Segmentation for Research of Business Markets: Dyadic Analyses

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Abstract

Understanding business relationships requires data from each party and a data analysis that considers firms from both their specific and shared characteristics. Because of the complexity of the problem, global models aimed at explaining all cases usually have a low fit. A segmentation analysis, aimed at differentiating the main cases, is then needed.

Segmentation is a managerial term defining a clustering with a strategic/management aim or goal. Choice of a clustering method depends on the homogeneity of the variables and on the purpose of the analysis, which can be identifying either common traits or common models. Three main types of segmentation analysis may thus be identified: non-predictive clustering, clusterwise regression and concomitant clustering. Each of these analysis methods is discussed along with examples based on business markets.

To stress the importance of problem conceptualization the case of segmentation of dyadic data representing pairs of firms in business relationships is reviewed. The final sections of the paper consider the opportunities for further research based on dyadic data concerning business partnership.

Keywords: segmentation, dyads, clusterwise regression, genetic algorithms

Introduction

Heterogeneity of resources, firms and relationships is a main characteristic of industrial markets when relationships and networks provide the theoretical lens (Gadde, Huemer, and Håkansson 2003). Further, the processes of inter-firm interaction are recognized to be indeterminate, with managers losing 'control' to the dynamics inherent in a business relationship (Håkansson and Snehota 1998). This heterogeneity, along with partly indeterminate interaction pathways, naturally influences the ways business relationships are 'managed' with many factors internal to the relationship, as well as external, having an effect on the ways managers deal with on-going inter-firm interaction.

A further issue is the two-sided nature of business relationships. As Blois (2003) demonstrated, a relationship is a complex and dynamic construct, which is generated by and relied upon by managers and other parties to explain the ways two firms interact. Thus, without examination of both parties there is no evidence that a relationship is reciprocated.

These issues present major problems for developing the industrial network framework of the Industrial Marketing and Purchasing (IMP) Group (Anderson, Håkansson, and Johanson 1994; Gemünden, Ritter, and Walter 1997; Håkansson 1982; Håkansson and Snehota 1995; Hallén and Johanson 1989; Hallén, Johanson, and Seyed-Mohamed 1991; Naudé and Turnbull 1998); for there is a need to move managerial advice beyond the heuristic to include the normative.

To arrive at normative theories concerning business relationships and networks requires considering the heterogeneous and two-sided nature of business relationships and using methodologies that can identify the main types of business relationships. Segmentation techniques offer such a methodology. Segmentation begins with a one-cluster solution, a global model, and then seeks a better global fit by finding a solution comprised of multiple models, each with better local fit. However, segmentation faces even more difficulty in dealing with the issues of heterogeneity and predictivity, for the solutions are more complex. But local solutions can also be better than global models. Further, local solutions offer means for theory development. In particular segmentation allows examination of dyadic data in new ways (cf Aurifeille and Medlin 2001b; Aurifeille and Medlin 2005).

The remainder of this paper is structured in the following manner. First, the literature on heterogeneity and the two-sided nature of relationships is discussed and implications are found regarding the problems faced in empirically examining dyadic data. Second, three classes of segmentation methods are discussed along with examples of how they might be applied to business relationship research. Particular stress is given to the theoretical and operational issues underlying the selection of each specific clustering technique. This makes it clear that use of segmentation analysis requires precision in the problem conceptualization. Third, to stress the importance of problem conceptualization the case of segmentation of dyadic data representing pairs of firms in business relationships is reviewed. Fourth, the future research opportunities concerning business relationships using segmentation analysis and dyadic data are reviewed. Finally, some potential managerial implications of segmentation research of dyads are considered.

Literature Review

Developing a normative theory of 'managing' business relationships within the IMP perspective requires resolution of a number of theoretical issues and development of methodologies for empirical examination. Normative theory requires appropriate dependent variables that recognize the outcomes of joint and individual firm action and independent variables that provide an understanding of how those goals are achieved. This section briefly examines the literature and develops implications for methodology.

The two-sided nature of business relationships (Blois 2003; Halinen, Salmi, and Havila 1999; Wilkinson and Young 1994), where there are always at least two coordinating perspectives (Halinen 1998), means that each party to a relationship should be modeled separately. That is, one cannot aggregate construct indicators across a dyad (Medlin 2003a), rather on-going interaction and 'firm identity' (Anderson, Håkansson, and Johanson 1994) imply that quantitative analysis of business dyads must allow for variation in perspective between the parties (Medlin 2003a). Segmentation techniques, based on clusterwise regression, offer local models that permit this variation.

Evidently where more than two parties are involved in creating value through a network it would be essential to model each party separately. However, modeling the managerial perspective of each firm in a relationship, or value net (cf Möller, Rajala, and Svahn 2005), requires selection of a dependent variable that recognizes the outcome of joint effort. There are a number of alternate ways to achieve this and in a sense each is reliant on the network structure and boundaries imposed by the researcher.

For example, business relationships can be conceptualized as three networks; with two firm networks joined by the relationship to create the third network (Medlin 2003a). In this configuration the relationship is driven by two separate firm perspectives working jointly to effect value in the broader, third network. This means the dependent variable must capture the outcome of value created jointly by the two parties. The most effective way to measure value will be with reference to a market and so sampling would involve selection of relationships selling a product into a definable market place (Medlin 2003b).

Following the above example, where there are more than two parties in a value net any attempt to understand joint action would require a dependent variable, or several, that captured joint action at the final product market edge of the network. However, dealing with more than two parties brings to the forefront the issue of analysis levels (cf Chan 1998; Dansereau, Yammarino, and Kohles 1999; Glick 1985; House, Rousseau, and Thomas-Hunt 1995; Morgeson and Hofman 1999; Roberts, Hulin, and Rousseau 1978; Rousseau 1985), for there maybe more than two theoretical levels in a value net; whereas in a three network business relationship structure only two levels are evident: the firms and the relationship outcome.

Another consideration is the nature of the relationship management models that firms might apply. Once a dependent variable is agreed, it is necessary to establish independent variables to provide a process function (Chan 1998), which in conjunction with theory provides an understanding of the association between variables at different levels of analysis. Essentially, a process model is a way of modeling relationship management styles. There are two issues in locating these variables. The first is that relationships develop according to their own pathway of events and as a result relational norms specific to a relationship arise (Macneil 1974; Macneil 1978; Macneil 1981; Macneil 1983; Macneil 1985). Considerable literature exists on the constructs of flexibility, trust, commitment, and role integrity to name a few (Cannon, Achrol, and Gundlach 2000; Dwyer, Schurr, and Oh 1987; Gundlach, Achrol, and Mentzer 1995; Heide 1994; Kaufmann and Stern 1988; Morgan and Hunt 1994; Zaheer and Venkatraman 1995), however that each relationship develops its own environment presents a problem for theorizing management models. Presumably there are groupings of business partners based around different relationship types, which managers have learnt are effective in organizing relationships. If such groupings exist then segmentation analysis offers a potential method for their detection and analysis.

The second issue relates to the existence of ideal relationship management styles. Business markets are composed of interacting firms operating in relationships that can be characterized as close, interdependent and long-term through to distant, independent and long or short-term. Such characterizations do not fit a simple dichotomy of market to hierarchy with relationships taking a central position (cf Williamson 1975; Williamson 1991), and more recent conceptualizations have moved towards a triad configuration (Alajoutsijärvi, Möller, and Rosenbröijer 1999; Bonoma 1976; Bradach and Eccles 1989; Medlin 2003a) with long-term relationships as another ideal organizational form alongside markets and hierarchies. Other literature has extended the triad ideal to multiple governance structures (Cannon, Achrol, and Gundlach 2000) and plural or hybrid forms (Heide 2003; Medlin 2003a; Pels, Coviello, and Brodie 2000; Powell 1987), however these are likely to be subsidiary forms of the three ideals. In any case, the literature is replete with constructs that are associated with each of the ideal relationship management styles, however the constructs associated with dependent variables measuring joint outcomes are mainly untested as the focus has been on firm level research, rather than relationship and networks levels.

A final methodological issue arises once the process functions for each firm in a dyad has been found, for a method must be found to group dyads for further analysis (Medlin Forthcoming). In effect, composition rules (Chan 1998) must be decided to group dyads (ie two firms' models). Many different theories can be used to provide these composition rules. For example, dyads can be grouped

according to rules concerning their similarities and differences (cf Aurifeille and Medlin 2001a; Aurifeille and Medlin 2005), or alternately a theory regarding collaboration and opportunism (cf Medlin Forthcoming) can be drawn upon to create a composition rule.

The next section introduces three segmentation techniques, their rationale, strengths and weaknesses, and provides some illustrative examples.

Segmentation Analysis Methods

Segmentation is clustering of data to achieve a managerial/strategic goal. Three main types of segmentation analysis may be identified according to the heterogeneity of the variables, whether the purpose is predictive or non-predictive and whether the purpose is identification or explanation. The three segmentation techniques are: non-predictive clustering, clusterwise regression and concomitant clustering.

Non-predictive clustering is aimed at grouping elements according to their score on independent variables (eg firm age, revenue, etc). Clusterwise regression is aimed at finding clusters whose homogeneity depends on a similarity of models instead of a similarity of traits (Aurifeille and Pinto 2000; DeSarbo and Cron 1988; DeSarbo, Oliver, and Rangaswamy 1989; Späth 1979). Concomitant clustering is aimed at grouping elements according to variables that belong to different conceptual domains (Dayton and MacReady 1988; Kamakura, Wedel, and Agrawal 1994; Ramaswamy and Chatterjee 1996). This section discusses each segmentation type in turn, giving the underlying rationale and method and by contrasting the role of theory and method against each other. In addition, the specific strengths and disadvantages of each segmentation type are also covered, and suggestions are made for possible uses within dyadic business research.

1. Non-predictive clustering

Non-predictive clustering is aimed at grouping elements according to their score on descriptive variables (eg firm age, revenue, etc). Thus, there is an attempt to find distinctions in the data, based on the identity of variables. With regard to methodology, its validity criterion is internal. That is, the elements of a cluster should be as similar as possible and elements of different clusters as different as possible. Thus, the purpose is purely to group elements and the researcher must provide a theory, or rationale, that explains the grouping. This explanation is essential in providing any external validity to the clustering result. However, to arrive at a non-predictive clustering solution the theory goal is latent or unspecified within the actual data analysis and only helps choose one solution over another.

Because no external goal is guiding the optimization, all variables are supposed to have the same importance. In addition to being unrealistic, this assumption makes the result largely dependent on the sampling of the variables and so missing or redundant variables may severely bias the results. This can happen even when a preliminary factor analysis is completed, because factors' variance depends on the number of correlated items and also because variables belonging to a different theoretical level might be incorrectly considered within the same grouping level.

In some cases, to reduce the problem of no external goal within the data analysis, the variables are weighted so as to achieve solutions that better fit a theory. The weights can be estimated prior to the clustering, using a global model (eg regression, conjoint analysis, hierarchical modeling). However, the weighting of the variables ***is*** global, that is identical for all clusters. Although useful for correcting global biases that may result from data collection problems, the weighted approach clearly lacks optimality because clustering is based on the idea that a global model is not sufficient to translate to local cluster specificities.

When this issue occurs a more elaborate approach, named latent class modeling, is considered. This analysis allows estimation of the variable importance at the cluster level, by optimizing an internal validity criterion (Wedel 2002; Wedel and Kamakura 1997). For example, weights can be estimated so that the ratio of the within-class variance over the between-class variance is minimized. However, it is difficult to comment and conceptualize the meanings of these weighting.

These observations have led to different approaches, called ‘clusterwise regressions’ or ‘latent class mixture models’.

2. Clusterwise regression

Clusterwise regression is aimed at finding clusters whose homogeneity depends on a similarity of models instead of a similarity of traits (Aurifeille and Pinto 2000; DeSarbo and Cron 1988; DeSarbo, Oliver, and Rangaswamy 1989; Späth 1979). As models are concerned it requires two kinds of variables, predictors and predicted, within a general model whose parameters are then to be estimated at the cluster level. For example, clusters of firms may be sought whose economic performance (predicted variable) is explained by the same linear combination of management constructs (predictor variables). Thus, the clustering is based on the identity of coefficients, rather than on the identity of the variables.

Importantly in this type of segmentation the clustering is based on an association that exists between the independent predicting variables and dependent variable(s). This association acts as an external goal during the analysis. For example, two firms with different age, size and capital, as well as different performance levels may belong to the same cluster, if the same model predicts their performance.

This approach has three advantages. First, it insists on the existence of an external goal. Second, and as a result of the first advantage, it enables much better prediction by weighting variables adequately at the cluster level. Third, and importantly for business researcher it provides clusterwise-models, that is, some sort of local theories about the phenomenon. Thus, clusterwise regression seems particularly suitable for examining management models for business relationships.

However, the results of clusterwise regression are sometimes difficult to explain. Indeed, a cluster described as a model is more abstract and difficult to comment, than is a cluster of traits. This is because objects of the same cluster can be following the same model, but may have very different traits. For example, a non-performing firm may have the same model as a performing firm. As a result researchers would want to identify clusters that are homogenous at both the predictor and the predicted variable levels, not only at the coefficients as in clusterwise regression. This would have the advantage that researchers would not have to comment on situations where elements may be clustered together even though their levels on all variables differed completely. The solution to this issue is concomitant clustering.

3. Concomitant clustering

Concomitant clustering groups elements whose characteristics belong to different conceptual domains (Dayton and MacReady 1988; Kamakura, Wedel, and Agrawal 1994; Ramaswamy and Chatterjee 1996). For example, consumers may be considered according to three subsets of characteristics, which may be related but are not conceptually equivalent: their demographic traits, their psychological traits and their purchases. In this case, it would not be relevant to consider the variables of different sets as interchangeable and then to calculate distances between consumers by adding their scores on all the variables. Instead, each subset of variables must be treated separately: two consumers of the same cluster should be homogeneous vis-a-vis their demographics, homogeneous vis-a-vis their psychological traits and homogeneous vis-a-vis their purchases (Aurifeille 2000a).

The search for an association between sets of variables may be completed within a predictive perspective, with the variables of one set being dependent on the variables of the other set (Aurifeille 2000a; Aurifeille and Pinto 2000). For example, in business markets one can consider three types of concepts: one regarding an economic behavior (eg relationship performance), one regarding the behavioral determinants of this behavior (eg trust, commitment, relationship experience, etc) and one regarding the demographic trait variables needed to identify and locate the corresponding firms for managerial action (eg firm size, sector, country).

As separate sets of variables are concerned, concomitant clustering may be viewed as a multiple goal problem, where several clusterings (one per set of variables) are simultaneously sought. To solve this problem, a minimax approach or a combination of these goals is optimized (Dayton and MacReady 1988). A limitation of this approach is to provide global clusters where two objects of different clusters

must differ in each set of variables (eg they should have different demographic traits *and* different performance traits). A greater optimality and a more realistic approach would allow that two objects of different clusters might differ in some sets of variables and not in others. For instance, two firms could have different behavioral traits and the same performance traits, meaning that there are several ways to achieve the same performance.

Moreover, in its basic form, concomitant clustering has the same limitation as descriptive clustering. The variables in a set have the same importance and so the previously mentioned risks of variable redundancy and inadequate sampling can occur.

In conclusion, use of the three segmentation analyses types depends very much on the theory being examined by the researcher and the nature of the constraint that this can bring to bear on the data analysis method. While concomitant clustering would seem to offer the most direct approach to understanding business markets, its use often leads to indeterminate results due to over constraining during data analysis.

The next section reviews dyadic data segmentation with the emphasis on appropriate problem conceptualization.

A Review of Segmentation of Dyadic Data

Understanding business relationship requires modeling both sides, as there are at least two perspectives (Halinen 1998). To-date, analyses of dyad data have been via clusterwise regression (Aurifeille and Medlin 2001b; Aurifeille and Medlin 2005), in order to maximize the linear association of the independent variables to the dependent variable. These studies have relied upon a Collaborative Interest Model (CIM) (Medlin, Aurifeille, and Quester 2005) to act as the external constraint. In this model 'relationship performance', a dyad level construct measured from the perspective of each firm in a relationship, is associated with independent variables such as 'time perspective', 'past relationship experience', 'trust', 'commitment', and a firm's 'economic goal' for a relationship (Medlin, Aurifeille, and Quester 2005). Thus, groups of firms with different models explaining 'relationship performance' are found according to whether the firms rely upon 'trust' and 'commitment' or possibly 'experience' and 'economic goal' to organize their performance.

Importantly, this approach examines a standard three-network business relationship structure according to a dependent variable based on joint activity measured in a market. This conceptualization allows measurement of joint action from two perspectives and requires sampling of two firms involved in a producer-distributor/agent relationship or similar.

However, with relationships one must also create a composition rule to group dyads for analysis. This can be accomplished with available theory and according to rules and constraints evident within the data. Two examples of composition rules are displayed in the research described below.

A study by Medlin (Forthcoming) takes collaboration and opportunism as its theoretical basis for a composition rule to group dyads for further analysis. First, clusterwise regression is conducted on 100 firms in 50 dyads using GLIMMIX (Wedel 2002) and constrained by the CIM (Medlin, Aurifeille, and Quester 2005). Next, dyads are grouped according to a composition rule based on the nature of their firm's models. In this study, when two firms exhibited negative coefficients for commitment or trust their dyad was considered opportunistic, when two firms exhibited positive coefficients on variables they were attributed to be collaborative, and when a dyad consisted of one partner acting opportunistically the dyad was considered as a hybrid. The results of analyses of these dyads showed collaborative interaction modes to provide greater levels of relationship performance ($p=0.032$). This result supports past non-dyadic research on cooperation in business relationships (Morgan and Hunt 1994), but importantly suggests that on-going interaction of a collaborative nature is a key to relationship performance. It should be noted however, that the dyadic nature of the dependent variable favors such a result.

In contrast, the studies by Aurifeille and Medlin (2001b; 2005), involve a different composition rule and in the initial clusterwise regression a different approach is taken. In the clusterwise regression two models are considered for each firm: a 'self-model' that reflects how a firm's characteristics explain its

perspective of relationship performance, and a 'contributive-model' that reflects how they influence the partner's view of relationship performance. Further, the clusterwise regression uses a genetic algorithm (Aurifeille 2000a; Aurifeille and Pinto 2000; Goldberg 1991) to analyse the similarities/dissimilarities among the models. Finally, for dyad analysis one must group the different types of relationships according to a composition rule and this is achieved by defining four interaction modes based on the ways the self and contributive models are found within relationships. These interaction modes are: merging, teaming, sharing-dominated and sharing-mutual (Aurifeille and Medlin 2001a; Aurifeille and Medlin 2005).

Briefly, 'merging' is the situation where two firms have similar 'self and contributive models', whereas 'teaming' is where firms have different 'self-models' and no 'contributive model'. Thus, teaming involves two firms bringing their own perspectives and resources to the relationship and both firms gaining from this complementarity, whereas merging requires the firms to look for similar ways of seeking relationship performance. The 'sharing' mode is characterized in two ways according to how many firms in the relationship adjust to their partner. If one firm adjusts (ie Firm A has a self model and a different contributive model, while Firm B has only a self model) the interaction mode can be classified as sharing-dominated, whereas if both firms have a contributive model the interaction mode is sharing-mutual.

This formalization of dyad interaction modes is based on the way local firm and contributive models fit against each other and so does not account for the active variables within each local model. However, it has lead to some interesting early results. Briefly, trust between firms explains about 75% of relationship performance (see table 1), so acknowledging the result that trust between firms is important to cooperation (Morgan and Hunt 1994). But the intriguing findings have been the slightly ambiguous results with regard to interaction modes and relationship performance (see table 2).

Thus, it would appear that dominated-sharing leads to greater relationship performance than does merging, while mutual-sharing leads to the least relationship performance. If this is the case it seems to suggest that leadership is an important aspect of successful business relationships. While this appears intuitively sound, the dynamics of leadership-follower have not been canvassed strongly in IMP literature. However, it is important to note that the nature of the self and contributive models is not explored in these analyses and that further research is required.

Table 1: Three cluster solution explaining Relationship Performance

Cluster	Frequency of models		F	p(F).	Significant characteristics (p<.05)	Beta (unstd)
	self	contribution				
1	33	32	33.77	.0000	Commitment	.6254
					Trust	.3637
2	39	47	15.96	.0000	Experience	.3522
					Trust	.2456
3	28	21	10.44	.0000	Economic goal	.5912
Adapted from Aurifeille and Medlin (2005)						

Table 2: Relationship performance of the firms belonging to the four dyad interaction modes

Relationship mode	Mean *	Standard deviation
Merging	8.04	4.64
Teaming	9.29	4.27
Mutual sharing	10.80	3.83
Dominated sharing	7.50	3.25
F = 4.110, p = 0.009 * Note: lower number represent greater relationship performance		
Source: Aurifeille and Medlin (2005)		

A further comment should be made comparing the result from the two sets of composition rules used to group dyads for further analysis. While the results seem somewhat at odds they are not dichotomous, for collaboration can take a number of forms as is evident in table 2. Further, the intent of the two approaches is wholly different, with the study by Medlin (Forthcoming) examining the result

of collaboration versus opportunism on relationship performance; while the Aurifeille and Medlin (2005) study was looking at a more complex set of interaction modes based on types of collaboration only.

Future Research

On-going interaction between firms is the norm in developed and differentiated economies. No firm is an island and the nature of the interaction between firms has a bearing on the ways a business relationship is 'managed' and on the outcomes (Håkansson and Snehota 1989). The segmentation techniques discussed in this paper offer a number of paths for future research of dyad data so that interaction is encompassed in empirical analysis of theory.

First, there is a need to examine, within a dyad framework, the range of variables that represent the ideal management styles and relate these to variables that measure joint and single firm action. These studies will elucidate the various possibilities for local management models within relationships.

A second area for future research is to examine other network structures. This will require elaboration of these structures, including the levels of analysis required and resolution of appropriate dependent variables for each level, as well as independent variables providing a process rule for each firm and composition rules (Chan 1998, Medlin Forthcoming) for further analyses of dyads, triads and so on. Other network structures to be examined include distribution chains where a number of levels of joint activity occur, or multiple firms involved in one joint activity.

The result of these two areas of research should provide the foundations for normative theories at a local level for managing business relationships. Variations in dyad composition rules will play different roles in uncovering the realities of inter-firm interaction and theory testing.

A third and very important area for future research opened by dyadic segmentation techniques is the opportunity to examine pathways from one local model to another (cf Aurifeille and Medlin 2001b). These techniques open future research in the area of evolutionary change within business networks and industries (Kauffman 1993; Moore 1996) and the role of strategic action (Baum and Dutton 1996) in changing relationships, as well as allowing examination of internal factors inherent within a firm and a relationship that explain change from one management model to another (cf Pillai and Sharmaa 2003).

Finally, the area of plural and hybrid forms of relationship and network governance are opened for examination using dyad segmentation techniques. The many composition rules for grouping dyads for analyses deserve considerable attention, with rules being refined as a theory of inter-firm interaction is developed. This will lead to further refinements in normative theory to guide practitioners in 'managing' the emergent and intended aspects of business relationships and their networks.

Management Implications

The gap between practitioner and academic rests upon the difference between local and global perspective. Academic theory seeks to explain general rules governing business behavior, while managers want solutions to specific local problems. Segmentation techniques offer a means towards bridging this gap as they allow for examination of local management models and so the modes of interaction within business relationships.

Too often a manager will not find a solution to their problem in theory, simply because of lack of specificity, or lack of complexity. For example, as trust is known to be associated with cooperation (Morgan and Hunt 1994), managers have been exhorted to develop trusting relationships (Barney and Hansen 1994). This is based on the idea that cooperation leads to greater efficiencies, and better adaptations, so that relationship performance is enhanced. However, as the research reviewed here shows in a preliminary way, how one cooperates and the issues over how one trusts the other party maybe more critical in explaining performance.

To approach the same point from a different angle, past research of business relationships has not explicitly accepted that firms in a relationship have different perspectives (for exceptions see Blois 2003; Halinen 1998; Medlin 2003a; Wilkinson and Young 1994) and potentially different ways of managing (Medlin 2003a). Further, the dynamic nature of relationships has not been examined. That is, the outcome of relationships is very much a function of the nature of interaction between the firms and their resultant adaptation to each other (Håkansson 1982; Hallén, Johanson, and Seyed-Mohamed 1991). The research reviewed here accepts the authenticity of these ideas and develops ways to examine their implications on joint performance. Early results seem to suggest that a leadership-follower interaction mode is an important element of achieving joint performance in business relationships. This would imply that trust is also important in deciding the areas in which one firm should acquiesce to the influence of the leader, and the leader should trust in a different way the follower (cf Malhotra 2004). However, it also seems that both firms should not simply acquiesce to each other, for interaction where both parties have contributive models (ie mutual-sharing) was found to result in the lowest performance. While this result may be explained by the lack of leadership-follower interaction, it is very preliminary and requires considerable further research.

The acceptance of the role and effects of on-going interaction between firms on their joint performance (Håkansson 1982; Hallén, Johanson, and Seyed-Mohamed 1991) leads to some interesting possibilities for future segmentation research, which will impact on managers. The acceptance of local management models and the ability to empirically examine these will allow testing of sequences of evolutionary paths as interaction modes and their local management models adjust through time. This research will have profound effects on managers, as it will begin to provide normative theories that are forward looking rather than heuristic and based on past experience.

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