Choosing Partners with the right Attitude:
Why strategic orientation matters in firm to firm relationships.

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Abstract
Dyadic relationships form the structural support of networks. Research surrounding strategic alliances shows high failure rates, often due to the softer issues of culture, attitudes and shared beliefs. Understanding the role and importance of organisationally shared attitudes and beliefs (strategic orientation) in the operation of an alliance can lead to better outcomes at both dyadic and network level. This study examines the relationship between strategic orientation and alliance outcome using empirical data from a multinational survey of Biotechnology firms.

Introduction
The five key interactions identified by the IMP group's early work include firstly the single actor, secondly "jointness" concerned with two actors, thirdly the interactions around these two actors and outside of this are the issues of interdependencies and time (Ford and Hakaanson, 2006). Resources are key to the interactions between actors, and this is largely what strategic alliances are concerned with. Jointness is unlikely to be solely dyadic because of the interactions outside this relationship, but understanding the dyadic relationship still remains an important issue because this can lead to greater understanding of the whole network.

The rich stream of literature on strategic alliances is concerned with more closely examining this dyadic relationship. Yet the dyadic relationship often breaks or fails, breaking links within the network and affecting future relationships because many strategic alliances (dyadic relationships) fail to deliver the desired outcomes. Understanding factors which affect alliance success can lead to better understanding of factors which might influence the effectiveness of the overall network. The proliferation of strategic alliances in recent years has left a plethora of anecdotal and managerial advice about what factors enable strategic alliances to succeed. From a theoretical perspective, there is a wide variety of approaches to

looking at factors associated with strategic alliance success including firm, market and technological factors which all may affect the outcomes of the alliance. More recently an emerging stream of research has examined some of the "softer" firm issues including behavioural and cultural factors (Kauser and Shaw, 2004; Leisen et al, 2002) and how these impact upon strategic alliance success.

The attitudes and beliefs held by firms can affect the behaviours of actors (firms) within the dyadic relationship. The attitudes and beliefs of firms are also affected by the relationships that firms form – either within dyadic groupings or larger networks. Research on strategic orientation is just one of the ways in which these attitudes and beliefs have been captured and measured. This work on strategic alliances has largely been separate from the research on networks and this study aims to examine the relationship between strategic orientation (market and technological), of the alliance partners to see firms with similar orientations lead to more successful alliance outcomes. Specifically, this study addresses two issues, first is to examine the effect of shared attitudes and beliefs on the outcome of the dyadic relationship (strategic alliance). In order to do this, the level of firm and partner firm market and technological orientation is captured and compared to the outcome of the strategic alliance. In addition, a new scale is developed for capturing strategic alliance outcome. Second, in better understanding the links between firm strategies at a dyadic level, this study also proposes a conceptual framework to integrate the work on firm strategy (strategic orientation) to networks.

1. Background
Whilst in overall terms strategic orientation refers to behaviors to operationalise the firm's strategy (Venkatraman, 1989), there is still some ongoing debate as to whether strategic orientation encompasses beliefs and attitudes, intentions or behaviors (Homburg and Pflesser, 2000). Because the actor in a network is essentially a group of people with shard attitudes and beliefs, capturing these helps understand business relationships. Being able to manage business relationships is very important (Ritter et al, 2004) both to the single strategic alliance outcome and also at the network level. This ability can be seen as a core competence and can lead to competitive advantage (Day, 2000; Dodgson, 1983).

2. Market and Technological Orientation
Strategic orientation has been shown to affect the ways in which firms interact with other firms and with their environment (Hamilton et al, 1990; Kauser and Shaw, 2004). For example, Hamilton et al., (1990) identified four groups of Biotechnology firms, and one of these, termed "*technology driven*", was externally oriented, early movers and tended to form strategic alliances with other firms to gain marketing or manufacturing resources. This link between strategic orientation and participation in external structures such as alliances and networks is also important because research on strategic alliances has shown that compatibility and shared attitudes and beliefs are important in determining the success of an alliance. The two forms of strategic orientation included in this study are market orientation, because the degree of market orientation of a firm has been shown to be related to the overall performance of the firm, and technological orientation as most high-technology firms are at least initially technology focused (Narver and Slater, 1990; Greenley 1995; Appiah Adu and Ranchhod, 1998; Workman et al, 1997)

Market orientation
Market orientation has been defined as "the organization culture that most effectively and efficiently creates the necessary behaviours for the *creation of superior value for buyers and thus, continuous superior performance of the business.*" (Narver and Slater, 1990, p.21) Market orientation as defined by Narver and Slater (1990) consists of three behavioural sub-components: *Customer Orientation* refers to the ability to create value for

the buyer by understanding their needs, which requires an in-depth understanding of all levels of the supply channel; *Competitor Orientation* means that the firm understands the strategies and capabilities of the competition; and *Interfunctional Coordination* refers to the integration of the firm's resources and alignment of functional areas within the business so that superior value can be created for customers.

Technological orientation
The term 'technological orientation' has been examined in several studies and although these lend support to the construct of technological orientation, there is no commonly adopted scale, as there is with market orientation. The related streams of literature such as that concerning technology strategy and entrepreneurial orientation also provide definitions and terms that appear to be closely related to the notion of technological orientation. For this study a new construct of technological orientation was defined using previous research from a wide range of literature (Covin and Slevin, 1991; Zahra et al, 1994; Gatignon and Xuereb, 1997; Cooper, 1985; Shanklin and Ryans, 1984).

High-technology firms such as Biotechnology firms form a great number of strategic alliances which make this industry a rich source of data. Gugler (1992) reported that more than half of all "high technology" firms had formed some form of alliance, and in a later study of Canadian Biotechnology firms, only 2% were not engaged in some form of co-operative agreement (Woiceshyn & Hartel, 1996). Biotechnology firms form a diverse range of strategic alliances. This diversity includes the *type* of agreement, the *functional areas* of the alliance, and the *motives* and *objectives* of firms forming alliances. The *type* of agreement that formalises a strategic alliance may vary considerably from informal spoken agreements to detailed legally binding contracts (Lorange et al., 1992). The *formality* of the agreement may be affected by the technological characteristics of the industry for example, Barley et al., (1992) found that the most common form of alliance involved some form of equity stake, whilst Hagedoorn and Narule (1996) found joint ventures were more common in relatively mature industries and contractual agreements were common in high technology industries.

Strategic alliances can incorporate different functional areas (Vyas et al., 1995; Howarth, 1994; Deeds and Hill, 1996), in one study of high-technology firms, 67% involved R & D, 50% involved marketing, and 36% involved manufacturing (Woiceshyn and Hartel, 1996). Forrest (1990) notes that the *types* (with regard to functional input) of strategic alliances formed may change over the life span of the firm *and* the industry.

Strategic alliances include a wide range of agreements including long term formal agreements to short term or informal joint technological development programmes (Lorange et al., 1992). They can include a wide variety of functions (Howarth, 1994; Vyas et al., 1995; Deeds and Hill, 1996), and can include a wide range of organisational types including joint ventures, equity investments, research contracts, marketing or distribution agreements, research and development agreements and technology licensing agreements (Forrest, 1990).

One factor found to strongly influence the outcome of alliances is the similarity of culture between the alliance firms (Brouthers et al., 1995; Cravens et al., 1993; Slowinski et al., 1996; Doz, 1996). Related research indicates the importance of shared attitudes and behaviours as these factors enable the companies to work well together (Yuan and Wang, 1995; Forrest and Martin, 1992). Whilst the commonly held attitudes and beliefs of an organisation may change over time, these are largely present at the time of the formation of the alliance. Leisen et al., (2002) provided empirical evidence of the relationship between the firm's level of market orientation and the outcome or effectiveness of the strategic alliance. In addition, Kauser and Shaw (2004) demonstrate a positive relationship between trust and performance of the alliance. These studies all suggest that the choice of partner firm in terms

of similarity of shared attitudes and beliefs is an important factor in determining the outcome of the alliance.

3.Capturing Strategic alliance Outcome

Although many studies have examined the factors affecting the outcomes of strategic alliances, and the rate of "success of alliances", the findings concerning success or failure of strategic alliances are difficult to compare since the studies used markedly different measures of success. A comprehensive review of literature reveals no single adequate measure of success of strategic alliances (Kauser and Shaw, 2004). For example Joint venture outcome can be measured in a number of ways including: profitability, growth and cost position, survival, duration, instability of ownership, and re-negotiation of contract (Geringer and Hebert, 1990; Anderson, 1990). Other measures have included overall managerial satisfaction with an alliance meeting its initial objectives (Cravens et al, 1993).

However, not all of these types of measures are applicable to all forms of strategic alliance. Some strategic alliances are finite in length thereby precluding the use of duration as a measure. Other alliances may only involve R & D agreements and therefore the use of profitability, and growth as suitable measures would not be appropriate. More complex measures of strategic alliance performance include multiple outcome measures. One such study measures joint venture performance against three continuums: stability vs. flexibility, well being of individuals vs. profitability and process vs. outcome (Anderson, 1990). Other authors measure strategic alliance success by assessing the parent firms' level of satisfaction with the alliance (Cravens et al., 1993), or as being a composite of meeting strategic objectives *and* recovering their financial costs (Bleeke and Ernst, 1991). Previous research has used objective measures such as the lifetime of the alliance, sales or other financial measures; Harrigan (1996) used a combination of duration, survival and managerial perceptions to capture the success of a group of Joint Ventures. However, due to the diversity of alliances, objective measures are inapplicable to some agreements because traditional measures such as sales or profits do not capture the success of many forms of collaboration (Kogut, 1988) and are only relevant for strategic alliances which have specific financial objectives (Arino, 2003).

There are significant barriers to capturing the outcomes of alliances which include the diversity of strategic alliances, the length of the relationships, the differences in expectations between alliance partners, and most importantly, the broad range of alliance objectives combined with the possibility of unexpected yet positive outcomes (Pett and Dibrell, 2001). The first issue is the diversity of possible alliances formed by companies; which could range from a relatively complex and long term research and development agreement through to a much simpler joint marketing agreement in a new market. Many of these are loose arrangements (Jarratt, 1998). Second is the issue of time; there may be several years between the formation of an alliance and the time at which measurable outcomes are evident. This delay leads to problems including changes in the expectations of partner firms over this time period as well as the possibility that the people responsible for forming the alliance may leave the organization by the time measurable outcomes are evident. To further complicate matters, some alliances are by nature, short lived (Todeva and Knoke, 2005) and termination of the alliance relationship does not necessarily denote failure, but possible success (Gulati, 1998).

Third, there is the potential disparity between alliance partner perceptions of outcomes. If one organization has benefited more than the other from an alliance, then how is that alliance to be judged "successful"? If one firms' perceptions were measured it might be judged successful, whereas if the other partners perceptions were judged it may be seen as a failed alliance. Fourth, although companies may enter alliances with clear objectives, it may be that the alliance relationship results in unexpected but still "successful" outcomes. For example, if a firm entered into a joint venture in order to enter a highly regulated market

such as China and no sales ensued, but an alternative opportunity resulted in the joint development of a new product for a different overseas market, then the alliance would not have met its original objectives yet could be seen to have delivered a desirable outcome.

The breadth of alliances together with the possibility of unexpected yet positive outcomes makes assessing strategic alliances extremely difficult. This diversity of possible outcomes means that relatively simple measures of alliance outcome either objective (such as profitability, longevity) or subjective (perceptual measures of satisfaction or success) do not adequately capture the complexity of the relationship between firms. Furthermore, in order to make comparisons between types of alliance outcomes, or outcomes in different industries, some form of comparable measure is required. Whilst measuring both partners perceptions of a large number of alliances, over a long period of time might be the best approach to determining this, limitations of time, cost, and the requirement for large quantities of data in order to generalize, all contribute to the methodological difficulties.

In previous research subjective measures have been used (e.g. Killing, 1983; Schaan, 1983; Johnson, 1999, Mjoen and Tallman, 1997; Kauser and Shaw, 2004). Whilst subjective measures leave themselves open to bias, not all strategic alliances can be measured using financial measures (Johnson, 1999). Alliances may also result in substantial non-financial or transformational outcomes (Human and Provan, 1997). Therefore, the purpose of this study is to develop and evaluate a framework for determining whether strategic alliances succeed or fail and a measure for capturing the outcome of the alliance. In doing so, this study addresses two gaps in the literature. The major objective is to develop a single measure of strategic alliance success which has been identified as currently lacking (Kauser and Shaw, 2004). Since the outcomes of strategic alliances are inextricably linked to the initial objectives and motives for forming an alliance, it is also necessary to capture the theoretical and managerial reasons for strategic alliance formation.

One problem this is that the goals of partners may change, and this may happen during the lifetime of the alliance (Doz, 1996). This may result in alliances which have very positive yet unexpected outcomes, yet this issue has received little attention and has been identified as an area of future research (Todeva and Knoke, 2005). Although some argue that subjective measures are not as accurate as objective measures, a high degree of correlation has been shown between subjective measures of performance and more objective measures including accounting data (Geringer and Hebert, 1990) which reinforces the use of subjective measures.

In summary, the range of strategic alliances formed is very broad. They are formed for a wide variety of motives and have a wide variety of outcomes. In addition, the outcomes of alliances may take several years to be visible and in this time, the expectations of the alliance partners may have altered. Determining the outcome of the alliance can lead to many methodological problems. Yet judging the success or failure of an alliance is of vital managerial importance, as well as in theoretical terms in order to further understand the dynamics of markets.

4. Strategic orientation and Partner Choice
Strategic alliance partners with similar behaviours and beliefs are more likely to be able to work well together well because each firm understands the patterns of behaviour by the other firm. For example, firms with a high level of market orientation will place a great deal of emphasis on providing superior value to customers: they may visit customers often, and hold the customers' views as important. Firms that are not strongly market oriented may not listen to customer's opinions very well and they may not have much information about the market or competition. The forces driving their actions and influencing their resource allocation will be different from a strongly financially oriented firm. If two firms in an alliance hold similar

beliefs and attitudes towards the market, they are more likely to find it easy to work with each other and the outcome of the alliance is therefore more likely to be successful.

In addition, strongly market oriented or strongly technologically oriented companies attract a certain type of employee (Deal and Kennedy, 1982), and because of their shared views concerning what is important to a company they work better together than employees with disparate views. It is this commonality that suggests that companies with similar values and beliefs, irrespective of their different skill sets, are more likely to choose to work together than companies with quite different priorities.

The process of partner choice will be affected by the strategic orientation in several ways. Firstly, strategic orientation affects the amount of information the company has about potential partners. Highly market oriented firms gather information on customers, competitors and the market, and can use this information to drive strategies and tactics (Narver and Slater 1990; 1994; Kohli and Jaworski, 1990). The more a company is market oriented, the more it will know about its market, its customers and its competitors. A highly technologically oriented company will have more information about the level of technological competition, potential future technologies, technological breakthroughs and the companies that are developing them. This is especially true in the small global world of Biotechnology. Therefore, highly strategically oriented firms, be they market or technologically oriented, will have more information about customers' needs and wants, existing or potential technologies, and more information about the number and type of potential alliance partners. Since highly market or technologically oriented firms hold strong beliefs about either the importance of the market (customers / competition) or technology, and since the world of Biotechnology is very small and most players known to each other, it seems a logical assumption that they would select partner firms with similar beliefs, because the beliefs are represented by similar behaviours. This similarity is not referring to selecting partner firms with similar, compatible or even complementary skills and resources, but selecting partner firms on the basis of shared values and beliefs about the importance of the customer and/ or of being at the forefront of technological development. Since one of the key factors in determining alliance outcome is the similarity of culture then:

P1: There is a positive association between the level of similarity of strategic orientation of partner firms and the perceived outcome of the alliance.

5. Methodology
Questionnaires were mailed in the Spring of 1999, to a sample of 1307 biotechnology firms in the UK, USA, Australia and Canada, drawn mainly from *The Biotechnology Directory* (Coombs and Alston, 1997). Letters were personalised and addressed to the MD/CEO. A number of methods were used to increase the response rate, including sending reminder letters, guaranteeing anonymity, and offering the respondent a summary of the research results.

Construct Scales
In order to be able to capture the importance of beliefs about the importance of technology and compare this to the existing market orientation studies, both 'market orientation' and 'technological orientation' needed to be defined and measured comparably. Whilst extant literature shows a high degree of overlap in ideas between the strands of research, there is no widely accepted or adopted construct of technological orientation and this gap is addressed in this study by developing a new construct. Gatignon and Xuereb (1997) used a 2-item scale to capture technological orientation and this study aimed to develop a scale more comparable to that of the market orientation literature, based on attitudes, beliefs and behaviours.

Market orientation

This study used Greenley's (1995) adaptation of the Narver and Slater (1990) market orientation scale. This is divided into three sections and includes sub-scales for customer orientation, competitor orientation and interfunctional coordination. Items were measured on a five point Likert type scale, and included several randomly reverse coded questions. The Greenley adaptation was used as the wording had been tested within a non US-based study and was therefore deemed more appropriate to an international audience.

Technological orientation
For this study, a new scale for technological orientation was developed. The construct of technological orientation developed in this research draws from a range of previous studies, including research on entrepreneurial orientation (Covin and Slevin, 1991), technology strategy (Zahra et al., 1994) and the extensive research on market orientation, following that by Narver and Slater (1990) and Kohli and Jaworski (1990, 1993). This scale was developed to be applicable to all industries including the biotechnology industry. Technological orientation is proposed as a construct with three sub-dimensions.

> *Research and development focus.* This dimension aims to capture how much of a firm's strategy is derived from the technological focus of the firm. This dimension builds on the work of Gatignon and Xuereb (1997) and Cooper (1985), both of whom include a dimension of R&D focus in their definitions. Cooper puts forward the idea of a firm being 'strongly R&D oriented' whilst Gatignon and Xuereb (1997) refer to this as 'the use of technology' and 'generating new product ideas' capturing the degree to which the aims and objectives of the firm are driven from the R&D function or another function.

> *Use or development of state of the art technology.* This dimension aims to capture the way in which the firm seeks to find out about, develop and/or use technology. This tries to capture the underlying aim of some firms to be the 'first' in their field, or the best technically in their field. It draws strongly on the elements of the 'use of sophisticated technologies' (Gatignon and Xuereb, 1997) and 'the firm is proactive in acquiring new technologies' (Cooper, 1985). This implies that the company must not only be aware of technological developments through continual monitoring, but also be active in acquiring and using this knowledge. In order to be at the forefront of technological development or use, a firm must be knowledgeable about developments in technology. Therefore, the firm must actively monitor what is going

> *Interfunctional coordination and dissemination of information.* Whilst it is important that the firm gain knowledge of technological developments, the use of such information and knowledge is limited if it is not disseminated throughout the organisation. This dimension of technological orientation refers to the flow and use of technological information and knowledge; and processes set up to facilitate the flow of ideas both into and out of the organisation. This may also be related to the amount of information sought from the outside world, including discoveries and competitors. Some firms may place a high value on competitive information or on the information gained at scientific conferences and the development of future technologies; others may simply plow on with their own area of research with less regard for the outside world. The classic issue of lack of communication between R&D and marketing is also captured within this dimension (Shanklin and Ryans, 1984; Song and Parry, 1992). Therefore, this definition of technological orientation, the 'interfunctional coordination' dimension aims not only to capture the marketing/R&D interface, but also to capture a more generic transfer of technological information throughout the company. This dimension closely resembles the dimension of 'interfunctional coordination' of Narver and Slater's market orientation (1990) and that of dissemination of information from Kohli and Jaworski (1990). Whilst 'market orientation interfunctional coordination has the ultimate goal of

creating superior value for customers, 'technological orientation interfunctional coordination' has the ultimate goal of being able to proactively develop, acquire and/or use new technologies. It encompasses the transfer of both technological information and knowledge.

Alliance Outcome
Firms might have multiple motives and objectives for entering a strategic alliance and in order to overcome the apparent weakness of using any single measure of alliance outcome, a measure developed by Gordon (1995) and similar to a recent study by Kauser and Shaw (2004) was adapted for use in this study. Respondents were asked to describe how important certain desired outcomes of the alliance were at the time when the alliance was entered into, and later in the questionnaire, to judge the outcomes of the alliance against a similar list. The first section included 16 possible independent objectives of strategic alliances which were derived from a comprehensive literature review (Hynes and Mollenkopf, 1998) and illustrated in Figure 2. For each objective, the respondent was asked to assign a rating from "Not at all important (1)" to "Very important (5)", or "Not applicable". The mixture of responses to all of these questions was used to provide a picture of the desired outcome of the alliance.

The second section asked the respondent to rate how the position of the firm with regard to each possible objective had improved or worsened *as a result* of being in the strategic alliance. Most objectives (e.g. profitability, sales growth) were measured using a five point Likert scale from "Much worse" to "Much better". Several objectives could not be made into statements that fit this type of response, and for these objectives the respondent was asked to complete a Likert type scale from "agree strongly" to "disagree strongly" to statements such as: "This alliance has reduced the risk and uncertainty our firm faces".

This measure allows each alliance to be judged against its own criteria rather than pre-determined outcomes as called for by Stanek (2004). In addition, the measure can encompass both strategic and operational goals as well as short term and long term outcomes. The advantages of this method are that it can be used to compare disparate types of alliances, can accommodate multiple objectives and allows alliances which have had positive yet unexpected outcomes to still be judged successful. Disadvantages with this method include the fact that the respondent is being asked for an *ex-post* judgment on alliance motives and objectives, and these may have altered since the alliance was formed, or the respondent's memory may be biased or not clear.

A single score of the degree of success or the strategic alliance was created by taking the sum of the responses to each of these three questions, and dividing by the number of items. To ensure that the scale was indeed measuring overall satisfaction with the alliance, a simple three item measure capturing overall satisfaction with the alliance and its outcomes was also included in the questionnaire. The correlation between this simple score and the more complex outcome measures was used to ascertain whether the complex score was measuring the same construct as the simple measure. This simple scale is similar to that used in previous literature (e.g. Killing, 1983; Johnson, 1999, Mjoen and Tallman, 1997; Kauser and Shaw, 2004) and was checked for reliability using cronbach's coefficient alpha which was 0.90. Validity was examined by correlating this simple measure of outcome against the total outcome score and a high correlation between the two measures suggests that they are both capturing the success or otherwise of the alliance.

Reliability and bias
The questionnaire was pre-tested on both a New Zealand sample and using an expert panel. Data were examined for non-response and common method bias. Inter-country bias was checked using one way ANOVAs on each of the main variables (market orientation, technological orientation) by grouping the responses by country. No

significant bias or inter-country differences were evident. Reliability of scales was tested using Cronbach's alpha coefficient, which was greater than 0.7 for the complete scales although slightly lower for the sub-components (Churchill, 1979; Nunnally, 1967). Although the sub-components of the scale for Technological Orientation are lower than hoped for, they are above the value of 0.6 for a new scale (Churchill, 1979; Nunnally, 1967). The market orientation scale showed a high degree of reliability although the sub-component of competitor orientation did not. The biotechnology industry tends towards firms having a high level of strategic alliances and inter-firm cooperation, and this may account for the low reliability of this sub-component within this sector. Owing to the low reliability of some sub-components, analysis was only conducted using the entire scales. Scale reliabilities are provided in Table 1.

Scale	No of items	Mean	S.D	Cronbach alpha
Market orientation	**12**	**3.72**	**0.49**	**0.81**
Customer orientation	6	3.89	0.66	0.74
Competitor Orientation	3	3.12	0.59	0.58
Interfunctional coordination (mkt)	3	3.81	0.70	0.77
Technological orientation	**10**	**3.80**	**0.50**	**0.71**
R&D focus	2	4.07	0.76	0.64
Use of state of the art technology	4	3.70	0.71	0.67
Interfunctional coordination (tech)	4	3.75	0.76	0.66

Table 1 Scale/sub-component Items Mean S.D. Coefficient alpha

6. Analysis and Discussion
The overall response rate, as shown in Table 2, was 7.5% after adjusting for non deliverable questionnaires, consistent with other international survey response rates (Harzing 1997). The pattern of responses varies from country to country but is consistent with prior research findings (Harzing, 1997). Because the sample was mainly drawn from an international directory a certain percentage of the information was out of date, and this was reflected in the low response rates and the number of undeliverable questionnaires. The majority (77%) of the respondents were CEOs/ MDs with the remaining respondents all at a senior level.

Of the 87 respondent firms only 49 (56%) had formed alliances, which was a much lower percentage than previously reported. Although this is a low number of alliances the overall response rate for the survey is in line with other international studies (Harzing 1997) and the survey was addressing a number of issues, not just strategic alliances. Of those firms not forming strategic alliances, there was no apparent pattern in age, size, or country of location.

Of the 49 strategic alliances about which data were available, no clear pattern of functional inputs was found. Very few of the alliances relied solely on one functional input from either firm. In fact, only three out of the 49 alliances (6%) involved a single functional input (R & D) from both partners in the alliance. All of the other alliances involved two or more functional areas (Marketing, R & D, Production, and / or Finance) from both partners. The majority of the alliances involved R & D, with the second most common functional area being marketing. There were no obvious patterns to the combination of inputs of each firm, either of overlap in functional areas, or of complementarity.

Alliance Objectives
The 16 possible objectives were analyzed to determine rank in terms of importance of each possible objective. Of these, "Increasing the firm's sales" was the most commonly "highly rated objective", with 92% of firms stating that they hoped to achieve this through participating in the alliance. Table 2 shows the motives and objectives used in the scale and also summarises the ranking of the objectives scores which are calculated as the average response (on the likert scale of 1-5). Of the highest ranked objective (increasing sales),

nearly 70% of firms believed that this objective had been met, and that sales had increased as a result of the alliance. In fact, the majority of the objectives rated as important were at least partially met through being in the alliance. Only a few respondent firms felt that they were further from meeting their objectives *as a result* of being in the alliance. There was no clear pattern to the type of objectives that failed to meet their objectives. Even for the objectives where some firms felt their situation had worsened, there were a greater number of other firms that felt that their situation had improved. Table 2 shows how often the objectives and outcomes for an alliance were rated as important and how well each of the objectives were met.

Alliance Objectives	Rated as important	Worsened due to alliance	No change	Improved due to alliance
Increase our firm's sales	91.5	0	30.2	69.8
Improve our firm's profitability	82.6	2.3	36.4	61.4
Improve our firms market share	73.9	5.1	28.2	66.7
Allow our firm to achieve a certain objective faster than any other strategy	71.7	20.5	15.4	51.3
Create a foundation for future alliances with this partner	60.9	8.5	21.3	68.1
Reduce the risk and uncertainty our firm faces	58.1	15.2	21.7	60.9
Provide our firm with access to an important asset or resource	55.5	2.6	46.2	51.3
Create a foundation for future alliances with other partners	53.0	16.3	20.4	61.2
Enhance our firm's technical capabilities	50.0	2.3	39.5	58.2
Allow our firm to establish operations in a foreign market	47.2	2.6	52.6	44.8
Provide our firm with financing	45.2	6.4	14.9	78.7
Reduce our firms costs	42.9	6.7	57	35.5
Allow our firm to retain its independence	39.6	6.3	12.5	77.2
Provide our firm with the opportunity to acquire or conform to a technical standard	22.7	2.6	63.2	34.2
Enhance our firm's bargaining power with suppliers or buyers	17.5	5.6	66.7	27.8
Allow our employees to learn new skills	15.5	2.3	51.2	46.6

Table 2. Summary of Strategic Alliance Objectives and Outcomes

Firms were then grouped into clusters using K cluster analysis in SPSS. Four clear groups were formed as follows:

> Group 1. Firms are similar and have average scores in both market and technological orientation.
> Group 2. Firms are similar and have low levels of market and technological orientation
> Group 3. Firms are dissimilar (opposite) in their levels of market orientation but have similar technological orientation scores
> Group 4. Firms have similar high levels of both market and technological orientation.

Table 3 below shows the mean scores for Market orientation and Technological orientation for each group.

	Cluster			
	1	2	3	4
Market Orientation	3.89	3.34	4.16	4.40
Partner Firm market orientation	3.81	2.82	2.77	4.47
Technological orientation	3.90	3.33	3.97	4.52
Partner firm market Technological Orientation	3.86	3.13	3.39	4.42

Table 3. Mean Strategic Orientation Scores for Clusters

In order to test P1, the mean outcome of the alliances in each of the four clusters of firms was calculated and a one way ANOVA was then run which showed significant differences in the scores of strategic alliance outcome between the 4 cluster groups and this was

significant at p = 0.08 with an F value of 4.62. Mean values for each cluster are shown in Table 1 below.

	Group 1 – Average across all SOs.	Group 2 Similar but low in all SOs	Group 3: Opposite market orientation scores and similar Technological orientation scores	Group 4 Similar and high levels of SO
Strategic alliance outcome score (mean value)	2.26	1.44	2.06	3.70
No. alliances / respondent firms in each cluster	13	12	9	6

Table 4. Anova analysis of strategic alliance outcome scores between cluster groups.

Table 4 shows that the most successful alliances are those from firms with similar but high levels of market and technological orientation and the least successful alliances were from firms with low values of strategic orientation and this partially supports P1. Group 3 also has a high strategic alliance outcome and this group is formed by groups with opposite levels of Market orientation but similar levels of Technological orientation. These findings require further examination to understand whether other factors such as the type of alliance entered into (R & D or marketing) is important in determining the relative importance of the similarity or partner firms' strategic orientation. This finding is also consistent with Leisen et al., (2002), who found that marketing alliances are more effective where firms are highly customer oriented and have a high degree of inter-functional coordination. This suggests that rather than an overall measure of market orientation it may be beneficial to examine how the subcomponents of this might affect alliance performance. The results also support those of Kauser and Shaw (2004) who found that behavioural characteristics rather than organisational characteristics play an important role in explaining overall alliance performance.

This study has gone into considerable detail on dyadic relationships but the larger picture refers back to network relationships. The differences and similarities of firms' strategic orientations affect the dyadic relationship's outcome. The level of strategic orientation of firms is affected by and in turn affects the environment in which it operates, by the way in which it interacts with other firms including customers and competitors and may in fact be affected by the environment. This relationship is shown in diagrammatic form in Figure 1 below.
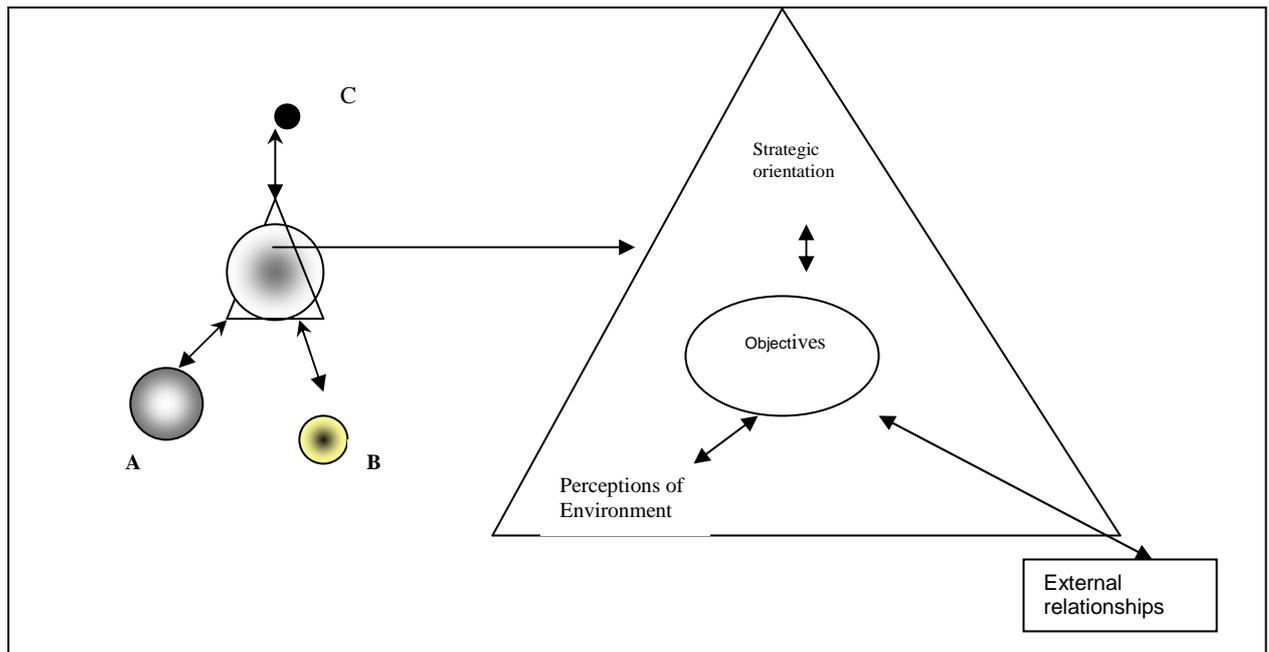
Figure 1. Diagram showing relationship between strategic orientation and firm relationships

The left hand side of the diagram shows a central firm with its strategic orientation (shading) being affected its perceptions of the environment, and the relationships it has formed. Likewise each other firm in the network's level of strategic orientation is affected not only by the dyadic relationships but by the perceptions of the environment and the firms own strategy and objectives as shown on the right hand side.

The relationships formed at firm to firm level are therefore affected by both firms' strategic orientations. Although this study has only addressed a single dyadic relationship this effect of strategic orientation is likely to affect all network relationships.

There are of course, limitations to this study including the number of respondents and the fact that only one industry (Biotechnology) was used. The relatively small number of alliances on which this analysis is based suggests the need for future replication studies, as well as future studies across a broader industry base as although the Biotechnology industry is characterised by a high degree of cooperation, this relationship might not generalise to other industries. In addition, respondents were giving their view of the strategic orientation of their own firm and that of the alliance partner's firm. Although culture or strategic orientation is driven by top management (Howard, 1998), this assumes that the values and beliefs held by the top management are echoed throughout the organisation, and that the firm has a clear and representative picture of the alliance partner's strategic orientation.

Nevertheless factors which can increase strategic alliance success are important for managers and also in order to be able to build the detailed level of knowledge required to better understand interactions within networks. This study has examined a one-off relationship in a dyadic pairing, but the impact of strategic orientation is likely to be fare wider reaching than this. Firms are strongly interested in future relationships as shown in Table 2 which shows that creating a foundation for future relationships was rated as important by 61% of firms and that 68% of firms felt they had achieved this through this alliance relationship. Further research could address this by including multiple respondents and investigating whether firms are able to make accurate judgements about the strategic orientation of other firms that they are working with, and also include a wider range of

strategic orientations. Future research should capture the strategic orientations of firms in networks over a period of time,. thus moving the findings from a firm to firm, dyadic basis to a more dynamic network approach which would encompass the interactions at more of the key five levels identified by IMP. Finally, the findings of this study may be useful to other forms of inter-organisational relationships such as the supply chain, and future research should also examine this.

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