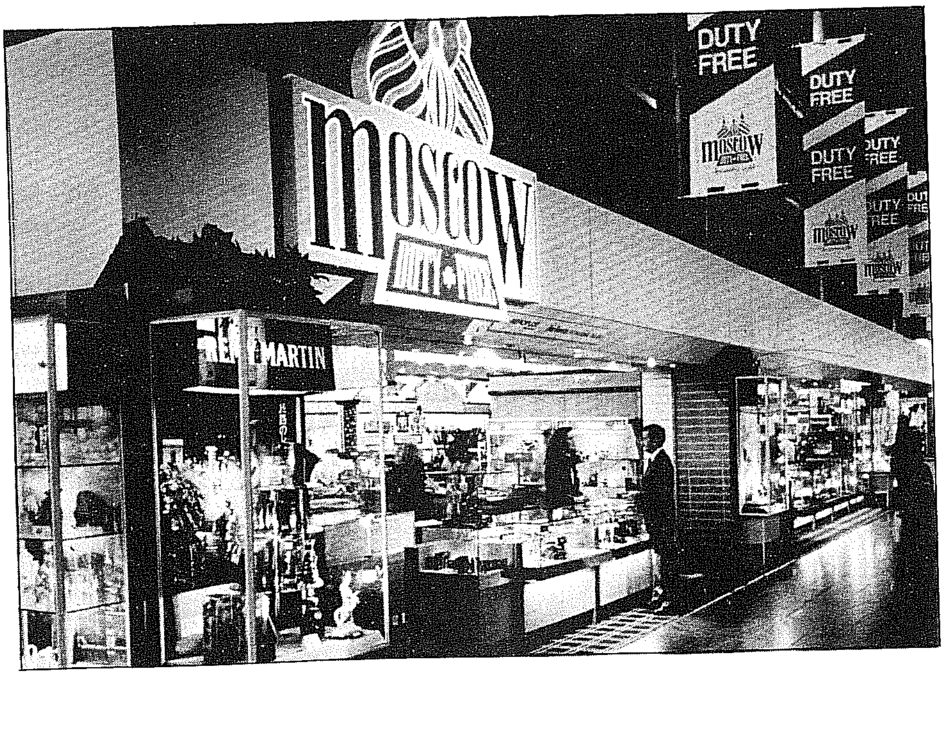
In 1987 the Praesidium of the Supreme Soviet issued a decree providing for the setting up of joint venture companies with Western partners. The objectives included acquiring Western know-how and technology and increasing hard currency earnings. While more recent legislation now allows for 100 per cent foreign ownership of businesses, the joint venture company is still by far the most popular method of entry into the Soviet market. Outright acquisition of existing businesses is still not possible and is of doubtful value in any event, given the nature and current state of existing Soviet enterprises. Greenfield ventures are difficult to get off the ground because of the need to establish legal title, currency conversion mechanisms and so on. On the other hand, the joint venture format offers substantial economic and political advantages. Investments and risks are shared and overall investment requirements can be reduced substantially through the use of the partners' existing infrastructure. The Soviet Union has an elaborate bureaucracy and registration of business ventures can be a long and complicated process. Consequently, dealing with an existing Soviet agency, with an undisputed legal status and established lines of communication to government, is a major asset in the setting up of any activity.

Many avenues of possible partnership along the lines set out in the decree were discussed between Aeroflot and Aer Rianta and eventually in February 1988 an agreement was signed to form a joint venture company called Aerofirst whose purpose was to establish duty-free shops at Sheremetyevo Airport in Moscow and to carry out other commercial activities at that airport. All of these activities would have hard currency income. It is important to recognise that getting a joint venture registered is not itself a guarantee of success. Aer Rianta's experience has shown that exceptional energy, enthusiasm and a stubborn commitment are essential after that to ensure implementation, survival and growth. Three thousand or more joint venture companies have already been registered in the USSR, but published data reveals that only 10 per cent of these are in fact in operation and indications are that very few are actually making profits. Even if the right partner is found — one with all the necessary credentials to help gain access to the targeted market — a joint venture still has to reconcile different levels of knowledge and know-how as well as overcoming logistical, operational, legal and financial barriers. The success or failure of the joint venture depends on many different variables including not only the strength of the business idea itself and the effectiveness of the payment mechanisms but also the ability to achieve integration of cultures, styles, philosophies and personalities. Problems over staffing, operating procedures, sourcing of goods, technology, profit repatriation, production selection, pricing, cost and investment allocation, market priorities, management control, taxation and the basic question of mutual trust will all present themselves at some stage.

Aer Rianta was fortunate in the beginning in having effective partners and a highly motivated staff, totally committed to getting the ventures up and running. In the case of the initial Moscow duty-free venture, every scrap of building material down to the drawing pins had to be brought from Ireland and all construction work had to be undertaken by Aer Rianta in difficult circumstances against a tight deadline. Indeed there was a great sense of missionary zeal about the whole enterprise. During the early stages of operating the shop, it was normal to work 16-hour days to get things right. This, however, generated a tremendous sense of teamwork, formed a lasting bond between the people who set up this first venture and has been invaluable in expanding into other areas. In keeping with its mission statement, Aer Rianta made sure that the Moscow shop was of the highest international standard (see Exhibit 1). In fact, the shop earned the Retailer of the Year award in 1988 at the annual Cannes Tax-Free Symposium. The company has tried to improve on this standard with each new shopping venture and has recently squared the circle by carrying out major improvements to the original Moscow shops. The fact that Aer Rianta won the Retailer of the Year award in 1990 — this time for its Dublin Airport shops — helps to encourage the drive for higher quality and also of course strengthens its brand image.

Aer Rianta's business in the USSR is now very extensive and is spread over a range of locations and activities. These include:

Exhibit I
Aer Rianta/Aeroflot Duty-Free Shop at Sheremetyevo Airport, Moscow



- Running duty-free shops in Sheremetyevo Airport in Moscow. The company now has two departure shops, two arrival shops, two perfume shops and a number of specialised boutiques at the airport.
- Running duty-free shops and other activities at Pulkova Airport in Leningrad. Here the company has two departure shops, one arrivals shop and two bars.
- Providing an in-flight duty-free service for Aeroflot's international services to and from Moscow and Leningrad.
- Operating hard currency shops in three downtown hotels in Leningrad.
- Operating a duty-free shop on the border with Finland.
- Operation of a large supermarket and bar in the heart of Moscow's Arbat district, situated midway between the Kremlin and the "White House"; upstairs a Western-style supermarket retails foodstuffs, clothing, hardware and electronics for hard currency while the downstairs area retails mainly foodstuffs for Soviet currency.

The company is also engaged in a number of ancillary activities which range from hangar construction and warehousing to computer assembly and ticket sales. Projects currently in hand include:

- New airport duty-free shops in Kiev and Tashkent — both due to open in the spring of 1992.
- Further downtown shops in Moscow, Leningrad and Tbilisi.
- Development and marketing of upgraded Aeroflot services through Shannon to Miami, Washington and other US destinations.

Projects under negotiation currently include property development in Moscow, hotel management contracts in different parts of the USSR, border shops in a number of locations and a number of import/export businesses.

CULTURAL DIFFERENCES

It is important to recognise that Eastern Europe is a far cry from being the Third World. The Soviet Union is an advanced and sophisticated society — but its people have a number of different constructs and priorities to those in Western industrialised societies. This was illustrated graphically to this writer some time ago when he was speaking to some of Aer Rianta's Russian staff in Leningrad about opportunities in retail management. When he had finished talking about purchasing, merchandising, marketing and so on and told them that they had the opportunity to be the nucleus of a whole new management discipline in the Soviet Union, one of them asked, "But is it proper work for an intelligent person?" This writer has asked himself that question in private many times since then. Russians have a very wry sense of humour — for instance, it was they who invented Lada jokes. But it is vitally important never to be patronising in dealing with Soviet people. Russians in particular are very proud on a personal level; self-esteem is very important to them. A Russian may disconcert you in mid-conversation by suddenly asking, "Do you respect me?".

It is also important to realise that, unlike other countries in Eastern Europe, the Soviet Union has never really had a market economy or a capitalist system. The Russian Empire was always a highly centralised entity with an all-pervasive bureaucracy and the system since 1917 has been much the same. Perhaps the key practical difference now in business cultures is that the business system in the West normally consists of sourcing, production, marketing, distribution and customer service, while in the Soviet Union decades of central planning have placed almost all of the emphasis on production. For example, a couple of years ago the Soviet Union produced 59 kilos of meat per head of population compared with 62 kilos in the US in the same year. Yet, there is a constant shortage of meat in the Soviet Union and what is available is generally of poor quality. Aer Rianta obtained an insight into this recently when attempting to set up a reliable source of supply for its supermarket in Moscow. Its people visited a Soviet collective farm and found vast herds of healthy cattle and sheep. However, the slaughtering facility could only take one animal at a time and the process of portioning and distributing the meat was highly wasteful.

Other influences of central planning include the lack of a relationship between costs and revenues. For example, in many cases, the price at which manufactured Soviet goods are sold over the counter to Russians is the price at which the goods have been transferred from the factory. In addition, the lack of incentive and an ingrained fear of failure discourages innovation. The singular emphasis on production quotas leads to disregard for most other factors. Aer Rianta has experienced constant difficulties in obtaining adequate supplies of Russian products because the production plan cannot adapt to the new markets created for these products. Last year a Moscow distributor of a Russian-made pick-up truck refused to sell one to the company because he had already sold his quota for that quarter. He had a back yard full of unsold trucks, but the paperwork involved in explaining away any variation from targets was an overwhelming disincentive to him.

PEOPLE ISSUES

In many ways the greatest stumbling block for Aer Rianta has been the lack of understanding of the concepts of service and quality. Many of Aer Rianta's ventures involve provision of customer service to foreign visitors. The concept of the customer as king is a somewhat alien notion in the Soviet Union; those wishing to purchase goods or services are treated more like supplicants than royalty. Shop assistants who control access to goods usually see themselves as being in positions of power and they act accordingly — a bit like some civil servants in the West. There is a related problem for suppliers who wish to see their product presented and sold in a proper fashion. The value of merchandising is virtually unknown in the Soviet Union and Soviet products, even those of the highest quality, are poorly presented. As demand almost always exceeds supply, they presumably have never felt the need to enhance the attractiveness of the products in any way. Changing these approaches involves intensive reorientation and training of local staff as well as a lot of role modelling by, in Aer Rianta's case, Irish management and front-line staff. The employment of a large number of expatriate staff is however expensive, so it is vital to the success of a venture that appropriate training programmes for local staff are developed and constantly reinforced.

Further problems may arise regarding the remuneration and motivation of staff. In Western society it is, of course, common practice to pay commission to sales staff or to *incentivise* them in some other way; this can pose difficulties in the USSR, particularly if the Soviet partner employs large numbers of staff on other duties. Comparisons between incentivised and non-incentivised staff can quickly lead to major problems. Aer Rianta has therefore had to devise indirect incentive systems, e.g. special training in Ireland for high-performing staff.

Reference was made earlier to missionary zeal. It is vital to pick the right people to set up any foreign business venture and this is particularly true of the Soviet Union. The people chosen need not necessarily be already established as bright stars at home. Aer Rianta's experience is that the best performers are self-starting members of middle management, particularly those with a bit of individuality. The best approach is then to empower them fully within broadly-agreed parameters. Because there are so many obstacles to progress but, on the other hand so many opportunities, the major talents required for those in the front line are energy, commitment, patience, adaptability and a dogged will to get things done. This particular management orientation is principally required during the pioneering phase of a venture. Aer Rianta has a growing need to consolidate and manage the outlets which are already up and running. This is of course a different task to opening new frontiers. Recognising the appropriate management style for different phases of a project is crucial to success. In many cases not only is a different style required but also different managers.

One of the primary concerns of Aer Rianta's Soviet partners was, and is, the employment and training of their own people. Aer Rianta has found Soviet staff are willing to learn and that they catch on very quickly. In the early days the shops were staffed almost entirely with Irish people but now the ratio is 75 per cent Soviet to 25 per cent Irish. Initially, Aer Rianta trained Soviet personnel on site in Moscow but now it is increasingly bringing groups of staff to Ireland for training. This has a dual benefit in that a trip abroad is a tremendous incentive and valuable skills are learned in the time spent in Ireland.

Aer Rianta has made very considerable progress from the initial stages when it had fundamental difficulties in explaining the nuts and bolts of retailing to its Soviet staff. For example, one of the biggest selling Soviet products in the shops is the Matrushka doll, a major souvenir item. When Aer Rianta first began retailing in Moscow it found that these were in great demand. However as it had not been allocated a quota within the system, it was very difficult to get stocks. One of the Aer Rianta managers eventually went to a Soviet shop, purchased its entire stock of Matrushka dolls and proceeded to stock the duty-free shop, presenting the dolls effectively for the overseas trade and retailing them at a higher price. The Soviet staff could not understand why he had increased the price. He explained that the mark-up was in order to recover costs and make a profit. Their reply was, "For what purpose?". However, as mentioned, the Soviets learn and adapt very quickly and many now operate very effectively at management level. In fact, the joint venture's senior manager in Leningrad at present is a Soviet who has received extensive training in the Irish Management Institute (IMI).

FINDING THE RIGHT PARTNER

It is an understatement to say that these are times of great change in the Soviet Union. These changes can result in major shifts in power from long established bodies to newer units; from centralised enterprise to individual businesses or from central authority to regional or local authorities. This trend is by no means uniform; there are occasional moves in the opposite direction also. So in finding the right partner the first crucial consideration is to try to ensure that the prospective partner is not made up of "yesterday's men". This requires a great deal of local knowledge and continuous analysis of trends. And it is always somewhat risky. It takes a brave man to forecast individual winners in any part of the USSR at present.

Secondly, it is necessary that both partners share the vision of what the joint venture is seeking to achieve. Both parties must share the same views about the purpose of the enterprise, about quality, value-for-money, long-term versus short-term profitability and so on. Aer Rianta's insistence on high quality and good customer service has sometimes involved a lot of effort to reach understanding with its partners. A few other practical points about choosing partners and location also arise. For example, lines of authority were, until recent times, less complex in the regions than in Moscow and therefore local groups could often move more decisively than a big city partner. Now this situation is much more complex because of the increasing moves towards independence in the regions. Registration processes have become slower and more uncertain; there are disputes between the regions and the centre about the authority to conclude agreements, licensing issues, property rights and so on. For the moment is is wise to move slowly in these areas.

When Aer Rianta first attempted to enter the Soviet market, one of the main planks on which it sought to create competitive advantage was its existing successful relationship with Aeroflot. It had dealt closely with the Soviet airline for over ten years and it found it to be extremely dependable and trustworthy, keeping its commitments as a matter of honour. The Soviets seek these qualities in turn from their business partners and, while often cautious and slow to trust, once a business commitment is maintained a lasting relationship is formed. Aer Rianta has found all of its partners enthusiastic and eager to obtain results, reliable in performing their part of agreements, effective in resolving problems and tough but fair in negotiations. Aer Rianta managers are continually amazed at the ability of Soviet personnel to cope with the rapid changes taking place in recent times in the regulatory and administrative framework in which they operate. These managers are also impressed by the enormous ingenuity and commitment they have met in a wide range of Soviet individuals whose determination to achieve results in very trying circumstances would impress any Western entrepreneur.

The company has made a virtue of adhering to agreed deadlines and this has paid major dividends. When it signed its first agreement in February 1988 to open the Moscow duty-free shop by May Day, some local cynics asked, "May Day of which year?" But the target was met. Word of the company's ability to deliver spread quickly, giving it an appealing track record when negotiating deals in other regions of the country. Interestingly on a social level, the company found that a great affinity built up between the Irish and the Soviets. There are many similarities between the two peoples, for example, an interest in politics, sport, conversation and a liking for the occasional celebration. Both also like to tell jokes.

OVERCOMING DIFFICULTIES

One of the main problems when dealing in the USSR is the current non-convertibility of local currency. One of the particular attractions of Aer Rianta's joint ventures in the Soviet Union, both from its own and its partners' viewpoint, is the potential to earn hard currency. Although many of its customers are now Soviet citizens the majority of sales are to foreign visitors and all retailing income is in hard currency. While there are indirect benefits to the indigenous population in terms of hard currency earnings and employment, the fact that Soviet citizens cannot purchase Aer Rianta's goods for roubles is a problem which has to be addressed in the longer term. While the trend in the USSR is towards greater freedom for both foreign companies and local organisations, the transition to a market economy and the subsequent convertibility of the rouble is likely to be slow and problematical. In the short term Aer Rianta is constantly seeking ways in which it can overcome the problem of access to the wider market of the Soviet people. Also the company now has substantial expenditure in roubles in its main businesses and requires an income in roubles to handle this. The recent opening of the two-tier supermarket venture in Moscow with some departments trading for roubles is a major strategic development.

Soviet infrastructure, particularly roads and railways, is poor. Up to 60 per cent of the goods sold in the company's retail outlets in the USSR is sourced overseas in countries as far apart as France and Singapore. Logistical expertise has to be employed constantly to work out optimum routings and to contend with the inadequacy of the Soviet infrastructure. A further difficulty involves Soviet legal restrictions on transferring goods between one joint venture company and another. This has impeded normal commercial distribution practices. As business grows, these problems of warehousing and distribution will become greater.

Another source of difficulty which will arise in any joint venture is the area of return-on-investment. Soviet and Western business people obviously have different concepts about how to treat issues like capital investment, the value of assets, inflation, interest, depreciation, gross and net profits and so on. In terms of accounting practice, profit is often perceived as an item to pay the wages; it is seen as a reward to labour rather than to enterprise. However notions about the role and worth of profit — like that of management practice itself — are changing. Resolving these key issues requires great patience, understanding and trust. But the rules are becoming a little clearer as the process of change goes on.

SPRINGBOARD TO THE FUTURE

Aer Rianta began operations in the USSR in 1988 and had sales of IR£12 million in that year. In 1990 these sales reached IR£46 million. Profits to date have more than repaid investment. In addition, 50 per cent of the profits of the joint venture companies have gone to the Soviet partners and this has helped to finance some of their infrastructural needs such as the purchase of essential aircraft equipment and the construction of a maintenance hangar in Moscow — a task undertaken by an Irish firm. Indeed one of the further benefits of Aer Rianta's involvement in the Soviet Union has been the opportunities afforded to other Irish companies, in construction, design, food, clothing and so on, to do business in that country. The company's ventures now extend from the Finnish border to Tashkent in Uzbekistan and include a diverse range of activities. As we have seen, apart from retailing, it is involved in catering, in-flight duty-free sales, construction, import/export, accommodation rental, and even computer assembly. Its overseas activities with Aeroflot have reinforced the original relationship and have spread back to Ireland where Aer Rianta now paints and refurbishes Soviet aircraft and is helping with the marketing of Aeroflot services to the US. Aer Rianta has recently acquired a hotel chain in Ireland and it is hoped that this will lead to opportunities for further hotel management contracts and joint ventures in the USSR.

The company's overseas activities are managed through a subsidiary company called Aer Rianta International which in turn has entered into joint venture companies in the Soviet Union with a number of partners including Aeroflot, Intourservices, local authorities and others. These joint venture companies (with names such as Intourianta, Lenrianta and Kievrianta) are registered under Soviet law with various agreed shareholdings. Both sides are paid above the line for various services rendered, thus ensuring a regular cash flow, and profits are divided on an agreed basis. As almost all of the revenue in the joint ventures to date is in hard currency, the need for countertrade or barter arrangements is minimised. All of the joint ventures are covered by carefully drafted long-term legal agreements. Management boards drawn from both sides oversee the running of each venture and to date these have successfully resolved any issues which have arisen at an operational level.

Aer Rianta's success in the Soviet Union so far has been primarily due to its distinctive market entry based on the successful relationship with Aeroflot and then extended to other partners. Its direct know-how and experience is in offering a full range of airport management and related services together with its existing reputation in the duty-free industry. Once established it was able to consolidate and expand by delivering a business system based on:

- Logistical ability in setting up new shops and meeting distribution requirements.
- Organising human resources and managerial structures appropriate to the environment.
- Rigidly keeping commitments to its business partners.
- Understanding and working within the constraints of the Soviet legal and administrative systems.

The uncertainties now facing the Soviet republics are obvious. Investment and expertise are now required more than ever, creating major opportunities for Western firms which are willing to enter the market for the long haul. Aer Rianta has always taken a long-term view of its involvement in the USSR. Its policy is to give a fair deal to its partners and to try to assist them from its experience over a wide range of activities. For example, the company has often given free professional advice on matters outside the scope of the joint venture agreements and this of course helps to cement relationships. Aer Rianta has gained a foothold in a number of strategic areas and is now constantly approached with proposals for new ventures. It recognises that many of these business opportunities will not recur. So while the company intends to maintain a balanced portfolio of businesses, it also intends to grasp as many opportunities as possible.

The company's track record is now a major asset in itself. Future success will depend on its ability to achieve the proper balance between consolidation and expansion, to continue to develop relationships with the right partners, to protect its cash flow and to finance developments on a prudent basis. But it will also depend on maintaining the spirit of adventure that has brought it so far — it still needs people with a combination of cool nerve and missionary zeal. Setting up ventures in the Soviet Union can be highly profitable, once the regulatory and other difficulties involved are overcome. The process of managing ventures is frustrating and challenging, exasperating and delightful. *The first joint venture is the hardest.* Aer Rianta's experience has been that it can take a considerable length of time to complete a first joint venture agreement, whereas additional agreements can be easier. This has something to do with "learning the ropes" on both sides and also with the benefits of establishing a reasonable track record. Mutual trust is an essential element to trading in the USSR and a long-standing relationship with a Soviet organisation may prove to be a vital asset. Success not only generates profits and opens up new doors, it also gives great satisfaction and helps to develop mutual respect and admiration between the business partners — and even the countries — involved.

Europe 1992: A US Perspective on the Implications for Business

Ronald S.J. Tuninga, Rutgers University, and Arthur Sybrandy, Penn State University

Abstract

The changes taking place in the European Community are important for American international competitiveness. The imminence of this Single Market has given rise to fears among US business managers of a shift in competitive strengths, a rise in protectionism and a "Fortress Europe". A study of 115 US business executives by personal interview examined their concerns, perceptions and knowledge of Europe 1992.

Less than a third of the respondents rated themselves as either familiar or very familiar with Europe 1992. It is apparent that many US managers underestimate the need for hard factual information about the Single Market. In examining functional business areas it was generally agreed that marketing is the function that will be most affected by the Single Market. Interestingly, within the ambit of marketing, logistics/distribution was perceived to be the activity that would be most affected.

The signing of the Single European Act by all twelve member countries brings the European Community one step closer to the realisation of one common market. This goal of a single European market will have major implications for American business. For a number of years now, the issue of a "Fortress Europe" has been raised in the popular business press, in particular as a major concern of certain government officials. For example, former US trade representative, Clayton Yeutter, was quoted from a letter to EC officials as saying: "We welcome your efforts at completing the internal market — but not if a single market leads to increased external barriers", (Riemer, 1988). William Johnson, CEO of Scientific Atlanta Inc., said: "We are concerned about some indications that Europeans would like this to be a reason to build a wall around Europe" (Anders, 1989, p. 20).

This article examines the importance of this concern to US business executives. The changes taking place in the European Community are important for American international competitiveness. The combined members of the EC are by far the largest foreign investors in the US and play a major role in world trade. Further, the EC represents a sizeable market. The imminence of this Single Market has given rise to fears among US business managers of a shift in competitive strengths, a rise in protectionism and a Fortress Europe. A study of 115 US business executives in the Pennsylvania-New Jersey-Delaware region by personal interview examined their concerns, perceptions and knowledge of Europe 1992.

THE IMPORTANCE OF EUROPE 1992 TO AMERICAN BUSINESS

Europe 1992 is important to American business for three reasons. First, four of the 1988 top ten countries investing in the US are members of the European Community (foreign direct investment in the US: Britain 101.9, The Netherlands 49.0, West Germany 23.8 and France 11.4 billion dollars (*Source*: Department of Commerce)). Changes in the European Community which influence the competitiveness of European companies may therefore have a relatively large effect on investments in the US market by these companies. For example, France's Pechiney company president, Jean Martin Folz, said: "France needs a world strategy and that's not possible if you are not strong in the US" (Toy and Peterson, 1989, p. 49). The president of Unisys in The Netherlands has stated that he foresees an increasing level of international activity in his firm on foot of the Single Market (*Surplus*, 1988). Other European firms are likely to follow suit. This increased competitiveness of European companies as predicted in the Cecchini report thus has implications for American businesses operating solely in the US market, as well as for those American companies that conduct business with(in) the EC. As Dudley (1989) points out, "The combined advantage of a North American and a free European Community market put a number of major European companies onto a competitive global footing with their North American and Japanese competitors."

Second, the EC commands 22 per cent of all world imports and 21 per cent of world exports (*not* including intra Community trade. (*Source*: Department of Commerce, 1984)) making it the world's largest trader. Indeed this is one reason why protectionism is *not* likely to increase. The EC has most to lose from reductions in world trade that would result from a resurgence of protectionism. In this light fears of a "Fortress Europe" seem unjustified. In the long term any protectionist measures would be in the interest of neither the EC, nor the US. However, this does not mean that there will be no short-term trade "problems" between the US and the EC.

Third, the European Community is the largest trading partner of the US. Clearly, increased competitiveness of European companies has implications for American companies in order to sustain their position in both European and domestic markets.

The Authors

Ronald S.J. Tuninga is Assistant Professor of Marketing and International Business at Rutgers University's School of Business, Camden, New Jersey. Most recently he was a Visiting Professor at the Eindhoven University of Technology. His current research is in the area of international and comparative marketing, in particular the Europe 1992 programme. His publications have appeared in the Journal of International Business Studies, Journal of Macromarketing, *and* Asia Pacific International Journal of Business Logistics. *He is North American Editor of* Irish Marketing Review.

Arthur Sybrandy is an Assistant Professor of Marketing at the Great Valley Graduate Center of Penn State University. He has research interests in international marketing, marketing theory and the application of general systems theory to marketing.

RESEARCH METHODOLOGY

A questionnaire was used to obtain the data for this study. The questionnaire consisted of several sections dealing with issues relating to the perception of the "Europe 1992" programme. In one of the sections respondents were asked to make six paired comparisons regarding the effect of Europe 1992 on functional business areas. In addition, ten paired comparisons regarding the effect on certain marketing activities were presented. The final sections of the questionnaire were used to collect demographic information.

Objective knowledge of the respondent was measured using a four-point Guttman scale (Nunnally, 1978, p. 72). This scale consisted of four factual questions on Europe 1992 in an ascending level of difficulty. This objective measurement was later correlated with the respondent's subjective assessment of his knowledge in regard to the 1992 programme.

In various sections paired comparisons were utilised in order to allow for the construction of an interval level scale based on Thurstone's law of comparative judgement (Case V*) (Nunnally, 1978, Guilford, 1954, Torgerson, 1958). Although the respondent is only required to choose between two alternatives, this technique allows not only for the ranking of stimuli, but also helps to describe the perceived distances between these stimuli.

RESULTS

Sample Characteristics

In total, 115 executives in the New Jersey, Pennsylvania and Delaware areas responded. Because the data was collected using personal interviews, all questionnaires were usable, although some data was missing in a few instances. The characteristics of the respondents' companies are summarised in Table 1. The categories used to indicate size are based on those applied by the Small Business Administration. A large proportion of the sample includes relatively large companies, i.e. companies with more than 499 employees and/or more than 100 million dollars in sales revenue. Even though large companies form the largest part of the sample, companies in each of the smaller categories are represented.

Most companies involved in this study have some kind of European involvement. Respondents of many firms indicated more than one mode

* Thurstone's Case V assumes that there is no correlation between responses to any pair of stimuli and that the discriminal dispersions are all equal. The validity of these assumptions is assessed by calculating a chi-square value.

of European involvement: this is the reason why the percentages in the second part of Table 1 add to more than 100 per cent. The distribution of the various kinds of European involvement follows what would be expected from conventional international business theory, i.e. exporting is most important, followed by various forms of foreign direct investment.

Table 1
Characteristics of Respondent Companies

Size:	Number of of employees	%	Total sales (in million dollars)	%
	1-19	10.7	<1	8.3
	20-99	17.0	1-4.99	11.9
	100-499	17.9	5-14.99	5.5
	499-	54.5	15-24.99	6.4
			25-99.99	11.0
			100-	56.9

European involvement:	% of firms
Exporting	50.4
Licensing	27.8
Sales subsidiary	31.3
Manufacturing	29.6
Other	23.5

Knowledge of Europe 1992

In order to determine the respondents' familiarity with Europe 1992, a twofold approach was used. First, the respondents were asked to rate themselves regarding their knowledge of the programme on a five-point scale, ranging from "very unfamiliar" to "very familiar". Second, respondents were asked to answer four objective questions that formed a Guttman scale. A respondent was deemed knowledgeable if three or more answers were correct; since in this Guttman scale at least one of the two more difficult questions had to be answered correctly in order to be classified as knowledgeable.

Only 31.5 per cent of the respondents rated themselves as either familiar or very familiar with Europe 1992. This is a low percentage, especially in light of the fact that more than 50 per cent of the respondents' companies were already involved in the European market. The objective test scores showed that about 43 per cent of the respondents are actually knowledgeable. This percentage actually overstates the case owing to a "guessing" factor.

A cross-tabulation of the subjective self-rating with the results of the objective Guttman scale was not significant. This result indicates that a respondent's knowledge and his or her perception thereof are not always related. This implies that at least some US business managers do not seem to realise that they need more factual information about the European market. This information is all the more relevant considering that some directives have already been implemented with consequent reverberation in the marketplace.

Perception of "Fortress Europe"

About 45 per cent of the respondents agreed with the statement that the unification of the European Community will lead to a "Fortress Europe". In an earlier *Wall Street Journal* article, this percentage was even higher, estimated to be around 75 per cent (*Wall Street Journal*, 1989, p. 21). It is clear that serious concerns about possible protectionist measures exist. Surprisingly enough, a cross-tabulation of responses to the statement with the objective test score did not show any pattern. Based on current perceptions either position regarding "Fortress Europe" can be supported, indicating that much uncertainty about European developments still persists.

Knowledge about Europe 1992 and European Involvement

A breakdown analysis of the percentage of sales generated by European involvement by the respondents' self-rating regarding knowledge of the Europe 1992 programme showed the expected pattern; respondents whose companies were more involved in the European market rated themselves more knowledgeable. The Guttman scale results, measuring knowledge objectively, showed the same pattern; a greater percentage of European sales was accompanied by a better knowledge of the respondent (see Table 2). When examining the percentage of foreign sales by both self-rating and objective measures of knowledge about Europe 1992 a similar pattern was observed. Again this is what one would expect.

Table 2
Breakdown of European Sales (as percentage of total sales) by Knowledge about Europe 1992

Self-rating:	Percentage European sales:	Percentage foreign sales:
Very unfamiliar	8.9	18.6
Unfamiliar	8.6	11.9
Neutral	10.8	27.6
Familiar	15.5	23.5
Very familiar	24.6	37.4
Objective test score:	**Percentage European sales:**	**Percentage foreign sales:**
1.0	8.8	17.5
2.0	7.4	18.2
3.0	16.1	26.3
4.0	25.0	42.3

Importance of Different World Regions

Further analysis of the survey data was performed separately for the respondents deemed knowledgeable (three or more questions answered correctly, 40 respondents) and those not knowledgeable (less than three answers correct, 53 respondents) as determined by the "objective test score" described above. For some respondents a test-score could not be calculated owing to missing data. These respondents were excluded from the analysis (22 respondents).

When managers were asked to compare areas in the world impacting on US business, the order of the scale values as calculated using Thurstone's law of comparative judgement was the same regardless of knowledge about Europe 1992 (see Table 3). In all cases the European Community had the highest scale value closely followed by Japan. This perception of US managers is consistent with the trading facts (*Source*: FDI, exports and imports). If the EC is this important to US business then it is surprising to find that only 31 per cent of the American managers perceive that they are familiar with the Europe 1992 programme and only 43 per cent of the respondents can answer three or more questions out of four about Europe correctly. If the EC is the most important region in which developments are seen to impact most on US business than this lack of knowledge is unacceptable and dangerous.

Table 3
Scale of Importance of World Regions as Perceived by US Managers by Knowledge about Europe 1992

Geographical area:	Scale values		
	Not knowledgeable	Knowledgeable	All
USSR	0.000	0.000	0.000
China	0.310	0.209	0.348
Pacific Rim	0.399	0.514	0.499
Japan	0.948	0.946	0.931
European Community	1.027	1.177	1.074
Chi-square*	8.366	5.505	10.969
with 6 degrees of freedom	$p>0.10$	$p>0.10$	$p>0.05$

* *Note*: A low chi-square value indicates a valid scale. This is contrary to general usage; less significance indicates a better scale.

Importance of EC Barriers

The removal of physical barriers were indicated to be of the least concern to all respondents. This was the case regardless of the level of knowledge. The interval separating fiscal and technical barriers was relatively small, indicating that removal of these barriers was perceived to have an almost equal impact on US business. However, it should be noted that for those managers who were knowledgeable, the technical barrier removal was slightly more important than the removal of fiscal barriers. The reverse was observed for those not knowledgeable. This general order of the scale values for the three types of barriers is not unexpected. Technical and fiscal barriers have direct impacts on, for example, product design and pricing, whereas physical barriers are often dealt with by international specialists such as freight forwarding companies.

Table 4
Scale of Importance of Barriers as Perceived by US Managers by Knowledge about Europe 1992

Type of barrier:	Scale values		
	Not knowledgeable	Knowledgeable	All
Physical	0.000	0.000	0.000
Fiscal	0.394	0.350	0.405
Technical	0.376	0.372	0.429
Chi-square*	0.032	0.008	0.135
with 1 degree of freedom	$p>0.10$	$p>0.10$	$p>0.10$

* *Note*: A low chi-square value indicates a valid scale. This is contrary to general usage; less significance indicates a better scale.

The Effect on Functional Areas

US managers perceived marketing to be the functional area that will be most affected by the 1992 programme. The final scale values rank the various functional areas in the same order regardless of the knowledge of the respondents. However, those that are knowledgeable are clearly more concerned with the implications for marketing than those who scored low on the objective test. The evaluation of marketing strategies for the European market should thus be a high priority for American companies.

Table 5
Scale of Importance of Functional Areas as Perceived by US Managers by Knowledge about Europe 1992

Functional area:	Scale values		
	Not knowledgeable	Knowledgeable	All
Personnel	0.000	0.000	0.000
Finance	0.327	0.386	0.333
Production	0.576	0.638	0.590
Marketing	1.262	1.621	1.405
Chi-Square*	1.632	3.351	2.744
with 3 degrees of freedom	$p>0.10$	$p>0.10$	$p>0.10$

* *Note*: A low chi-square value indicates a valid, internally consistent scale. This is contrary to general usage; less significance indicates a better scale.

Regional differences will continue within the Community and will demand creative approaches on the part of US marketers to win business. It is clear that consumers will not change overnight; one such example is provided by the Commission itself. The European Commission took 25 years to set a range of standards on jam because of a wide variation of tastes and convention. By 1989 the EC still could not get any agreement on mayonnaise, sausage or beer (Browning, 1989). Knowledge about changing European consumer demands should therefore be paramount for suppliers to the European market. This will be more of a challenge for those American firms which do not have a local presence in Europe. If marketing is key, then a marketing information system providing inputs to marketing strategy elements such as products/services, market segments and the marketing mix should be a priority for American businesses.

The Effect on Marketing Activities

Respondents were asked to indicate for each of ten-paired comparisons which marketing activity would be most affected by changes in the European Community. It is interesting to note that the order of scale values calculated based on Thurstone's law of comparative judgement (Case V) gave different results when taking into consideration the knowledge of the respondents. Those knowledgeable ranked promotion/advertising and product development in a reversed order from those considered not knowledgeable. A similar result occurred for pricing and logistics/distribution. The overall scale values of the group as a whole are consistent with those of the knowledgeable group.

In examining the results for the knowledgeable group the scale can be divided into three parts. Logistics/distribution is perceived to be by far the most affected marketing activity. The second part of the scale includes product development and pricing, which are perceived to be affected in a similar manner. The third part of the scale includes marketing research and promotion/advertising, considered to be least affected. The not knowledgeable group judged logistics/distribution and pricing to be most affected. Marketing research, promotion/advertising, and product development were judged to be substantially less affected.

Table 6
Scale of Importance of Marketing Activities as Perceived by US Managers by Knowledge about Europe 1992

Marketing activity:	Scale values		
	Not knowledgeable	Knowledgeable	All
Marketing research	0.000	0.000	0.000
Promotion/advertising	0.071	0.112	0.123
Product development	0.033	0.204	0.140
Pricing	0.245	0.276	0.319
Logistics/distribution	0.236	0.393	0.334
Chi-square*	5.983	0.736	4.097
with 6 degrees of freedom	$p>0.10$	$p>0.10$	$p>0.10$

* *Note*: A low chi-square value indicates a valid, internally consistent scale. This is contrary to general usage; less significance indicates a better scale.

CONCLUSIONS

Changes in the European Community are important for American international competitiveness. Combined the members of the EC are by far the largest foreign investors in the US and play a major role in world trade. Further, the EC represents a sizeable market.

Many have voiced a fear of the development of a "Fortress Europe". A questionnaire was used to assess the perception of American business people regarding the Europe 1992 programme. It was found that most companies in the sample had some kind of European involvement.

Surprisingly, it was found that many respondents had no or little knowledge of the Europe 1992 programme. Further, results indicated a low correlation between the respondents' actual knowledge and their perception thereof, indicating that more factual knowledge is needed.

In addition, many respondents indicated that the European Community is the most important region in the world with respect to American business.

When examining functional business areas it is generally agreed that marketing is the function that is and will be most affected by the Europe 1992 programme. In addition it was found that those people knowledgeable about the changes in Europe expect the logistics/ distribution activities to be affected most of all. Tuninga (1989) examined those directives directly related to the transport sector and concluded that the restructuring of industries will have implications for the flow of goods and services far beyond the European Community.

In light of the above findings, American business should study the developments in the European Community more closely. The information gathered should be an important input into the strategic planning process, not only for those businesses involved in the EC directly, but also for others, whose domestic competitive situation will change as a result of the changing European business landscape.

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The Managerial Setting of the Product Deletion Decision

Susan Hart, University of Strathclyde

Abstract

Many studies of product elimination conclude that the effectiveness of such decisions would be improved if they were given greater support from top management and considered as contributing to overall company objectives. It has also been argued that there is no need to develop a specific policy for product elimination as deviant products can be detected through the existing managerial control mechanisms and dealt with accordingly. One of the reasons for this theoretical quandary may reside in the confusion as to the level within companies at which product policy exists.

This article seeks to clarify this issue: firstly, by reviewing the extant literature on product planning and considering how product elimination might, in theory, fit into this activity; and secondly, by reporting the findings of a field study on the managerial setting of the product elimination decision in UK manufacturing companies. These findings are from the first part of a wide-ranging examination of product elimination decision making entitled Project Dropstrat.

The problems of product development, planning and management continue to attract the attention of research into marketing practice (Lau, 1987; Avlonitis, 1986; Saunders and Khan, 1986; Brentani and Droge, 1985; Maidique and Zirger, 1984). Encouragingly, this attention is no longer exclusively focused on the problems of new product development, but extends into the challenges of managing mature and declining products.

Many studies of product elimination conclude that the effectiveness of such decisions would be improved if they were given greater support from top management and considered as contributing to overall company objectives.

Rothe (1971) argues that:

> the lack of recognition by top management of the importance of life cycle management at this end of the cycle would seem to be dangerous.

Avlonitis (1984) adds from his study:

> Top management support could take various forms. One such form is the establishment of an explicit product policy defining the criteria and factors against which the performance and consequently the viability of all products in the line should be evaluated.

Conversely, one might argue that there is no need to develop a specific policy for product elimination as deviant products can be detected through the existing managerial control mechanisms, and dealt with accordingly.

One of the reasons for this theoretical quandary may reside in the confusion as to the level at which product policy or product planning exists within companies. This article aims to clarify the issue: firstly by reviewing the extant literature on product planning and considering how product elimination might, in theory, fit into this activity; and secondly, by reporting the findings of a field study on the locus (or managerial setting) of the product elimination decision in British manufacturing companies.

WHAT EXACTLY IS PRODUCT PLANNING?

The literature on product planning can be grouped into four views. These are identified as, the *strategic management approach*, the *systematic review approach,* the *operational or functionally-based approach*, and finally, the *new product development approach*.

The first of these identifies product planning as an integral part of the *strategic management* process which deals with the choice of product markets where the company wishes to operate. This view sees product planning in much the same light as corporate strategy (Hammouda, 1968; Murdick, 1962; Clayclamp, 1980). It is a view epitomised by the following quote from Cosse and Swan (1983, p. 70) who describe the product manager's task as:

to allocate resources among the segments served by his or her product-market entry so as to achieve the firm's strategy objectives. . . the basic product manager structure seems to be quite compatible with strategic planning.

The second approach, consisting of *systematic review* of product performance, focuses on product management which entails the organisation of product planning through brand management, (Baker, 1984; Bureau, 1981; Bell, 1979). Under this system, a manager, called a product manager, and possibly a small team of people, are exclusively responsible for the management of the fate of one, or a group of, products. This view of product planning encompasses that taken by some writers, which includes the explicit consideration of the need to plan how, when and where to add new products, delete any existing ones or modify any of them (Wind, Mahajan and Swire, 1983). This view is shared by Kotler (1980), Kollat, *et al.* (1972), James (1972), Winkler (1972) and Kent (1986).

However, product planning can also be described as part of the continuous administration of the company's product ranges, which calls for regular monitoring of product performance against objectives. This is the essence of management control, which also feeds into planning, albeit at a more operational level. Thus, a third view of product planning is the *operational or control approach*, which is again often linked to the product management function, forming much of its day-to-day responsibilities.

A final definition of product policy and planning is the management of *new product development* (Marvin, 1972; Spitz, 1972; Stone, 1976; Baker and McTavish, 1976; Parkinson, 1980). This emphasis on new product development is only to be expected since the root of product policy lies in the development of products to achieve strategic differentiation. In addition, it is now widely accepted that new products are essential to the survival of any business, (Cooper and Schendel, 1976; Foster, 1986) which reinforces its limelight in the product policy literature.

The Author

Susan Hart is a Senior Lecturer in Marketing at the University of Strathclyde. Her main research interest is in the area of product policy and new product development. She is the author of a number of articles and co-author with Michael Baker of Marketing and Competitive Success *(Philip Allan, 1989). She is Deputy Editor of* Journal of Marketing Management.

WHERE DOES PRODUCT DELETION FIT?

It is against this background of alternative definitions of product planning that some of the confusion regarding the organisational level of product elimination should be set. Theoretically, product elimination can be seen as an integral part of all four views of product planning. Where product planning is viewed as a strategic activity akin to defining the scope of the business, clearly product deletion decisions may be involved. The breadth of definition itself serves to dictate the breadth of the product range. The wider the scope of definition, the greater the chances for product differentiation. The greater the differentiation, the greater the need for efficient product elimination (Rumelt, 1974; Pims, 1977). The very choice of product-markets may also influence the amount and nature of product elimination decisions. One would expect that, in advanced consumer goods industries and fast-changing technological environments, shorter Product Life Cycles (PLCs) would entail more product phasing (Saunders and Khan, 1986).

The new product development view of product planning similarly bears obvious and direct significance for the replacement, substitution and deletion of previous products. The implications of both these approaches to product planning for product deletion are clear, and largely undisputed. However, some discord exists with respect to the other two approaches to product planning.

These two remaining approaches are product planning as the need to plan where, when and how to add new products and delete or modify existing ones, and product planning as part of the continuous administration of the product ranges including production, distribution, financial control. The first of these is described as the systematic review approach and would take place as part of a company's yearly planning cycle. The second type of planning, more concerned with operational *control* of the day-to-day matters may be described simply as control (Bureau, 1981). Most of the product elimination literature has a conflicting idea of where the decision to drop a product arises in a company with respect to these two aspects of product policy.

Firstly, there are those theoretical writers who place product deletion within the context of a company's yearly planning cycle — the first approach, as described above. Houfek (1952) and Kotler (1965), for example, recommend that a yearly review of product performance take place, during which candidates for elimination may be uncovered. Such practices are carried out in some companies as evidenced by the studies of Hise and McGinnis (1975) and Hise, Parasuraman and Viswanathan (1984). Other authors suggest that the product elimination decision is positioned within the managerial structures of control — the second approach, as described above. Eckles (1971) prescribes, for example, a monthly product review at which elimination candidates can be deleted and tracked. McSurely and Wilemon (1973) are less specific, advocating a "periodic review". Both Rothe (1971) and Salerno (1983) found the location of the product elimination process to be rooted in "periodic business reviews".

Others, still, do not attempt to locate the decision at all (Berenson, 1963; Alexander, 1964). This vagueness and confusion might not be so perplexing, if it were not for the fact that many of these normative writers call for a more systematic approach to product deletion on the part of managers, to avoid crisis management of this difficult area. Theorists have not backed up these calls with explicit suggestions for managers to follow. A few empirical researchers have helped to shed some light on the setting of the product deletion decision by reporting the functional make-up of decision-making units (DMUs) (Avlonitis, 1984; Salerno, 1983). Although these researchers have examined which departments are involved, they do not deal with how product deletion activity does or should fit with the other aspects of product planning.

What we are left with at the end of these iterations is most unsatisfactory. While a more structured and integrative approach is heralded as a major way to improve product deletion decision making, little normative or empirical work exists to provide some perspective on the matter. It is into this gap that this article is placed. The remainder describes how product elimination dovetails with other product planning activity in a cross-section of UK manufacturing companies.

RESEARCH METHOD

The results reported here are taken from the first part of a wide-ranging examination of product elimination decision making entitled Project Dropstrat. The first stage of the study involved focused interviews in companies in five industry sectors: fast-moving consumer goods (Industry A), industrial operating supplies (Industry B), consumer durables (Industry C), industrial components (Industry D) and capital equipment (Industry E). This classification was derived from Miracle's (1965) product typology scheme. In order to cover all industry sectors and sizes, yet not be overwhelmed with data, a minimum sample size of 25 companies was set, with a maximum of 35 companies.

A total of 125 companies was approached, half of which were large (over 1,000 employees) in size. Medium-sized (500-900 employees) and small (100-499 employees) companies are also included. At this stage of the study, of particular interest were large companies, as it was felt they could provide a greater breadth of information about product elimination decision making. A total of 31 companies was interviewed (see Table 1).

The interviews were conducted with the organisational equivalents of managing director or marketing director.

Table 1
Profile of the Sample Interview Companies

Industry	Company	Field of endeavour	Size
A Fast-moving consumer goods	A.1	Fresh and frozen foods	Medium
	A.2	Packaged cakes and biscuits	Small
	A.3	Instant beverages, tinned and bottled food, confectionery	Large
	A.4	Cocoa and sugar based confectionery	Large
	A.5	Dairy foods and drinks	Large
	A.6	Animal foodstuffs	Small
	A.7	Whisky distillers	Medium
B Industrial operating supplies	B.1	Paper, board manufacturers	Large
	B.2	Wood-free paper and board manufacturers	Large
	B.3	Reprographic equipment and materials	Large
C Consumer durables	C.1	Cabinet/domestic furniture manufacturers	Medium
	C.2	Clock and watchmakers	Small
	C.3	Electrical appliance manufacturers	Large
	C.4	Wall heaters and boilers (domestic) manufacturers	Large
	C.5	Kitchen/bathroom furniture manufacturers	Small
	C.6	Carpet weavers	Small
	C.7	Carpet weavers	Large
	C.8	Glassware	Small
D Industrial components	D.1	Capacitors manufacturers	Small
	D.2	Printed circuits board manufacturers	Small
	D.3	Lightweight rubber and plastic tubing extruders	Small
	D.4	Scientific testing instrument manufacturers	Small
	D.5	Automotive component manufacturers	Large
	D.6	Automotive component manufacturers	Large
	D.7	Electrical and fibre optic connectors manufacturers	Large
E Capital equipment	E.1	Milling machine manufacturers	Large
	E.2	Excavating equipment, crane builders	Large
	E.3	Pump manufacturers	Medium
	E.4	Elevator and escalator manufacturers	Large
	E.5	Industrial saw manufacturers	Medium
	E.6	Electronic communication test measurement equipment manufacturers	Large
			n = 31

FINDINGS

In order to find out where product deletion fits into the product planning activities (other than those associated with strategic and new product development), the way in which they were viewed by the sample had to be defined. In general, respondents identified two different types of product planning activity.

The first type tended to be annual and is labelled *systematic review planning*, in line with extant literature. It deals with setting product objectives for the current year and details the tactics to be used in achieving the targets. The majority of companies in the sample claimed to develop an annual plan. It was referred to in a number of ways: the product plan, the business plan, the business statement, the budget, the forecast. A semantic discussion of the differences among these terms is of little concern to the study. Of more interest is the identity of purpose that such plans share: to plan systematically the achievement of revenue of the company's product offering.

A variety of organisational mechanisms was employed for this type of planning activity, most brought together key personnel from different functions during a two-month period to review systematically product performance. The precise *locus of responsibility* for the systematic review varied according to the different industries the companies operated in. The locus of responsibility tended to be situated within the context of either a *marketing* or a less specific *management* group. These two groups are given greater attention a little later in the paper.

For those companies whose overall objectives were guided by a strategic plan, the annual plan was usually developed in the context of the three-, five- or ten-year plan. In other cases, the annual plan was the budget or forecast. The following quote exemplifies the scope of such annual plans in British industry:

> We have a ten-year plan which we update annually. Basically, it's the marketing department saying that in the next ten years we see an increasing demand for, say hydraulically-powered cranes.
>
> Marketing Director, E2

The second type of planning activity, which can be labelled *operational control planning*, tends to be more frequent and deals with the extent to which the targets of the annual plan are being met. All the respondent companies controlled their performance, and in a number of cases this activity spanned more than one organisational mechanism. Typical meetings were: product review committee meeting, product development committee meetings, price review meetings, business team meetings, sales engineering liaison meetings, executive meetings, board meetings, obsolescence committee meetings and general management meetings.

These meetings were typically held at monthly intervals. In the words of one managing director "there may not be any earth-shattering news", but at certain points in the year, activity would intensify. For example, around key promotional events, or setting quarterly targets, the performance of products would be rigorously appraised with a view to taking appropriate action. Certainly, in these circumstances there was no question of "monthly decisions" but there was definitely a monthly debate concerning products' performance. Once again, the precise *locus of responsibility* varied across the industry sectors, but the two basic groupings applied as with systematic review planning (see below).

The objective of this study was to locate the product elimination decision within the context of these two types of product planning and control activities. Simply put, we were attempting to answer the following question: is the product elimination process set in motion as a result of compiling the yearly plan, the result of the systematic review, or can it emanate from the more frequent reviews of performance which comprise operational "control"?

The heterogeneity of the precise combination of planning and control activities and mechanisms was well-suited to an interview survey. It does, however, make presenting the findings a rather complicated affair. For reasons of clarity this section is structured around the two broad organisational methods introduced above used by respondent companies to perform their planning and control activities. These bases are "marketing" and "managerial". Thus, the planning mechanisms may be said to be marketing-based or management-based. These two mechanisms of planning are dealt with in turn, below.

The marketing-based mechanisms for systematic planning and control include "product groups" and "marketing groups". While they are described in greater detail below, product groups were usually located under the auspices of marketing (for example, a marketing director), but responsibility was centred around one, or a group of products. Marketing groups, on the other hand, discharged responsibility for the entire range of the company's products. Also described more fully in later sections, the management-based mechanisms for planning and control comprised, in some cases, only the Board of Directors. In other cases, management-based mechanisms incorporated a more broadly-based group, called here the "extended management group".

Clearly, not all companies fall into such imposed academic categories, and exceptions are pointed out. Table 2 provides a summary of this classification. Fuller information behind this table is given in Appendix I. Apparent from Table 2 is the extent to which different industries use different product planning and control mechanisms. Each mechanism is described in more detail below, and the extent to which product deletion fits into each is examined.

Table 2
Organisational Mode or Mechanism

INDUSTRY	Marketing-based		Management-based	
	Product group	Marketing group	Extended management group	The board
A	Fast-moving consumer goods	Fast-moving consumer goods		
B		Industrial operating supplies		
C		Consumer durables	Consumer durables	Consumer durables
D			Industrial components	Industrial components
E				Capital equipment

MARKETING-BASED PLANNING AND CONTROL

In total, 11 companies planned and controlled their products through the function of "marketing". The majority of these companies were manufacturers of consumer goods. The 11 firms can be further categorised into those who organised product planning around groups of products and those whose marketing people catered for the entire range.

Product Planning through the Product Group

Five companies' product planning activities were focused in groups or teams of people whose responsibilities centred on a group of products. In the three consumer companies which used this mode of product planning, these groups or teams were known as "brand" groups. In the other two companies, from industry categories B and E, these groups were known as business teams and product-market groups respectively. In addition to formulating the yearly product plan, product management in these five companies carried out the more frequent control activity. Their yearly product planning activities are considered first, along with their implications for product elimination. Despite their different titles these product groups discharged similar responsibilities: conducting and synthesising marketing research, setting sales objectives, targeting market segments. In the two industrial companies the new product development function was managed by the product management system. However, in the three consumer goods companies this activity was hived off into new product development teams or departments.

Since product plans are essentially plans for success, they tend to relegate product elimination to the bottom of the planning league. This does not mean that product management does not have to consider the question, but that they see it rather as a secondary — and often separate — activity, more suited to "control" activity. However, taking the specific example of deleting "items" in ranges, as opposed to whole ranges, the product plan and the yearly "planning time" do seem to provide a forum of debate and discussion, whereas the elimination of a range is more relevant for longer-term strategic management plans.

Another facet of annual product planning that is important to bear in mind is that where the managerial emphasis is on *proliferating* the items in a range, or the number of ranges, the annual planning activity may actively *hinder* efficient product elimination. Indeed, Avlonitis (1982), Saunders and Jobber (1986), and Hart and Snelson (1990) underline the importance of treating new product development and product deletion *explicitly together*, to avoid the situation where concentration on introducing new products results in expensive ranges which overstretch physical and financial resources and confuse the market.

Controlling performance against budgeted targets was mainly done by the product groups, although often other departments would provide relevant pieces of information which were fed through to the product group. Control activities amounted to a frequent review of product performance against specified criteria. In many ways, this part of planning activity was far more directly related to the decision to drop a product, especially when a product was being dropped because its performance was at variance from plan. Although managers at these meetings may not have had deletion formally on the agenda, they were fully aware of products that had dropped behind target and usually had a clear idea of which product was likely to be deleted next.

Product Planning through the Marketing Group

In six companies, the yearly systematic planning was carried out by the marketing department as a whole. These companies had fewer products in their total range than those operating a product-based system. Responsibility for the product range was vested in a few key marketing people: the marketing director or manager, the product managers (who, in these cases, were responsible for the whole range of products) and their immediate assistants. In some cases, representatives from other functions such as finance, sales, logistics or production, attended marketing meetings.

At the level of the systematic review (yearly) plan, the activities carried out were similar to those described in the previous paragraph: conducting background research, selecting target markets, forecasting sales and detailing programmes for achieving targets. They were also more directly concerned with new product development than were the product groups described in the preceding section, owing to the fact that they had control of the entire product offering. The respondents did not indicate that product elimination features as one of the activities that comprised yearly product planning. In two cases where a link between yearly product planning and the product elimination decision was suggested, the link was rather tenuous, hinging upon the immediate plans to introduce new products.

Three companies (A1, C2 and B3) had continual rationalisation programmes which were acknowledged in the yearly product plans. Interestingly, the three companies in question were all experiencing a transitional stage from traditional product markets to newer, larger and more profitable markets. Rationalisation was not carried out as a yearly exercise in these three companies. It tended to be continuous, with people given specific projects to investigate, and it was served by a degree of formalisation. For example, one company (Company C2) set up an obsolescence procedure to deal with the low volume lines that accumulated every year. Another company (Company B3) devoted half of a product manager's time to deal with "obsoleting" slow-moving lines.

While these companies had set up structures for dealing with rationalisation, the extent to which such structures were used depended, not on the systematic planning activities and decisions taken around "planning time", but on problems and issues raised through the control activity of the company. In general, product elimination occurred as a result of the control activities of these companies, the product reviews. Similar in function to those executed by product groups, the reviews carried out by the "marketing group" were, for the most part, less formal than those of the "product groups" with fewer intervals between them. None of these companies was large.

The control activity — the reviews — often highlighted products whose performance was dubious. In those companies concerned with stopping the proliferation of older products, control activities provided the forum for spotting slow-moving lines. More generally, control activities, which were geared to monitoring rather than planning performance, provided the locus of detecting products not performing adequately. However, because a product's faulty performance was detected as a result of control activity, did not necessarily set the company in action to correct it.

Of the companies committed to keeping variety down, one seemed to be in a constant wrangle over rationalisation. The monthly and even daily debate surrounded two factors. The first was that, although slow-moving products could be detected easily, the number of products generating small volumes was substantial enough to make a sizeable hole in overall volume, should they be dropped. The second was that the company was unsure of its ability to make savings from curtailing the product range. Eventually, it was an additional set of circumstances which precipitated action. (An example might be a policy of rationalisation).

Another company making kitchen furniture often detected badly-performing products through their review procedures. However, their current drive for growth focused attention on the need for elimination to be deferred until new models were ready.

In the marketing group, product elimination does not seem to be catered for in the yearly plans. Only where there are plans for new or existing products which impinge upon the manufacture and marketing of marginal products, is product deletion considered as part of the yearly planning process and even then, in a somewhat indirect and secondary fashion. In contrast, the annual planning activities of larger organisations' product groups does encompass planning product elimination. This, however, was limited to the elimination of "items" of a range rather than the entire range itself.

Product groups were also responsible for executing control activity which led to the detection of dubious products. Whether or not action ensued immediately depended on the specific circumstances of the product in question. In the marketing group this phenomenon was also observed in relation to control activity.

MANAGEMENT-BASED PLANNING AND CONTROL

Twenty respondent companies organised product planning and control using some form of management group. Seven of these companies used the board of directors, usually comprising managing, marketing, finance and production managers. The 13 remaining companies used an extended management group, comprising the board, and other, less senior executives: purchasing, technical, design, personnel and marketing assistants. Companies that use extended management groups for their product planning and control are dealt with first.

Extended Management Group

Three of the 13 companies in this group used an extended management committee at one level of planning only: at the level of control. More accurately, the extended committee met frequently to plan *and* control the range, using strategic plans for guidelines. These companies will be discussed later.

In contrast to the marketing groups discussed above, responsibility for product decisions was widely diffused among the many functions represented in the extended committee. Some committees included product managers, but no one person or group of persons had control over product decisions. The extended managerial committee had several titles: "product planning committee", "product development committee", "operations committee". Many had no names at all. Manufacturing products of paper and board, Company B1 had a somewhat unusual arrangement. It was based on "mill management" who worked in liaison with central management from headquarters.

The term "product planning" evoked "new product development" in the minds of many respondents. This featured strongly among planning tasks like setting volume targets, segmenting the market, listing tactics, and provided a forum for discussing product elimination. In contrast to those comments cited in the paragraph dealing with "marketing groups", the link between new product development and product elimination was more direct. A large company manufacturing domestic appliances (Company C3) had several mechanisms devised for NPD. New model conferences were held quarterly, were chaired by the MD and included the main board directors: engineering, quality control, product managers and other specialist executives. In addition, they organised an R&D meeting twice yearly which was the forerunner of all major projects. Minor R&D-led improvements to products are dealt with continuously. The implication of these overlapping NPD activities is that products do tend to be replaced frequently.

In many cases in industry C, it is the influence of consumer demand, itself largely influenced by fashion, which causes products to be replaced. In industry categories D and E, industrial components and heavy capital equipment respectively, the triggers for changing a product range may be different from those in category C, consumer durables. However, the effect is similar: relatively short product life cycles and frequent modification of old products, to incorporate new technology to add value.

Three of the ten companies stated that candidates for product elimination were written into their plans. The first of those, Company E2, producing earth-moving equipment, used a planning system whereby the number of products to be built was planned over a ten-year period, with specific quantities laid down for each year of the product's life. This plan, reviewed and adjusted every year, details the approximate dates of the last product to come off the production line, which could be altered to accommodate unpredicted rates of sale. In the second company, D5, producing automotive components, some decisions to withdraw a product were derived from the annual planning decisions. In the third company, D2, the parent group board had to be notified of any changes to the product range and so changes were finalised in plans.

Only in these three companies were decisions to drop a product completely, considered as part of the company's planning process. Otherwise, product withdrawal is planning, only when it is due to occur as part of a product development project. Most of the companies directed the researcher to the level of the continuous *control* activity, to find the source of the product elimination decision. In the main, control activities were carried out by the same extended managerial group. Activities were much the same as those carried out by product and marketing groups, the principal one being a review of performance.

Three companies were introduced earlier that did not have annual plans or annual planning meetings in the same way as the rest of the companies. These three tended to use frequent extended managerial committees in place of an annual re-assessment of their position and combined this planning function with on-going control.

> We don't have formal meetings but we do discuss things for long periods of time. I suppose the nearest we get to any formal review meeting is our price reviews. We do that monthly and it's always done on the basis of margin. Poor gross margin focuses one's attention on sales.
>
> Marketing Director, A2

> We have monthly meetings of the marketing department, and very many informal ones. We're often here till 8 or 9 at night discussing the products.
>
> Marketing Manager, C5

> The main place for discussing any problems is a meeting which takes place every morning, chaired by me. It lasts about half an hour. There's no formal method of reviewing products' performance but in this way we do it informally, constantly.
>
> Marketing Director, A1

The extended managerial meeting, in its capacity as a control body, would often provide the opportunity to raise suspicions about products. This could ultimately lead to a product's withdrawal or replacement, depending on the circumstances. It could not be said that these meetings were *the* locus of the product elimination decision, but often they set in motion the entire elimination process. None of the eliminations starting from these meetings were "planned" — had companies not been experiencing problems with the products they would not have been withdrawn.

By way of a summary then, extended management committees or meetings embraced the question of product elimination in two ways. Firstly, the relationship between new product development and product elimination was felt to be strong. Several companies (E1, D7, C6 and C3) planned for new products and simultaneously planned the withdrawal of older ones. Secondly, three companies (D2, D5, E2) planned elimination independently, during the "annual planning time".

Control activity seemed to pick out quite adequately those products whose performance was dubious. Whether this led to considering the product's withdrawal depended on the specific circumstances of the product.

The Board

The final organisational method of planning and control to be considered, is that which involves the board of directors. Unlike the three previous modes discussed above, planning and control were not always carried out by the same group of individuals. Of the seven companies whose board of directors handled the yearly plan, two had their control activities run by "lower" committees. The five companies who did have both planning and control functions performed by the board were all small companies. In the planning mode, the yearly plan was often referred to as the budget:

> We work on the normal 12-month budgeting system, where we estimate sales for the next year. That document gives us guidance.
>
> Product Planning Director, D6

> Objectives like return on capital, profit contribution, expenses levels are all included in the budget. It's done yearly and we look at how we've performed in a six-month review.
>
> Managing Director, A6

Given that responsibility for planning the product range was concentrated in a relatively small number of people, who were also instrumental in setting overall objectives, it might be expected that the yearly planning activities would provide a good setting for raising the question of product withdrawal. However, where elimination was planned, it was for the very same reasons found in other planning modes, and the most common reason was the development of a new product. Two companies emphasised this aspect, and although their logical and structural bases for developing new products differed, they nevertheless served to plan elimination. The first of these, Company C1, normally initiated NPD to achieve the necessary growth levels:

> In practice, we forecast what is going to become weak so that we have a replacement there, waiting in the wings.
>
> Managing Director, C1

The second company is obliged to review ranges in line with trade fairs:

> As we approach the year end we have a number of meetings at which we begin to gather information about what has been selling. We launch a new range each year, with a new catalogue and price list. Take paperweights as an example. For the next year, we put alongside the product "OUT" "MAYBE" or "IN" — that's based on past sales, and at this point, what the sales are likely to be for the next year.
>
> Managing Director, C8

A large manufacturer of vehicle components, Company D6, had instituted an active policy of variety reduction. While this policy had achieved the status of a board issue, being controlled by the chairman, it was not in practice a yearly exercise, but a continuous one, independent of other planning activities. The procedures in this company are similar to those companies where a continuous rationalisation programme was served by a degree of formalisation. In the other four companies comprising this sector, elimination was a question addressed almost entirely through their control mechanisms.

Controlling performance in these seven companies followed a pattern similar to those described in all other modes. A number of meetings were held at regular, frequent intervals to discuss product performance. In these companies, product elimination occurs largely as a result of control activities. However, as with the previous groups discussed above, detection of a problem does not mean that action ensues. What does happen is much more related to the specific circumstances of the firm in general and the product in particular. For example, Company D4, a small company manufacturing scientific test equipment has a rather narrow product range which inhibits product elimination:

> We don't plan to drop anything at all. We are usually faced with falling demand which means, at the monthly management accounts meeting — where it's most likely to come to light — we have to analyse back, drawing graphs and the like. Our first reaction is often to do anything to keep it alive rather than drop out.
>
> Managing Director, D4

SUMMARY AND CONCLUSIONS

The major aim of this paper has been to explore the place of product elimination among the companies' product planning activities. To do this, the elements of product planning had to be defined as they exist in the respondent companies and the organisational housing for these activities had to be described.

Two major kinds of product planning activity were identified. The first was annual, comprising a review of the past year's performance, setting product objectives for the current year and detailing the tactics to be used in achieving targets. The second was more frequent, amounting to a weekly or monthly review of a product's performance versus the annual plan. Naturally, "control activity" spanned a host of issues like operating variances and expenses levels; however, of primary interest were *product performance review activities.*

The ways in which the respondent companies organised themselves for product planning and control were categorised into four mechanisms, using a somewhat academic structure. Two of these mechanisms were based on the marketing function, namely the product group and the marketing group. The remaining two mechanisms were more broadly management-based, namely the extended management group and the board of directors.

Product elimination was found to be executed as part of overall product planning in a number of instances. The first of these was where the product ranges had a tendency towards "long tails". This was a phenomenon observed mainly in those companies using marketing-based planning modes where expanding varieties of product is the corollary of mature products in mature markets. A second example of "planned elimination" was where NPD features in the year plan. Such an arrangement was apparent in three of the groups, the exception being "product groups" whose NPD is carried out at a higher organisational level. Elimination, in the form of variety reduction or range rationalisation, is incorporated into the year plan as a statement of policy or as an objective, but it should be emphasised that the policy is likely to be administered at the "control level". Finally, three companies actually planned elimination, as they would any other change to the range. In one of these companies this was done as part of the ten-year product plan; in the other two it was done to notify the parent company of a change to the range.

It is felt that product plans concentrate on products, existing and potential, that will increase the revenue of the company, and that conceptually, they are not oriented for product elimination. Further refining is necessary to unearth the precise nature of product planning and its implications for product elimination.

The various firms' review committees, the main bodies used for controlling product performance, were the principal venues for raising the question of product elimination. This implies that elimination is considered to be largely *ad hoc*, confirming that the year plan has little to do with it. It is the control activity which is used to activate any rationalisation policy which may be in operation in the sample companies.

Clearly, further research is required before we can begin to make normative recommendations as to which structures are most efficient for which types of elimination. But if the data are representative of the population as a whole, there is cause for concern in that much top-level management activity is being absorbed by deliberations on the fate of products that might have been eliminated *before* reaching the crisis stage. If top management can delegate control activity more effectively, it would be able to concentrate on planning *changes* to the whole range (new products, replacements, modifications and deletions), effectively resolving problems before they became urgent.

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Appendix I. Organisational Mode or Mechanism

Industry	A	B	C	D	E	Total
Marketing-based						
Product group	A3 A4 A5	B2			E6	5
Marketing group	A1 A2 A7	B3	C2 C5			6
Management-based						
Extended management group		B1	C3 C4 C7 C6	D2 D5 D7	E1 E2 E4 E5 E3	13
The board	A6		C1 C8	D1 D3 D4 D6		7

$n = 31$

A Computer Modelling Approach to Analysing Competitive Reaction

Bruce Curry and Luiz Moutinho, Cardiff Business School

Abstract

Expert systems have been applied to logistics, distribution, pricing and international negotiation. The authors here address strategic decision making and competitive reaction. The aim is to produce interactive computers models which incorporate as much "intelligence" as possible so as to both make the user's task as easy as possible and to dig more deeply into the decision-making process. The models have been constructed using "object oriented" programming (OOP) and implemented through the Smalltalk language. Intelligence is also built into the models using an intelligent front-end — a "natural language" interface. The competitor firms in the model are assumed to respond to certain stimuli, programmable by the user. These stimuli and responses are found in the script or "scenario" for the industry which is based on possible competitive behaviour. The pattern matching and windowing facilities of the Smalltalk/VPM language used in the model pick out the stimuli for each firm from the script and show the user the consequences of this scenario.

Applications of "conventional" computing techniques to marketing problems are now commonplace. Spreadsheets, databases and other specialised software are to be found in abundance and have proved their worth many times over. The concern of this paper, however, is with the newer technologies of artificial intelligence. These include expert systems or knowledge based systems in which the "intelligence" of the computer comprises a set of *if. . . then* rules.

Applications of expert systems techniques have begun to appear in the marketing literature (Moutinho and Paton, 1988). There have been applications in a number of specific areas. For example Rangaswamy, *et al.* (1989) have developed a model which can assist in international negotiations. Curry and Moutinho (1990 and 1991) have considered the scope for using ES techniques for site location decisions. In regard to strategic decision making the EXMAR group, a consortium of ten UK companies, have made some progress, as reported by MacDonald and Wilson (1990). These authors point out that the main problem for developers of models in this "domain" is that there is no agreed, formalised, publicly available block of expertise on which systems can be based. This is in stark contrast to domains such as taxation law. It has been argued, however, that actual legal processes cannot be reduced to the formalisms required to build computer models (Leith, 1986).

Our own response to these problems is twofold. In the first instance while our aim is to develop practical working models, we feel that the academic marketing literature is an extremely valuable source of expertise or intelligence which can provide a platform on which to build. This is despite the fact that marketing practitioners tend to make relatively little use of academic material. In this regard, we hope to bridge the gulf between academics and practitioners. One way to do this is to use formal theoretical models as the basis for a system, adding on an "intelligent front end" and making the models workable by making them interactive.

One difficulty to be faced with this approach is that marketing practitioners still need to put their trust in a model. There is a danger that the inner workings of a model are a "black box" as far as the user is concerned. Our second theme is therefore that a substantial proportion of a model's intelligence should come from the user. We have called this the "spreadsheet principle". Spreadsheets are used for forecasting cash flow and other variables but ultimately it is not the software which provides the forecast but the user. The software provides facilities for model building and for "running" a model with alternative assumptions. The model is a picture of the world viewed through the eyes of the user, and the final generation of a forecast or decision requires the user's subjective judgement. Because of this we have coined the term "intelligent spreadsheet" to describe the models we have developed. Spreadsheets conventionally use numeric based knowledge and we seek to extend the approach by also incorporating expertise and intelligence.

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In what follows we review the range of theoretical models which deal with strategic decision making and competitive behaviour and proceed to describe one of a number of computer models which we have been developing. Our model has been developed using the "object oriented" approach, which has become increasingly popular as a paradigm for computer programming. We also feel however that it has a good deal of potential as a generic model-building tool.

STRATEGIC DECISION MAKING

The managerial usefulness of any effort to assess advantage comes from the accurate identification of the handful of skills and resources that have the greatest leverage on position and performance. These are the key success factors that must be managed to ensure long-run competitive effectiveness. Absolute performance therefore depends on the attractiveness of the overall market as determined by competitive structure and behaviour. An effective competitive strategy begins with the timely and actionable diagnosis of the current and prospective advantages of the business within the served market. For several years many authors have searched for analytical measurements of competitive groups or arenas, as well as for the determination of competitive advantages and key success factors (Boynton and Zmud, 1984; Carroll, 1982; Caves, 1984; Cook, 1983; Day, 1984; Ghemawat, 1986; Hitt and Ireland, 1985; MacAvoy, 1987; Porter, 1985; Rothschild, 1984; South, 1981; Varadarajan, 1985).

Day and Wensley (1988) have identified two distinct approaches for the analysis of competitive advantages. *Competitor*-centered assessments are based on direct management comparisons with a few target competitors. *Customer*-focused assessments start with detailed analyses of customer benefits with end-use segments and work backwards from the customer to the company in order to identify the actions needed to improve performance. We focus here on the competitor-centered approach. The most common competitor-centered method is judgemental identification of distinctive competences. Key success factors have an important role in shaping the competitive analysis process, as they direct attention to high leverage competences. Several methods, such as value chain analysis, can be adapted to help identify key success factors.

Competitive Advantage

Competitor-centered approaches to identifying positional superiority help managers to answer the question, "How do we compare with our competitors?". The answers usually are framed in terms of observable differences in value chains, including (1) the choice of activities undertaken, (2) the way the activities are performed, and (3) consequences for the cost of each activity as well as total cost. Because it is difficult to say without recourse to customer judgements whether an activity is being performed better by a competitor, the emphasis of competitor-centered methods is inevitably on cost differences. The nature of the available methods and techniques also reinforces this cost emphasis. The two major indicators of positional advantages are: (1) value chain comparisons of relative costs and (2) cross-sectional experience curves.

(1) *Value chain comparisons of relative costs*: A company's cost position depends on the configuration of the activities in its value chain versus that of competitors and its relative location on the cost drivers of each activity. A cost advantage is gained when the cumulative cost of performing all the activities is lower than the competitors' costs. The first step in determining the relative cost position is the identification of each competitor's value chain.

(2) *Cross-sectional experience curves*: These comparisons are appropriate only when all significant competitors are similar in scope, strategy and

The Authors

Bruce Curry is a Lecturer in Computing at the Cardiff Business School, University of Wales College of Cardiff. He has worked as consultant to major firms and organisations. His research interests are concerned with the application of artificial intelligence techniques to strategic marketing decisions.

Luiz Moutinho is Professor of Marketing at Cardiff Business School, University of Wales College of Cardiff. He has held posts at the University of Glasgow, Cleveland State University, Northern Arizona University, and California State University, as well as visiting Professorships in New Zealand and Brazil. He has published three books; Cases in Marketing Management (1989); Tourism Marketing and Management Handbook, *co-edited with S. Witt (1989) and* Managing and Marketing Services in the 1990s, *co-edited with R. Teare and N. Morgan (1990). He also has a number of articles published in journals such as the* European Journal of Marketing, *the* Services Industries Journal, Journal of International Consumer Marketing, International Journal of Advertising *and* European Management Journal.

value chain configuration. They provide a comparison of the current total cost positions of the competitors in a market according to their cumulative experience base (Day and Montgomery, 1983). With such a curve it is possible to estimate the relative profitability of each competitor at the prevailing price.

Numerous methods have been proposed for identifying key success factors (Leidecker and Bruno, 1984). Most involve *ad hoc* judgements of industry experts and management. More defensible insights come from explicitly relating current sources of advantage to the achievement of advantageous competitive positions or superior performance. Competitive advantage is a sophisticated notion that can be inherently ambiguous until it is separated into its component parts: the sources, positions, and performance outcomes (SPP) (Day and Wensley, 1988). Thus, an integrative multiple measures perspective is required before a full picture can be drawn.

Managerial or other "expert" judgement is needed in all competitor-centered methods in order to specify the competitors to watch and to judge the relative performance of the business and its competitors. The monitoring system relies on the measures used and the subsequent composite picture given of the competitive position. Competitive maps and strategic mapping techniques are very helpful for revealing the general pattern of perceived competitive differences and also for identifying submarket boundaries.

Market Share Determination

Several models have been proposed by marketers which are variants on the "fundamental theorem of market share determination". The theorem holds that the market shares of various competitors are proportional to their shares of total marketing effort (Kotler, 1984). This relationship is a pivotal feature of the so-called market share attraction models (Little, Bell and Keeney, 1975) and has been integrated into the *Stratport* portfolio model by Larreche and Srinivasan (1982). The basic notion also has been applied directly to a game — theoretic analysis of monopolistic competition assessing a company's competitive strength as the product of its functional expenditures and competences (Karnani, 1982). A recent attempt (Varadarajan, 1985) to classify strategic variables into success producers or failure preventers (where an increased level of effort above a threshold level will not increase performance) also relies on the notion that relative effort levels roughly correspond to competitive advantages.

The most extensive application of the theorem is by Cook (1983) in his new paradigm of marketing strategy. In this model, a company has an advantage when its capacity to supply products is greater than the market demand for its output. The resulting slack can be applied to exploiting opportunities to gain share. The size of this advantage is estimated by subtracting the company's share of strategic investment from its share of units sold. The central premise is that an equilibrium is reached when the company's share of spending on conventional mix investments is the same as the market share. If the share of strategic marketing investments falls below the current share of units sold, the share of units eventually will decline in search of a new balance in consumer preferences.

The basic valuation model proposed by Cook (1983) — and implicitly endorsed in many marketing models — presumes the current level of investment in terms of annual cash outlays is the proper basis for assessing the level of market share a business can sustain. The resulting market share has a net present value that relates current outlays to the discounted value of the future revenue stream (Cook, 1985). In reality this model provides only a partial picture of the potential value of past and current strategic investments. A complete picture must reflect: (1) the link between today's investments and opportunities to execute tomorrow's options, (2) the value of first-mover advantages, and (3) the strategic choice of when and how the profit potential of a positional advantage will be realised (Day and Wensley, 1988).

First-mover advantages are derived from the opportunity pioneers have to shape the rules of subsequent competition to their advantage. These advantages are achieved through pre-emption of competition, access to scarce resources, proprietary experience effects, the image of leadership that is not available to followers, and customer loyalty that is gained when switching costs are high. A differentiation or cost advantage eventually should be rewarded with share and/or profitability superior to those of competitors.

Stratlogic Model

Moutinho (1987) has developed the STRATLOGIC model in which the suggested framework is based on the analysis of outcomes of competitive market interactions and the process of deciding on subsequent marketing strategies. The model is designed to differentiate between the most effective and directly dangerous competitors (core competitors) and less effective and less dangerous competitors (dimensional competitors). The basic framework employs four different strategic dimensions for defining the company's competitive structure and strategic competitive moves: (1) market share; (2) ROI; (3) strategic marketing ambition (SMA) — as related to investment intensity and effectiveness; and (4) company growth rate. According to the plotting of competitors' positions either inside or outside of the "stratlogic box" (as defined by the four measurement dimensions of the model), the company has the option of pursuing different "stratlogics". "Stratlogics" are logical strategic moves that a company can implement in order to reshape its future marketing positioning *vis-à-vis* its core competitors.

In this paper we have used, as a partial built-in input, the rationale that lies behind the *stratlogic* model. The justification attached to the utilisation of modelling inputs from the *stratlogic* framework (which is a competitor-centered model) lies in the fact that company action programmes, market responses and competitive effects can all be calibrated, measured and plotted against our two performance dimensions: market share and ROI. Also, the approach suggested by the *Stratlogic* model enables the monitoring of competitive intrusions and the use of turn-around strategies. Both of these factors are important for the implementation of computer models.

We have chosen a competitor-centered method as a pillar for the design of the computer model. The essence of these methods is a direct comparison with target competitors. The frame of reference is usually confined to direct rivals. The search is directed towards finding those activities the company does better than its competitors. The locational positioning focus is an essential tenet of our model since one of the primary aims for its development is its ability to provide a visual space configuration of the "stimulus-response" approach used in the measurement of strategic and tactical actions and reactions of key competitors in a particular industry.

Retailing was the chosen field for the application of the computer model, with a particular focus on the strategic groups composed of large supermarket chains. Apart from the two outcome dimensions used — market share and ROI — the computer model is structured on the basis of a "stimulus-response" approach which entails a combined number of strategic and tactical competitive moves. Some of these "competitive actions and reactions" were based on a model framework designed for understanding retailer strategic growth direction developed by Robinson and Clarke-Hill (1989). This model is based on a matrix relating product mix and retailing format with market segments. Some of its strategic responses include store extensions and revamps, new stores selling different product-mix, shop-in shops, satellite stores, product range extensions, coverage in domestic markets, new store programmes, store combinations, new trading formats and product-mixes of a stand-alone type, and overseas expansion using existing retailing formats, and international integration among other alternative strategies.

OBJECT ORIENTED MODELLING

In "conventional" programming, a variable is simply a label used to refer to a memory location. If a program contains a variable SALES then the programmer can write instructions which use this label without having to become involved with detailed references to memory. Similarly, in spreadsheets one may use range names to refer to blocks of cells, hence avoiding the need for specific cell references. Object oriented programming (OOP) takes this idea very much further. A program consists of a set of "objects" and communication with these objects is through "messages". Objects store data and also store their responses to messages. These responses are called "methods". Objects are in effect private data areas, and an object based system is based on a philosophy of decentralisation.

Objects correspond to the entities, logical or physical, which make up our view of the world. It is first of all through this "common sense" factor that the OOP approach gains its power. There is a direct mapping between the world to be modelled and the structure of the model itself. Also, the fact that an object consists of both data and a set of procedures to respond to stimuli is itself a virtue. In the conventional approach to programming data and operations with variables are separated.

In addition, objects are arranged in a hierarchy of classes and subclasses. Each subclass may inherit the properties of higher order classes. This has two advantages. In the first place the approach also follows the intellectual paths by which we understand our environment. We view the animal kingdom as precisely the same kind of hierarchy, with sets of species and sub-species. Secondly, inheritance of methods by subclasses of objects means that program code is re-usable. We do not need to re-define and re-program the activities of an object unless this is specifically desired. To illustrate the approach, consider the animal kingdom. We have a class of mammals with certain behaviour patterns and activities. These patterns can be regarded as "internal" to each mammal, but each will respond to various external stimuli. We also have sub-classes of the mammal class, such as "quadrupeds" or "dogs". An instance of the "dog" class inherits some of its properties as a mammal, but has other properties which are specific to being a dog.

Since our aim is to produce working computer models, we can also take advantage of another feature of the OOP approach, whereby the relevant aspects of the computer model are themselves objects. The most obvious examples of this are "screen" objects or, more flexible, window objects. Windows may in turn control "panes" and "sub-panes". The model builder may then set up links between objects which represent the desired environment and these objects which relate to the computer implementation of the model.

The scope for this latter approach depends very much on the language and software tools chosen. Object oriented extensions have been developed for most conventional and AID languages. For example C++ is an object-oriented version of the C language. This process of extending an existing language produces hybrid languages which in general do not capture the message passing ideal of the OOP approach. An alternative route forward is to choose a "pure" OOP language, in which the programmer is forced to deal with systems of objects and messages. The most powerful of these pure implementations is Smalltalk, which is one of our own chosen modelling tools.

We have chosen Smalltalk/VPM, developed by Digitalk, which runs under the OS/2 Presentation Manager. Not only does the language provide a full range of OOP facilities but it also gives access to the features provided by the operating system itself. These include the windowing facilities, noted above, which are very powerful in providing the kind of interactive user-friendly interface which is needed if a model is to be usable in practice. The Smalltalk language also includes a number of powerful AI tools, such as pattern matchers which can be used to construct a natural language front-end. Our system, presented below, makes use of this powerful feature. It is in fact inspired by a model of an animal habitat used by Digitalk to illustrate the power of their software. Instead of animals in their habitat we have firms in their industry. It is yet another strong selling point of Smalltalk that it permits models to be adapted and re-used.

A SMALLTALK MODEL FOR STRATEGIC ANALYSIS

Basic Definitions

Following on from our discussion above of the OOP methodology we define an industry as a class of objects and also a new class called firm. Once defined, a class of objects amounts to a template which can produce a stream of "instances" each having an identical set of defining characteristics. Once the template exists for the firm object it is a simple matter to create instances. In the Smalltalk language this would be achieved by the expression:

```
Tesco = Firm new.
```

The new instance is initially blank and then needs to be provided with values of the defining variables (the "instance variables" in Smalltalk parlance). Similarly we may define a new industry, the retailing industry which will contain a number of firms. Our present model operates with these two simple classes, but will be extended to allow for a hierarchical system of industrial classification as well as for firms to be viewed as corporations, each having sub-units which may operate in different industries.

As well as classes dealing with the subject matter of the model we also need to consider its implementation as a working piece of software. Central to the Smalltalk approach is that the user interface should consist of a set of screen windows. As noted above Smalltalk/VPM provides the developer with access to the windowing environment of the Presentation Manager. It achieves this through having a class called Window, as well as a complete set of other classes and methods through which windows can be manipulated. For example there is an Application Window subclass as well as classes for graphics. Window classes and subclasses have methods attached to them whereby users can type and edit text, use menus, change the window size and so on.

For our model we need a window through which the user can manipulate the model. We have therefore defined an Industry Window as an instance of the Application Window subclass. In addition it is central to our approach that the output of our models should include graphics displays. Indeed, among the powerful features of the theoretical literature which we hope to exploit are the diagrammatic features. In this case we seek to provide an implementation of the STRATLOGIC model, simplified to include two strategic variables. Hence we need a window to present the

STRATLOGIC box which follows from the user's assumptions. A window is also required to provide verbal or numeric output to the user, in addition to the graphics window. Smalltalk provides a standard window for this purpose, known as the Transcript Window. The current version of our model makes use of the Transcript Window but a specialised window will be added as development continues.

Each firm in the model is assumed to have a set of "reactions" to basic stimuli. These stimuli are contained in a "script" for the industry, to be input by the user. Firms can be programmed with reactions to whatever are considered the appropriate stimuli. It is by this route that we may achieve a natural language front end for the model. The industry script will contain a scenario and the model then shows the user the consequences of this scenario. To achieve this we require a link between the responses of the competitor firms and the axis scales in the graph window. Here we feel that there is a sizeable subjective element, in which case the user should be free to input a mapping between responses and quantitative values for the two strategic variables.

Modelling Competitive Responses

Firms in the model may be "taught" responses to any word or phrase which may be found in the industry script. For example we may wish that Tesco should respond to a low price strategy by adopting a strategy of non-price competition. Given the "learn" method which has been defined for all members of class firm, this can be achieved in a single line of Smalltalk code:

Tesco learn: "low price strategy" action:

(Tesco reaction: "non-price competition")

To view this from another perspective we may regard the set of stimuli and responses as a rule base. Each paired stimulus and response could be written using the by now familiar *if. . . then* format. For example, we may write:

If strategy is "low price"

Then response is non-price competition.

The resulting rule base could be implemented using an expert system "shell". We have used the Smalltalk environment however because of the power of the OOP approach and because of its pattern matching and windowing facilities. In addition our model allows rules to be made specific to each firm through use of the "learn" method as illustrated above. The "learn" method also means that responses can be easily changed. A more complete set of stimuli and sets of alternative responses can be seen in Table 1 below.

Running the Model

Having defined the set of firms in an industry and taught them their "knowledge", i.e. their responses to stimuli, the user must set up and play the industry script. This can be done through the Industry Window, as shown in Figure 1. It should be noted that in this version of the paper Figures 1 and 2 are simply drawn by hand. Direct translation from Smalltalk screen images will be used in due course. The windowing features of Smalltalk allow the user to type the script in directly and to carry out edits if required. Also the industry window offers a menu through which the entire script or selected parts can be played. If only part of the script is required it can be highlighted on screen.

When the script is run it is "played" to each of the firms defined for the industry. The pattern-matching facilities of Smalltalk then search the firms' knowledge for words and phrases in the script and when a match is found

Table 1
Stimuli and Responses

Stimulus	Possible responses
— Low price strategy	— Meet competitors' price — Non-price strategy — Increased perceived value of store
— Product assortment extension	— Increase number of items in store — Product-line specialisation — "Boutiquing"
— Increasing merchandising tactics (point-of-sale)	— Use more electronic point-of-sale — Improve quality of existing merchandising — Lower prices
— Better customer facilities	— Lower prices — Match competition — Increase promotion
— Increase private branding strategy	— Match competitive levels — Co-operative promotion with manufacturers' brands — Lower prices
— Increase number of outlets	— Meet competitive levels — Select better site locations — Improve layout and design of stores
— Better staff training and customer relations	— Meet competitive levels — Customer relations manager — Promote friendliness and efficiency
— International market strategy	— Strategic alliances — Better budget level — Copy strategy — Better media strategy
— Better service quality	— Use total quality management approach — Better MIS — Customer satisfaction monitoring
— New home delivery service	— Meet competitors' service — Fast delivery service — Develop new service-customer depots.

the previously learned responses are triggered. These responses are displayed in the Transcript Window, as shown in Figure 2 below. In addition, the graphics window displays the impact of the script and the responses in the STRATLOGIC box. This is also shown in Figure 2, to indicate how the system appears on numerous windows simulated on screen. These windows can be moved and re-sized at will.

Figure 1
The Industry Window

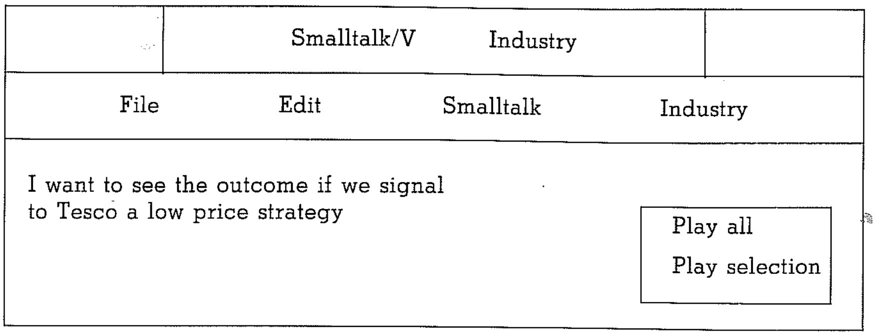
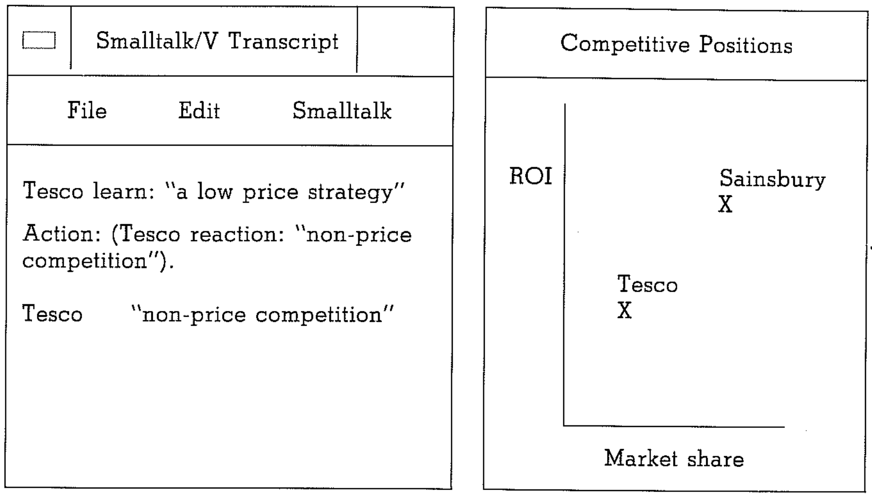


Figure 2
The Transcript and Graph Windows



SUMMARY AND CONCLUSIONS

The primary aim of our research work is to produce interactive computer models using advanced computer techniques which can significantly assist strategic decision makers. We seek to build into our models as much "intelligence" as possible, with a view both to making the user's task as easy as possible and to digging more deeply into the decision-making process. This intelligence or knowledge can be built into a model using a variety of different programming languages and techniques, but the crucial question is concerned with how to obtain it in the first place. We have therefore sought to ensure that our models have a sound theoretical basis. Also it is important that the decision maker's own knowledge should play a significant role. The model should provide wide ranging "what if" facilities, to bring it closer to our concept of an "intelligent spreadsheet".

We have also built intelligence into the models by including a natural language interface. The competitor firms are assumed to respond to certain stimuli, programmable by the user. These stimuli are found in the "script" or "scenario" for the industry. The pattern-matching facilities of the Smalltalk/VPM language pick out the stimuli for each firm from the script.

As for future work we are working on a number of aspects of the models. In the first place, the set of stimuli and responses in the model can be regarded as "first order" responses which may demand further moves from the decision maker. Second order responses are an interesting direction for further work. Also, although we feel that the dimensions used in the STRATLOGIC model are adequate for our purposes, it is also possible to envisage the user selecting the key axes. Finally, Smalltalk/VPM has some very interesting and powerful graphics facilities, not the least of which are animation methods. A computer model which uses animation to trace out the consequences of a strategic move can be very attractive, although one must be careful not to use such features for purely cosmetic reasons.

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