THE OPTIMAL PERFORMANCE OF THE GLOBAL FIRM: FORMALIZING AND EXTENDING THE INTEGRATION-RESPONSIVENESS FRAMEWORK

by

T. M. DEVINNEY *
D. F. MIDGLEY **
and
S. VENAIK †
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* Australian Graduate School of Management, University of New South Wales, Sydney NSW 2052 Australia.

** Professor of Marketing, INSEAD, Boulevard de Constance, 77305 Fontainebleau Cedex, France.

† School of International Business, University of New South Wales, Sydney NSW 2052 Australia.

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The Optimal Performance of the Global Firm: Formalizing and Extending the Integration-Responsiveness Framework*

by

Timothy M. Devinney

Australian Graduate School of Management
University of New South Wales
Sydney NSW 2052 AUSTRALIA

Phone +61–2–9931–9382
Fax +61–2–9313–7279

T. Devinney@unsw.edu.au

David F. Midgley

INSEAD
Boulevard de Constance
77305 Fontainebleau FRANCE

Sunil Venaik

School of International Business
University of New South Wales
Sydney NSW 2052 AUSTRALIA

sunil@agsm.unsw.edu.au

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ABSTRACT

With the increasing globalization of business, there has been growing interest in how to create and manage a successful international enterprise. Although researchers and practitioners have grappled with the issue of globalization for some time, there is no one model that encompasses the range of phenomena we observe in the global economy, nor have those models that do exist been precisely formalized.

This paper provides an expanded approach to thinking about the organizational forms and linkages that exist in international business operations. Building on the popular integration-responsiveness framework of international strategic orientation, we develop a more expansive approach that is better able to account for the diversity of organizational forms and strategic choices open to managers. By adding a third set of environmental pressures, incorporating the beliefs of managers, and by employing the idea of efficient frontiers, we reformulate the integration-responsiveness framework, making it more consistent with modern economic models of the firm. Our integration-responsiveness-completeness (IRC) model argues that global firms can respond to these fundamental and competing pressures by configuring themselves in a variety of ways—rather than normatively prescribing that the transnational form is optimal. In addition, our model has methodological ramifications. Its formal structure suggests that empirical techniques that focus on the best rather than average performance are necessary to adequately investigate the performance differences among alternative organizational forms. This may explain the paradoxical lack of empirical support for a link between organizational form and performance.
The Optimal Performance of the Global Firm: Formalizing and Extending the Integration-Responsiveness Framework

1 Introduction

The global integration-local responsiveness framework has been one of the more enduring approaches to thinking about international business strategy and the organizational structure of global firms. Our goal is to build on this framework by incorporating a third set of pressures, namely the transactional pressures on the firm’s value chain, while formalizing and extending the approach to encompass the differing organizational imperatives and efficient frontiers faced by firms. Our reshaping of the seminal work in international business and organizational economics allows for a more structured approach to thinking about multinational strategy and the impacts that the strategic choices of managers have on the performance of global firms.

1.1 Conceptual Background and Theoretical Perspective

Although economic and technological factors are driving industries to become global in competitive scope (Porter, 1986), in many industries, “managers can and do change the rules of the game,” (Prahalad and Doz, 1987, p.30, italics original). Managers do so by altering the pattern of competition from local to global in character. Such change becomes a new source of competitive advantage for the firm—an advantage that derives not only from the accumulation of strategic resources, but from the intelligence with which managers distribute, configure, develop and jointly use these resources across the globe. As the pressures on firms to internationalize increase, so, too, do the demands on companies to efficiently organize their value chains across diverse businesses and geographic markets. However, faced with a multiplicity of organizational choices, even firms ostensibly classified as belonging to the same industry may organize their value chains in very different ways. Therefore, both environmental pressures and the strategic choices of managers are likely to have complex and significant influences on the performance of global firms.

In this paper, we extend the popular global integration-local responsiveness (hereinafter IR) framework by formalizing the approach and adding a third set of pressures we believe impact on global
firms’ choices of organization structure. In doing so, we provide an expanded and clarified approach to thinking about the organizational forms and linkages that exist in international business operations and the impact these forms have on firm performance. By accounting for the economic pressures that affect a firm’s configuration of its value chain—which we call *transactional completeness*—as well as the tension between management’s beliefs about the environmental pressures it faces and the constraints placed on them by existing organizational forms, systems and resources—which we call the *organizational imperative*—we hope to show that the relationship between strategy and structure is richer and more complex than earlier thought. Yet our structure, because of its formality, captures this complexity in an internally consistent and empirically verifiable manner.

Our approach will be based on the idea of *efficient frontiers*. These frontiers represent the maximum performance of firms on a number of underlying dimensions each of which, in turn, represent one of the sets of global competitive pressures facing firms. We postulate a three dimensional model for these frontiers. The first two dimensions are familiar—*global integration* and *local responsiveness*. To these we add a third dimension describing the contractual nature of the value chain—*transactional completeness*. Put simply, transactional completeness describes the pressures to outsource or internalize steps in the value chain (e.g. purchase components, retain proprietary knowledge, etc). By incorporating this third dimension we link the IR model to an extensive literature in organizational economics and contracting theory (e.g., Buckley and Casson, 1976; Nelson and Winter, 1982; Williamson, 1991; Hennart 1991, 1993).

We also distinguish between the industry frontier of best practice and the frontier on which an individual firm can operate in the near-term future—which we call the *technologically feasible frontier of the firm*. Depending on the competitiveness of the firm’s assets, structures, systems and resources the technologically feasible frontier may or may not coincide with the best practice frontier. Stated simply, this frontier represents the strategic and operational constraint of the firm at any moment in time.

However, despite its formality, our model does not neglect the important role that managerial decisions play in determining the firm’s international strategies and structures. We define the concept of *managerial orientation* as the vision, philosophy and values of the management that taken together describe the strategic direction in which management wishes to take the firm. In other words, the firm’s managerial
orientation represents management’s belief about where the best location for the firm lies within the three-dimensional space of global integration, local responsiveness and transactional completeness.

Thus when we speak of the organizational imperative of the global firm we are talking about the tensions between what is possible for a firm given its technologically feasible frontier and what its managers believe is best for the firm in the future. Stated succinctly, the strategic orientation of the firm is a complex interaction between the pressures in its environment, how well the firm’s current structure matches with those pressures, and managers’ beliefs about both these pressures and what is best for the firm in the future. Therefore, when a firm chooses a strategic orientation—that is, a location in the three-dimensional space—it is implicitly attempting to optimize its structure with the demands of the competitive environment. In that sense, we do not differ philosophically from prior writers (e.g., Prahalad and Doz, 1987; Bartlett and Ghoshal, 1989). Rather, the substantive difference between them and us is the formality we bring to the problem of goals, structure and performance and the way in which we integrate the theory with extent thinking in economics and organization theory (particularly contingency theory).

1.2 General Structure and Contribution of the Proposed Model

The general structure of our thinking is presented in Figure 1. More detail will be given on this as we go through the model; however, a short overview is worthwhile here. The environmental and market conditions serve to determine the dimensional structure of the market—i.e., what determines global integration, transactional completeness and local responsiveness. This further determines which strategic orientations are possible in any given market—e.g., driven by the nature of economies of scale, intermediate products and the heterogeneity of customers. The existing structure of the firm, in conjunction with these forces determines which orientations are possible for any particular company. Management’s final decision about which strategic orientation to choose will be determined by its beliefs, which are effected by all of these previously discussed factors, and what is feasible for the firm.

Our contribution is twofold. First, we overcome the limitations and under-specification of the IR framework by incorporating new and important concepts. We also clarify thinking in the area by assigning factors mentioned as important in the literature (e.g., scale economies, local demand conditions, transaction costs, the role of government, transportation, etc.) more precise roles in the model. Second, we both
formalize the model and make it less deterministic—so that we can begin to ask questions about the optimal performance of the global firm. This formal model suggests not only a number of testable propositions but also that a new methodology is needed to measure the performance of multinational firms. Our most controversial proposition is that—because of the under-specification of the IR model—the typologies used in the literature (e.g., federal, transnational, etc.) may have no clear relationship to firm performance.

1.3 Outline of the Paper

Section 2 provides an overview of the literature on international strategy and gives a brief description of the integration-responsiveness framework. Section 3 discusses the limitations of this framework. Section 4 contains the main body of the paper and sets out our arguments as to how the IR model should be extended. Section 4 also includes propositions arising from the extended model. Section 5 illustrates the potential merits of the extended model through case applications. In Section 6 we conclude by suggesting the implications of the model for strategy and research, and by discussing the unresolved issues arising from the model.

2 International Strategy Theories and Frameworks

2.1 Varying Perspectives on the Determinants of International Strategy

There is considerable variation in the perspectives and prescriptions of researchers in the arena of international strategy (Ghoshal, 1987). For example, the key elements of a “global” strategy are variously considered to be standardization (Levitt, 1983), delivering value to customers worldwide (Ohmae, 1989), managing global cash flows (Hamel and Prahalad, 1985), and achieving strategic flexibility (Kogut, 1985). However, not all industries are “global” in character (Hout, Porter and Rudden, 1982) and different structures will imply very different organizational and strategic imperatives. For example, “federal” or “multidomestic” firms are locally responsive with respect to their product lines and globally integrated with respect to their production processes (Yetton, Davis and Swann, 1992). In spite of all of this theorizing, we are left with the disheartening fact that classifying businesses as either global or federal is not very useful since it hides variations among firms belonging to the same class (Prahalad and Doz, 1987) and ignores similarities among firms belonging to different classes. Most authors agree that, notwithstanding the opportunities existing in the global business environment, the key to securing opportunities and gaining
competitive advantage lies in the multinational firm having the organizational systems, skills and capabilities to coordinate strategies and activities throughout its complex multinational operations.

Dunning’s (1981, 1995) “eclectic” OLI (ownership, location and internalization) paradigm is one of the more comprehensive approaches, integrating both economic models of investment and organizational models of internationalization. Although Dunning’s focus is on why firms engage in foreign direct investment (FDI), his approach has generally applicable insights and integrates a host of earlier literature in a comprehensive framework (Hymer, 1960; Aharoni, 1966; Kindleberger, 1969; Caves, 1971; Buckley and Casson, 1976). A firm must satisfy three conditions in order to justify FDI. First, it must own (O) firm specific assets (FSAs)—typically intangible assets such as brand name, marketing know-how and other forms of intellectual property that provide a competitive advantage to the multinational firm against domestic firms and foreign multinationals. Second, it should be more advantageous to exploit these assets in combination with other immobile factors of production located (L) outside the home country. Third, the advantage accruing to the firm by exploiting these FSAs internally (I) should exceed those available by leasing, licensing or selling the FSAs. Dunning’s paradigm clearly recognizes that the configuration of the value chain is a key decision for any globalizing firm.

Takeuchi and Porter’s (1986) approach to internationalization, with its emphasis on the structure and organization of value chain activities, follows directly from Dunning’s work. According to Takeuchi and Porter, the three key issues in international strategy are: (1) the configuration of activities; i.e., where the activities are performed—either centrally at the corporate or regional headquarters, or dispersed locally in the country subsidiaries; (2) the coordination of activities among country subsidiaries; i.e., whether the activities are standardized across all countries or adapted in each country; and, (3) the linkage of activities across firm functions, such as R&D, marketing and manufacturing. However, in spite of their emphasis on the issues of coordination, linkage, and configuration of activities, Takeuchi and Porter have little to say about their contractual nature and how this affects the decision to source competencies internally or externally. Hennart (1982, 1991) addresses this weakness through the application of transaction cost economics to examine the roles of hierarchy, socialization and price in controlling multinational enterprises. In his view, firms structure their international value chains using the mix of control mechanisms that minimize the costs of organization.
Most recent strategies of international organizations focus on the necessity of obtaining needed competencies externally through the development of an international network or transnational structure. According to Bartlett and Ghoshal (1987a,b), in the increasingly complex, diverse and dynamic international business environment, many industries are becoming transnational in character because unidimensional strategies are inadequate for attaining competitive advantage. Success in transnational industries requires strategies that enable a multinational firm to simultaneously achieve the diverse and conflicting goals of efficiency, responsiveness and learning on a worldwide basis. Strategies that are inherently multidimensional and complex require the firm to be capable of managing this multidimensionality in an effective manner. Bartlett and Ghoshal (1987a,b) see such a capability as necessary for survival in the new international business environment. However, the firm’s administrative heritage—shaped by factors such as a strong leader, home country culture, decision-making processes and internationalization history—becomes a critical constraint that limits the firm’s ability to develop such a multidimensional capability. In these theories, the key constraint to more effective multinational management is limited organizational capability rather than a lack of analysis or insight among managers.

If we look for consistency in the work of Dunning, Takeuchi and Porter, Hennart, and Bartlett and Ghoshal, it is in the central importance they place on how firms organize and configure their value-adding activities around the globe.

2.2 The Integration-Responsiveness Framework

The most popular framework for studying international strategy in multinational firms is the IR framework (Figure 2). Originally developed from the differentiation and integration dimensions of Lawrence and Lorsch (1967), the use of the IR framework in global strategy was initially proposed by Prahalad (1975) and subsequently developed and applied by a number of authors including Doz, Bartlett and Prahalad (1981), and Bartlett and Ghoshal (1989).

[Figure 2 about here]

According to Prahalad and Doz (1987, p.15), the managerial demands in a diversified multinational business fall into three categories—the need for global integration of ongoing activities, the need for global coordination of firm strategy, and the need for local responsiveness. Since the needs for
integration and strategic coordination are often related, they “recognized two essential demands”—global integration (GI) and local responsiveness (LR)—and assumed “that the extent of strategic coordination is related to the need for integration” (1987, p16). This focus on the two demands, together with their restatement of these demands as “pressures on a given business” (1987, p18) resulted in the IR grid that is so popular today.

Integration pressures include the importance of multinational customers, the presence of multinational competitors, investment intensity, technology intensity, pressures for cost reduction, universal needs and access to raw materials and energy (1987, p18–20). Local responsiveness pressures include differences in customer needs, differences in distribution channels, availability of substitutes and the need to adapt, market structure and host government demands (1987, p20–21).

Although the IR pressures on a given business represent the “center of gravity” of pressures across different functions, these requirements do vary considerably across functions. The example Prahalad and Doz use is the computer industry, where the R&D function is integrated and manufacturing is partly decentralized, whereas marketing is largely locally responsive (1987, p36). We would add to this that IR pressures might vary not only across functions, but also across different tasks and activities within each function. For example, the IR pressures may vary considerably across the marketing tasks of product, price, place and promotion, as well as across the activities of setting advertising objectives, developing advertising copy and selecting the media mix within the task of promotion. Thus how the IR pressures impact on activities, tasks, functions and businesses has profound implications for the ways in which multinational firms organize themselves.

Prahalad and Doz also sought to develop the concept of an ideal multinational organization—one that “can cope with the multitude of pressures that are the result of global competition” (1987, p9). In particular, by balancing the need for global uniformity with the requirements of different business units. Bartlett and Ghoshal’s (1988) “transnational solution” has similar aims. These normative prescriptions are echoed in the practitioner literature by the phrase “think global, act local.”

3 Limitations of the Integration-Responsiveness Framework

The IR framework has proven useful in focusing attention on two of the major considerations of international strategic orientation: global integration and local responsiveness. However, we would make
two criticisms of this approach. First, that the IR framework does not adequately incorporate the functional pressures on the firm’s value chain. Second, there is a lack of clarity as to the deterministic nature of the IR framework and the scope open to managerial creativity or organizational innovation. We will look at both of these issues before reviewing the empirical support for the framework.

3.1 Transactional Pressures on the Value Chain

Because the formal IR model is based on two drivers, global integration and local responsiveness, it does not elucidate effectively the transactional nature of inter-unit interactions. For example, one of the insights of Dunning’s OLI model was his emphasis on the importance of firm specific assets (FSAs) while Takeuchi and Porter concentrated on the need for co-ordination and linkage across business units and countries. As noted above, the basic IR approach to this problem is to aggregate these factors into the GI dimension. This would be satisfactory as long as there were no organizational implications associated with distinguishing between firms with different levels of firm specific assets, co-ordination, etc. However, we know that this is not the case. For example, two firms could be facing exactly the same set of production conditions in each of its overseas plants and operating in identical markets. One may have complete property rights control over its operations (firm A); the other may have no property rights control (firm B). Given that firm A can operate contractually and its interests remain protected, while firm B cannot and must, hence, rely on some form of direct ownership to protect its position, we see that two identical sets of IR conditions lead to two different organizational outcomes. Furthermore, they would also lead to two different performance outcomes—given firm B’s need to invest in direct ownership.

Transaction cost theory (Williamson, 1991) has shown us that the transferability and marketability of assets among economic agents is a critical determinant in the choice of organizational form. In the field of economics, this theory represents a major area of scholarly activity, whilst scholars such as Hennart (1982, 1991) have applied these ideas to international business with good results. Indeed, Hennart’s analysis of control mechanisms demonstrates that the way the global value chain is coordinated is a major area of strategic choice for the multinational firm.

In much of their work Prahalad and Doz assume that there is a close relationship between global strategic coordination and global integration—albeit that they recognize that this may not always be the case (1987, p15). However, where they do discuss coordination as a separate dimension (most notably in
Chapter 6) their concern is with the interdependencies between diversified businesses rather than the value chains of those businesses. The markets for intermediate products, transaction costs and price control mechanisms are not given prominence in their analysis, which focuses instead on hierarchy and socialization as the primary means to control multinational firms. We agree the later are important but argue that they are not the only means by which firms control their activities. Moreover, the existence of markets for intermediate products or the nature of transaction costs place different environmental pressures on firms to those of integration or responsiveness.

Therefore, by not accounting for transactional pressures on the value chain, the IR framework is inadequate for dealing with all the relevant issues of inter-unit interaction and organizational form.

3.2 Determinism

The IR approach is unclear about whether GI and LR represent exogenous pressures or endogenous outcomes or managerial choices. In other words, how “deterministic” is the IR approach? Although this may appear to be a minor point, how we view the deterministic structure of the IR framework will dramatically affect any formal model we develop from it.

Let us take, for example, a situation of complete determinism and assume that the forces for global integration are weak and the need for local responsiveness is high. According to a deterministic reading of the IR framework, the only appropriate strategy in this situation would be to act as a federal organization. Thus all companies facing these pressures might be expected to pursue federal strategies—e.g., as in the case of food companies being driven by the diversity of country cultures and their impact on customer tastes for food. With complete determinism competitive survival would imply the dominance of specific structural forms within specific industries. The empirical approach of Birkinshaw, et al (1995) explicitly assumes a deterministic model by concluding that some industries appear to be “under-globalized”.

The opposite case is one of complete non-determinism. In these circumstances, the choice of location in the IR matrix is unrelated to any set of pressures and simply relates to the beliefs of management. It should be clear that a completely non-deterministic approach to global structure could not be empirically falsified since there is no formal understanding about what drives the decisions of managers. Statistically speaking, we have an unidentified system since all its components are endogenous.
This lack of clarity about the deterministic nature of the IR framework has limited its applicability even though there have been numerous attempts to derive broader organizational and strategic implications from the model. We can see this confusion by referring to Ghoshal’s (1987) and Bartlett and Ghoshal’s (1987a, b) extension of Bartlett’s (1985) original work. Although they correctly note the imperative facing managers of multinational firms to “optimize efficiency, responsiveness and learning” (Bartlett and Ghoshal, 1987a, p.7) and emphasize the importance of the fit between a firm’s “strategic posture and the dominant industry characteristics” (p.15), there is little to guide us as to the formal relationship between these industry characteristics and the firm’s “optimal” solution.

The importance of determinism can be illustrated through a simple example. In Barlett’s (1985) formulation each “function” is made up of “tasks”, each firm’s “strategy” is made up of “functions”, and “industry configuration” is an accumulation of individual firm “strategies” for the market in question, in particular their relative positioning on the IR dimensions. Functionally, such an approach can be formalized as equations 1 through 4 below:

\[
(1) \quad \text{Task}_{j,i,M} = f(\text{Customer Demand}_M, \text{Production & Cost}_{\text{Task},j,i} | \bullet)
\]

\[
(2) \quad \text{Function}_{k,i,M} = g(\text{Task}_{k,i,M}, \text{Production & Cost}_{\text{Task},k,i} | \bullet)
\]

\[
(3) \quad \text{Strategy}_{l,i,M} = h(\text{Function}_{l,i,M}, \text{Production & Cost}_{\text{Function},l,i} | \text{Strategy}_{\forall-i})
\]

\[
(4) \quad \text{Industry Configuration}_M = p(\text{Strategy}_{\forall,i,l,M})
\]

Where subscript M is the market (e.g., autos), i is for firm i (e.g., Ford), and the first subscript, j, k or l, indicate which task (j), function (k), or strategy (l) is being discussed (e.g., a pricing task in the case of a marketing function within the Ford strategy). \(\forall i\) indicates “for all firms i”. \(\forall-i\) indicates “for all firms except i”. Underlined items represent a vector of inputs; e.g., \(\text{Task}_{k,i,M}\) represents the set of tasks making up function k in firm i in market M. \(\text{Production & Cost}_{\text{Function},l,i}\) is the representation of cost & production for the set of functions associated with strategy l in firm i. (\(\bullet\)) represents conditional factors such as government policies or intellectual property rights. The f, g, h and p terms represent the functional forms that transform inputs into outputs.

The mathematical relationship flows from top (1) to bottom (4). For example, the industry configuration of the automobile industry is determined from an aggregation of the individual firm’s
strategies (e.g. global cars, cars with some degree of local adaptation, domestic cars). These, in turn, are based on the mixture of “functions” used to develop those strategies. Further, the mixture of tasks used within the functions determines the configurations of the functional areas. Therefore, the GI and LR mix of marketing tasks determines Ford’s marketing function and its overall strategy is based on the GI and LR distribution of its business functions of which marketing is one.

The key to understanding this example is to recognize that if the customer/market drivers \( \text{Customer Demand}_M \) — normally associated with the LR dimension — and the production/cost drivers \( \text{Production & Cost}_{\text{Task},j,i} \) — normally associated with the GI dimension — are viewed as *exogenous* then the firm’s global strategy is fully determined and a singular strategy will dominate. In other words, there will be one “best” global orientation. Hence, assuming firms make “optimal” choices, Ford’s orientation could only differ from Fiat’s if the markets it serves differ from those served by Fiat. If they both served the same markets either Fiat or Ford would dominate or both would be indistinguishable. Survival in such circumstances would require all firms to converge toward the dominant strategic orientation.

However, if we view the IR dimensions as structural choices made by the firm, we are left with the question of exactly how do the “dominant industry characteristics” find their way into the framework? If Toyota has chosen to take a global orientation and Fiat a federal one we are left with the question of why? Hence the conundrum. If the IR approach is to have structural validity (in other words, remain logically consistent) it must be deterministic. However, given that most authors (including us) would argue that the IR formulation is not completely deterministic, it must be under-specified. In other words, we are attempting to explain too many phenomena with too few determinants.

The under-specification of the IR typology can be seen in other areas as well. For example, Bartlett and Ghoshal (1987a) recognize the value of “organizational capabilities” as a key to success. However, it is one thing to note that a firm’s capabilities are important but quite another to ensure that they are effectively integrated into the core of the model. Similarly, because the dimensional and deterministic nature of the framework is unclear, any attempt to integrate new factors into the framework becomes *ad hoc*. Are we to extend the framework by allocating the new factors to GI or LR? By allocating some elements of a factor to one dimension and some to the other (and thereby confounding the model)? Or by
adding additional dimensions because the factors don’t appear to fit into GI or LR? All of these are poor choices without a formal model.

Finally, although Bartlett and Ghoshal (1987a) emphasize that firms are attempting optimize a number of factors in their choice of global structure, there is little argument that the IR approach is simply a descriptive typology and not any sort of true optimality-based model. Hence, unlike Dunning’s OLI model, our ability to integrate the IR framework into existing economic and organizational models has been limited. For example, we have the four automobile companies (Ford, Toyota, Fiat and Mercedes Benz) pursuing different strategies, no doubt due, at least in part, to the fact that the distribution of their tasks (and, hence, functions) are different. But what causes the distribution of tasks in the first place? Is this configuration of strategies sustainable? If they are sustainable, why are they so?

Therefore, although offering great insight, the IR framework’s lack of formality makes validating and extending the model difficult. To progress we need a formal model incorporating a partially deterministic approach. That is, one that allows environmental pressures and managerial choices to interact simultaneously in a goal-driven manner.

3.3 Empirical Validation of the Integration-Responsiveness Framework

In addition to, or perhaps because of, its underlying theoretical confusions, empirical studies of the IR framework show no significant differences in performance according to firm strategy as defined by that framework (transnational, global, etc.). Both Roth and Morrison (1990) and Johnson (1995) found three distinct clusters of firms, global, multidomestic and multifocal, but no difference in the financial performance of the three groups. This further supports our contention that the framework is under-specified; as does Ghoshal and Nohria’s (1993) finding that firms with better environment-structure fit perform better, and Martinez and Jarillo’s (1991) evidence that firms in the three clusters use different coordination mechanisms, but show little difference in performance. All of this empirical evidence is consistent with a less deterministic formulation of the IR framework, as is the early work of Stopford and Wells (1972). Stopford and Wells advanced evidence that it was the matching of form with strategy that led to improved performance. Namely, that within a specific form (international division, world-wide division) performance varied according to whether the firm had matched its product diversity or level of
overseas sales to that form (1972, pp.81–82). In other words, firm performance is dependent on factors not accounted for in the IR framework (form, matching and, by implication, managerial decision-making).

Prahalad and Doz (1987), Bartlett and Ghoshal (1989) and Johansson and Yip (1994) are closest to modeling the complete IR framework. Prahalad and Doz identify the economic, technological, political and competitive factors that influence the varying need for GI and LR across businesses, functions and activities in multinational firms. They omit considerations of managerial creativity or organizational form. Bartlett and Ghoshal, unwittingly perhaps, provide the strongest evidence that the IR model is, indeed, under-specified. Their study showed that the most successful firms were transnational organizations with multidimensional capabilities allowing them to simultaneously achieve the goals of GI, LR and worldwide learning—evidence that the two-dimensional IR framework is inadequate. We will defer discussion of organizational learning to Section 6 except to note that it too may be influenced by the nature of intellectual property rights and the organizational form within which this learning occurs.

Johansson and Yip (1994) show that, in addition to GI and LR pressures, the nationality of the parent company influences both the extent of inter-unit learning and firm performance. If parent nationality is viewed as a proxy for the orientation of senior management then their work suggests the IR framework is under-specified in this area as well. Indeed there is a literature documenting the influence of senior management on the direction and performance of international firms including Aharoni (1966), Perlmutter (1969), Bartlett and Ghoshal (1989) and Kobrin (1994). More generally, Finkelstein and Hambrick (1996) have synthesized the substantial literature on strategic leadership. They conclude that top executives have significant effects on their companies through their exercise of strategic choice but like all human decision-makers are subject to cognitive biases and limitations. Note that while these phenomena are not included within the IR framework they are also not environmental pressures. Rather they are related to the mental filters with which executives perceive environmental pressures and the choices they favor in response to these pressures. And in making these choices managerial creativity and organizational innovation can yield competitive advantage.

4 The Integration-Responsiveness-Completeness Model

We have identified two major limitations to the IR framework. First, its failure to include an important set of environmental pressures on the value chains of firms. Second, its lack of formality and
unclear stance on determinism makes it hard to incorporate the choices of senior managers in an appropriate manner. Given our critique of the IR framework, two options are available. One option is to look to another model as a replacement. However, given the case-based support for the IR framework and its face validity, it is our contention that the lack of theoretical precision and under-specification can be resolved to yield a more formal model of the multinational enterprise. What, then, is the most appropriate alteration of the framework? Let us begin by assuming that a partially deterministic formulation as outlined in figure 1, is indeed, the more appropriate structure for a formal model. In this section we incorporate the additional pressures and introduce efficient frontiers as the basis for a formal model. We use these frontiers to incorporate managerial choice and finally we list the theoretical contribution of the extended model.

4.1 The Pressures for Transactional Completeness

We have argued that the IR framework does not adequately account for organizational form, that it is important to do so if performance is to be explained, and that GI and LR in themselves do not describe all the environmental pressures that influence organizational form. How might we deal with these concerns? It is our belief that the most important dimension to add to the model—if it is to adequately explain differences in international orientation and organizational form—is transactional completeness. What do we mean by transactional completeness? Dunning (1981, 1995) and Takeuchi and Porter (1986) concentrated on FSAs, ownership, inter-unit linkages and co-ordination. However, these are in essence descriptive concepts and do not alone ensure that we can explain international orientation or organizational form. Williamson (1991) and others (e.g., Teece, 1992; Amit and Schoemaker, 1993) have shown that it is the desire to protect strategically valuable assets from competitors that drives organizational form. Therefore, it is not enough that a firm accounts for the diversity of its markets or the structure of its production and assets, the transactional nature of these factors must also be addressed. In other words, we are concerned about the transactional completeness of any set of interactions between economic agents as described by Grossman and Hart (1983).

Transactional completeness is best understood by referring back to the notion of complete markets in economics. A market is complete when all states of the world are priced. In our terminology, an interaction between two agents is transactionally complete to the degree that all the characteristics of the transaction can be priced as if on an open market. Therefore, a firm selling a commodity where it could
easily outsource distribution, advertising, and pricing would be operating in a more transactionally complete environment than a firm selling a specialized service that required an in-house sales force and individual pricing.

The interplay between intermediate products that are available on an open market and those that are produced within the firm can be argued to have a profound effect on organizational form. In industries where many intermediate products are available on an open market (e.g., personal computers) firms tend to focus on certain parts of the value chain (e.g., chip manufacturer, PC assembler, software firm, etc.). In industries where most intermediate products are produced within the firm (e.g., professional services) we see those firms owning much more of the value chain. More recently, we have also seen a trend for firms to concentrate on those activities where they have an advantage—through proprietary knowledge or strategic assets—and outsourcing those activities that are more efficiently provided by others and that are available to the firm through market and/or contractual mechanisms. This trend supports the argument that external markets have advantages over internal coordination (Hennart, 1991) and that transactional pressures encourage firms to focus on that part of the value chain where they have most to gain.

We should also note that the pressures for transactional completeness are not the same as transaction costs. Rather they are all those pressures in the environment impacting on the firm’s configuration of its value chain and its choice of an appropriate mix of control mechanisms (price, hierarchy and socialization) with which to run its international operations. These pressures may include the relative costs of transactions versus management but may also include other pressures such as the availability of intermediate products, nature of technology, proprietary knowledge, etc.

Our prior discussion noted that earlier theory put heavy emphasis on the issues of functional and inter-unit linkages and coordination as well as the importance of economies of scale and scope. It should be emphasized that without accounting for the transactional completeness dimension, there is nothing to connect inter-unit linkages and economies of scale and scope with international orientation. The necessity of inter-unit linkages, co-ordination and economies of scale and scope are necessary but not sufficient conditions for a specific international orientation. They specify that gains from trade will exist but not how those gains will be realized or distributed across a particular organization. For example, an organization that can source components from open markets in a number of countries will be in a different position to
one which has to make components in a single plant in one location and ship these to its subsidiaries. Knowing that one firm could potentially source components on the open market and one firm cannot (for proprietary or technological reasons) tells us a lot about the different ways in which each company will achieve economies of scale and scope, and how each will co-ordinate its activities.

Thus we argue that transactional completeness is not only important but represents a phenomena that is different from either global integration or local responsiveness. In the early literature “global integration” represents the pressures for economies of scale and scope and the integration of the strategic components that the firm needs to compete in its markets. Subsequently, Kobrin (1991) has argued that the increasing cost and complexity of technology is the “primary determinant of cross-border integration” and that manufacturing scale has become less important. Local responsiveness represents the pressures imposed by the diversity of conditions in these markets. Transactional completeness represents the competitive pressures in the markets for intermediate products and the organizational configurations that are necessary to procure and combine these intermediate products in an effective manner. Moreover, global integration represents truly market spanning pressures, local responsiveness delineates pressures that differ from country to country, and transactional completeness represents pressures that traverse the countries and locations involved in the firm’s value chain.

We have thus expanded the IR framework to encompass a third, transactional completeness dimension, leading to an IRC framework (Global Integration, Local Responsiveness, and Transactional Completeness). This leads to our first propositions.

**Proposition One**: Transactional completeness represents a different set of phenomena to either global integration or local responsiveness—primarily the pressures on the configuration of the value chain and the “efficiency” in the transfer of intermediate products and services.

**Proposition Two**: *Ceteris paribus*, the degree of transactional completeness in an industry will have significant impact on: a) value chain configurations, b) organizational structures, c) inter-unit co-ordination and d) intra- and inter-firm networks.

**Proposition Three**: The IRC framework will provide a better explanation of firm strategy, structure and performance than the IR framework.
4.2 Dealing with the Determinism Dilemma: Efficient Frontiers

It should be clear that neither a deterministic or non-deterministic approach is quite satisfying as the basis of a model of international strategic orientation. We contend that any such model must be “partially deterministic” and optimality based. In other words, we would expect to find a number of possible firm configurations that would determine different mixtures of strategies with similar or different profit implications for any given market. Therefore, firms with distinctly different strategic configurations could compete for the same market (for example, Compaq versus Dell, Proctor & Gamble versus Nestle). Although this is not a profound statement in and of itself, the structure of our model is unique and greatly expands the IR approach to multinational structure and performance.

[Figure 3 about here]

Figure 3 outlines the difference between the deterministic and partially deterministic approaches to the IR framework. The graph on the left-hand side (Figure 3(a)) shows the completely deterministic model. According to this model, given a specific mixture of markets and technologies, the efficient strategy (denoted λ in this case) would dominate all other strategies (denoted α, β and γ) and we would expect that firms closer to the optimal strategy would have superior performance. For example, a firm with higher levels of both global integration and local responsiveness than λ would be viewed as inferior to strategy λ.

The current imprecise expression of the IR framework in the literature puts forward this ideal (or gravity) point model, or, in the case of the practitioner literature, an ideal vector model in which firms must continue to increase both their local responsiveness and global integration in a 45 degree direction. The latter leads to normative prescriptions that all firms must improve global co-ordination and local responsiveness (“think global, act local” or the “transnational solution”).

In contrast, the graph on the right-hand side (Figure 3(b)) shows an example based on a partially deterministic formulation. The maximum iso-profit frontier (or efficient frontier) for this particular market describes all the configurations that produce the maximum profit currently attainable (or in a multidimensional world are maximally efficient). Each strategy would have behind it a mixture of tasks and functional forms, where the latter transform tasks into functions and functions into strategies. The choice of where to locate tasks would be the decision of management and would be sustainable based upon its survivorship characteristics; i.e., the ones that worked in the market would survive.
In the situation shown in Figure 3(b), there exist a set of strategies (represented by the efficient frontier and with two examples denoted \( \lambda \) and \( \Psi \)) that are equally optimal and superior to those strategies on the interior of the iso-profit frontier.\(^5\) Thus firms can be operating with different strategies and still achieve the same performance outcomes (i.e., as long as they operate on a specific iso-profit frontier). For example, firm \( \lambda \) achieves the maximum profit by high global integration and low local responsiveness while firm \( \Psi \) achieves the same profit by the opposite strategy. The iso-profit frontier is determined by the current limits of market opportunities and technological possibilities.

Note that Figure 3(b) is hypothetical. We might expect empirically determined frontiers to display a variety of topologies according to the nature of the market and industry we are examining. For example, in Figures 4(a) and 4(b) we show two different frontiers—one where the GI dimension has greater impact on the shape of the frontier (market M\(_1\)) and one where the LR dimension has greater impact on this shape (market M\(_2\)). Note, however, that in both cases there are a variety of strategies firms can follow to operate on the frontier. Thus the existence of a frontier—and not its specific shape—implies a number of viable strategies. For simplicity we have also chosen to present these figures as two dimensional—the extension to the three-dimensional space is straightforward. We might have contrasted more versus less transactionally complete variants of these industries for example.

[Figure 4 about here]

Why do we consider that GI, LR and TC generate the dimensionality of the frontier? If these three dimensions accurately reflect the environment of firms then they describe all the possible strategic orientations that firms can adopt within the industry. Most of these orientations will be inefficient and firms will either not adopt them or go out of business if they do. However, over time the forces of competition will lead to some firms defining the maximum performance available for a more limited set of orientations and this becomes the current industry frontier.\(^6\)

We can also extend the idea of a frontier from the industry to the firm. In Figure 5 we show one industry iso-profit frontier and two firm “technologically feasible” frontiers. These latter frontiers are not iso-profit frontiers since the level of profit changes as you move along them. Rather they represent the maximum configurations of GI/LR possible for the firm at any given point in time. Referring back to
Figure 1, these firm frontiers represent “the set of strategic orientations open to the firm” out of the set of all possible strategic orientations. We will develop this idea of technologically feasible frontiers shortly.

[Figure 5 about here]

Our use of frontiers has precedents in other literatures. They have a history of application in the areas of productivity and cost efficiency from both econometric and operations research perspectives (e.g. Aigner, Lovell and Schmidt, 1977; Charnes, Cooper and Rhodes, 1978). They have also been applied to strategic group theory (Day, Lewin and Li, 1995) and strategic alliances (Ali and Lerme, 1997). As Day, Lewin and Li (1995) note, frontiers involve an important conceptual shift from modeling average behavior to modeling extreme behavior (best, worst practice) and understanding the comparative advantage or disadvantage that derives from an organization being on or below the frontier (Ali and Lerme, 1997). Both Day, Lewin and Li and Aharoni (1993) argue that there are significant new insights and knowledge that can derive from this conceptual shift. Day, Lewin and Li also suggest that frontiers may help separate industry-level effects from firm and strategic group-level effects. As we discuss later this conceptual shift has methodological implications for strategy research; here we summarize the section with our next propositions.

Proposition Four: The performance of global firms is better measured by reference to an efficient frontier than in direct comparison using standard multivariate techniques. (Corollary: firms with different strategies and configurations can coexist with similar levels of performance.)

Proposition Five: The regions of the frontier that represent feasible opportunities for an individual firm will be constrained by the firm’s existing asset structure or technology.

The concept of efficient frontiers provides us with a formal mechanism for allowing environmental pressures and managerial choices to interact in a partially deterministic but goal driven manner. However, we still need to address how the firm chooses one strategic orientation out of the options available to it?

4.3 The Organizational Imperative: Technological Feasibility and Managerial Orientation

We noted earlier that there is little in the formal structure of the IR framework that accounts for the organizational and cultural orientation of the firm and its divisions. Admittedly, Bartlett and Ghoshal’s notion of “administrative heritage” provides implicit recognition that historical organizational factors serve to determine a good deal of the production processes, location choices and other factors that impact on the extent to which the firm is globally integrated or locally responsive. However, administrative heritage blurs
the distinction between what the firm is organizationally capable of doing (the frontier of feasible configurations for that firm), what managers believe is an appropriate orientation (the managerial orientation function), and what would succeed in the market (the market’s efficient frontier).

4.3.1 Technological Feasibility

We must, therefore, come up with a mechanism that allows us to distinguish between these institutional and managerial factors whilst also helping us determine the choice of strategy from all those possible. One possibility is that firms are little more than profit maximizers and are simply attempting to get onto the highest profit frontier that is feasible for them. For example, as represented in Figure 5, firm A has a history of centralization where head office controls the actions of the local branches it sets up around the globe. Firm B has a history of acquiring local companies as subsidiaries and then allowing these a reasonable degree of autonomy. Firm A with its history of centralization ends up at point $\lambda$ while firm B with its history of local subsidiaries ends up at point $\Psi$. Over the long run and assuming no fundamental changes, the two points $(\lambda, \Psi)$ are the only combination that allow these firms to operate with parity in the same market. Note that we have said nothing about the orientation of the management to this point, just the technologically feasible orientation of the firm. Technological feasibility is defined as the set of possible strategies given the firm’s existing structure, assets and operating processes (independent of the current orientation of their management). We thus define “technology” broadly—to include offices, products, information technology, reward systems, financial control systems and the like, as well as production processes. Technological feasibility is represented by a frontier of possibilities that is unique to each firm at any point in time.

We should also note that whilst we have shown both firms as being capable of operating on the efficient frontier, in reality, firms may be constrained from reaching this frontier. For example, government labor policies might mandate inefficient working practices or a previous choice of production technology may not allow the firm to reach current levels of performance. The concept of “technological feasibility” allows us to incorporate a number of factors mentioned in the literature into our extended model as constraints.
4.3.2 Managerial Orientation

A second possibility is that a firm’s senior managers have strong beliefs favoring certain types of managerial orientation—a “dominant logic” in the sense of Prahalad and Bettis (1986). This can be based on their history, cultural orientation or managerial philosophy and several researchers have shown how managerial philosophy affects strategic orientation (e.g., Kobrin, 1994; Finkelstein and Hambrick, 1996). Figure 6 shows one case where the addition of this facet to our organizational imperative adds richness to the model. The management of firm A have a strong centralizing orientation with an increasing preference for control over responsiveness. This is represented on the diagram as the orientation function, $O_A$, which indicates the set of feasible paths given the management’s orientation. Thus $O_A$ encloses paths that are generally in the direction of increased GI. In contrast, the management of firm B believes in more responsiveness and its orientation function, $O_B$, is skewed in this direction. The dotted lines show how this organizational imperative helps determine the evolutionary path of each firm’s strategy. In the case of each firm, more GI and LR is better, but the firm is limited by its feasible technology to its current position on the frontier, and its forward path is partially constrained by its managerial orientation.7

[Figure 6 about here]

Our approach explicitly defines the manager’s orientation on the same dimensions as all the other components of the model, in the above example, global integration and local responsiveness. This allows for the explicit development of a constrained optimization approach to strategic development. Second, we explicitly distinguish between managerial orientation (soft constraints) and factors that limit the firm because of the “technology” it has available to it at any point in time (hard constraints).

Typically, we would expect technological feasibility and managerial orientation to be in tension but moving synchronously. That is, senior managers would be seeking incremental improvements from where they currently stood and in the general direction of the industry frontier. However, this need not be the case. The arrival of a new CEO from a different industry might result in a radical change of orientation and considerable tension between these new goals and current “technology.” Whether this change succeeds depends on the topology of the frontiers and the degree of redirection sought.

The work of Murtha, Lenway and Bagozzi (1998) show that the sort of managerial orientation we are discussing not only exists but is both pervasive and measurable. Their measures of “the attitudes that
underlie international strategy processes” include both “global mind-set” variables (expectations towards integration, responsiveness, etc.) and policy variables (career opportunities, global accountability, etc.). “Global mind-set” is analogous to “managerial orientation” in that both are concerned with the future direction that management wishes to take the company. In the multinational studied, senior management sought greater co-ordination across the globe. Over the 30 months of the study, the mind-sets of senior and operating managers became more aligned and a “clear attachment of mind-set dimensions to policy variables” emerged. In other words, a new orientation began to influence the direction of the firm. This supports our contention that managerial orientation is an important component of an extended IR framework.

Our final propositions follow.

**Proposition Six:** It is possible to distinguish between the soft constraints of “managerial orientation” (senior management philosophy or direction) and the hard constraints of “technological feasibility” (current firm configuration).

**Proposition Seven:** The addition of managerial orientation and technological feasibility will add to the explanation of any gap between firm performance and the nearest region of the frontier.

### 4.4 Theoretical Contribution of the Integration-Responsiveness-Completeness Model

Table 1 provides a summary of the components of the model. The four main components of the theory—global integration, local responsiveness, transactional completeness (sets of environmental pressures/dimensions) and managerial orientation (direction)—can be described based on:

- the source of the underlying forces determining differences between firms on these components;
- the objective that determines better performance on that component;
- the sources of competitive advantage associated with that component; and
- the observable strategic characteristics associated with that component.

[Table 1 about here]

Note that the frontiers are not separate constituents of the theory, rather they are surfaces defined on the three dimensions—one for the industry as a whole (the iso-profit frontier) and others describing the opportunities for each firm (technological feasibility).
The advantage of the IRC approach is that it:

- expands the IR framework—hence dealing with the issue of the under-specification of the typology while building on its fundamental logic;
- formalizes the concepts underlying the framework more clearly—hence dealing with the ill-defined nature of some of the components of earlier versions of the framework; and,
- redevelops the IR approach into an optimization-based model—hence providing for directly falsifiable propositions to be developed.

The IRC model is flexible since it puts few constraints on the structure of the components of the model, rather concentrating on organizing them clearly and making sure that they are adequately defined so as not to confuse one type of issue with another. By making the iso-profit frontier three dimensional, we also ensure that all the major forces influencing the firm’s decisions are accounted for. Although, we view the model as one where the firm is optimizing the fit between its managerial orientation and its feasible technological opportunities while maximizing profit, the normative value of the model lies in what it says about how to move from a sub-optimal to an optimal outcome. Furthermore, the model makes a strong distinction between what is feasible for the firm at any given point in time, what management thinks is a good or bad orientation, and what the industry environment is any given point in time.

It is also necessary to understand the process by which a firm changes its technological opportunities and its managerial beliefs. According to our theory, the key to achieving a more profitable fit is through the development of a joint solution where the opportunity set is the best that can be achieved while also being in line with the firm’s organizational imperatives. Figure 7 shows two paths of the many paths to achieving strategic fit that are available in this three dimensional space.

[Figure 7 about here]

Figure 7(a) shows a situation where the firm’s management keeps its views consistent but alters the functioning of the firm to force the organization out onto the maximum iso-profit frontier. In this case, the functioning of the firm is altered on two of the three dimensions—global integration and transactional completeness. The firm’s strategic orientation becomes more transnational as the firm moves from strategy \( \psi' \) to strategy \( \psi'' \) to strategy \( \psi''' \) as the firm alters its technologically feasible set of options from \( T_1 \) to \( T_2 \) to \( T_3 \). In doing so, the firm has become more globally integrated and subjects more of its value chain to
market forces. Figure 7(b) shows a situation where the firm alters its managerial orientation (either by replacing managers or changing beliefs) to accommodate the existing feasible options. Here the focus is on the dimensions of global integration and local responsiveness. In this situation, the changing beliefs alter the managerial orientation from $O_b'$ to $O_b'''$ to $O_b$ and the firm’s strategic orientation moves from $\psi'$ to strategy $\psi'''$ to strategy $\psi$—becoming more federal as it does so. These two examples are, of course, stylized. In reality, a firm would change its strategic position through some combination of a change in managerial orientation and technologically feasible options. It might also simultaneously alter these in three rather than two dimensions as shown here. Firms might make mistakes in these strategic realignments, for example, attempting to orient the firm as a transnational when their feasible technology requires them to be more locally responsive, or restructuring to increase transactional completeness by outsourcing when internal knowledge is a vital ingredient of their success.

5 Potential Merits of the Integration-Responsiveness-Completeness Model

The strength and longevity of our extended model will be based on its ability to explain the relevant phenomena better than its progenitor and to offer new insights about these phenomena. As our paper is purely conceptual, and we have yet to develop the methodologies to conduct an empirical test of the IRC model, in this next section we will simply illustrate its potential merits. We do so through three illustrations. The first looks at how transactional completeness can effect the determination of organizational structure within the transnational quadrant of the IR grid, whilst the second uses real firms to illustrates the heterogeneity of firm structures within the global quadrant. The point of both is to illustrate how transactional completeness can add to our explanation of structure. The third reinterprets a well-known case to show how the components of the IRC model potentially offer new insights.

5.1 The Determination of Organizational Structure

One of the normative results derived from the IR framework is the relationship between a firm’s location on the IR grid and organizational structure. A complex issue, we will not be able to do the topic justice here. So let us concentrate on a simple question, are all transnational firms the same? Our intent is to show the importance of considering transactional completeness to explain organization form.

Within the transnational form there are many options open to firms. For example, what is the difference between an oil company owning a brand name but using contractual arrangements to explore for...
oil, extract it from the ground, refine it, market it and franchise out retail locations and one that does all
these tasks in-house with a matrix structure? Similarly, how do we distinguish between a pharmaceutical
company that relies on joint venture arrangements with small laboratories and one that employs its own
scientists? What, too, of the company that outsources all marketing and distribution functions in Western
countries but operates these functions in-house in Asia? Is one of these companies any less a transnational
even though they all might have high degrees of global integration and local responsiveness? It is because
of this dilemma that it is necessary to account for the need to own, operate and protect critical assets, tasks
and functions when talking about the international strategic orientation of companies. We can illustrate
how this need might vary by looking at the extremes of the transactional completeness dimension.

**Low transactional completeness.** At this extreme the desire to protect critical competencies and
assets from competitors, along with the need to monitor and control the components of the value chain are
the driving concern of management. These demands lead naturally to controlling tasks, functions and
individuals through management and internalization. There is also a reliance on internal networks rather
than inter-firm networks. Formal matrix organizations represent the most obvious example of the
internalization of multifunctional tasks and responsibilities.

**High transactional completeness.** At the other extreme protection is achieved either through strong
contractual bonds (such as patents or strong commercial codes) or because of the policing power of the
marketplace (particularly in commodity markets). The concern of management in this case is not the
management of specific tasks and skills but the coordination of a system and the protection of critical assets
(such as brand names or the managerial skills associated with coordination). These contractual
transnationals rely on inter-firm networks of outsourced activities.

Because there is every reason to believe that the choice of organization structure will (*ceteris
paribus*) affect firm performance, it is important to incorporate transactional completeness if we are to
explain performance adequately. Transactional completeness has significant influence on the choice of
structure within each of the four generic forms normally associated with the IR framework. Therefore, it is
possible to repeat the exercise above for all the other standard international business forms. Our second
example uses real companies to illustrate transactional completeness within the global form of organization.
5.2 Alternative Organizational Forms in a Global Market: Ericsson, Motorola and Nokia

Our second example concerns Ericsson, Motorola and Nokia—the global leaders in the mobile telephone market. Mobile telephones are highly standardized, technologically intensive, scale-driven products that face strong forces for global integration. All three of these firms produce and sell large volumes of their products across the globe and do so with coordinated strategies. Apart from transmission standards, an Ericsson, Motorola or Nokia phone is similar when sold in Australia, China or the USA. The standards themselves are country specific conditions that all three firms face equally (e.g., GSM 1800 for Europe and GSM 1900 for North America). Other than standards, the forces for local responsiveness are relatively weak and largely confined to country pricing, distribution arrangements and advertising copy.

Thus, on the IR grid we would expect all three of these firms to be located in the global quadrant. Yet the value chains and organizational structures of these three firms are significantly different. Nokia has primarily grown to leadership by exporting from Finland. Both Ericsson and Motorola have much broader activities both in terms of products and in the depth and breadth of their value chains. Ericsson’s strategy hinges on common technology across phone handsets and the cellular network systems themselves. Motorola builds on its own long-standing strength in the development and production of semiconductors whereas Ericsson partners with Texas Instruments to develop these strategic components. Nokia is involved in joint ventures in the USA and China, and to build scale also acts as an original equipment manufacturer (OEM) for other Organizations (including Ericsson). These three firms therefore have different value chains. As to organizational structures, Nokia is the smallest of the three, primarily based in Finland and has only changed from an exporting structure to a more global organizational form in the 1990s. In contrast, Ericsson and Motorola are much larger and longer established global players and have major operating companies and manufacturing plants around the globe. Ericsson and Motorola also differ in organization structure. Ericsson has a matrix where the mobile phone business area interacts with local companies in each country. Motorola has autonomous business sectors where the mobile phone sector interacts with four regional organizations (e.g., Pan American, Greater China, etc.). We would argue that these differences in structure reflect the differences in their value chain strategies. However, the point of our example is to illustrate that three organizations classified identically by the integration-responsiveness framework differ significantly on a third, important dimension—transactional completeness.
5.3 Reinterpreting the History of Philips and Matsushita Using the IRC Model

One important case discussed in the literature is that of Philips and Matsushita, two global competitors in the consumer electronics market (Bartlett and Ghoshal, 1988; Bartlett, 1994). The older company, Philips, built its post-war success on “highly independent, fully integrated national organizations able to sense and respond to local needs,” (Bartlett, 1994, p.1). In terms of transactional completeness, Philips replicated a value chain in each country using local suppliers to source components and services. Thus Philips had a federal strategy—highly responsive to each market, but dependent on local supply and suffering from weak scale economies and problems of co-ordination across the whole organization. These problems led to a decrease in profits and a series of restructures from the 1970s to the 1990s.

In contrast, Matsushita succeeded by building scale economies in its larger home market and even by 1982 had less than 10% of overseas sales manufactured outside Japan. In terms of transactional completeness, most value was added in Japan and dependent on supply conditions in the Japanese economy. Thus Matsushita had an export strategy and in contrast to the loose global co-ordination and highly autonomous national organizations of Philips, exerted strong central control through its product divisions, expatriate managers and monitoring of results. However, in the mid-1980s the appreciating yen led to a fall in Matsushita’s exports, which together with the company’s reliance on VCR sales and lack of innovation in overseas subsidiaries also led to a series of restructures continuing into the 1990s.

Philips’ restructures had two objectives—increasing scale economies by plant consolidation and gaining greater control over manufacturing and R&D by central product divisions. Philips also sought to expose more of its value chain to market competition and to source more inputs from outside suppliers. Thus, Philips increased global integration and transactional completeness. But none of this helped Philips’ performance—in the decade ending 1996, Philips return on assets has averaged less than 5% and net income to sales less than 1%.

Matsushita’s restructuring also focussed on two objectives—reducing dependence on the VCR and increasing offshore production. Strong central control of the product divisions was also relaxed—ceding greater responsibility to local companies. Matsushita was thus attempting to increase local responsiveness and to move more of its value chain offshore—subjecting the latter to supply conditions in a variety of locations rather than just Japan. Matsushita has also succeeded in reducing its reliance on the VCR. But in
moving from a focussed exporter to a broader transnational Matsushita has also not improved its performance. In 1996, Matsushita only made a net income to sales ratio of 1.6% and a return on assets of 3.3% (excluding extraordinary items). These figures are well below the peak achieved in 1985.

There are several observations we can make about this example. First, as Bartlett notes, these strategies are mirror images of each other and were undertaken with the goal of becoming more “transnational” (1994, p8). Second, the example illustrates the concept of hard and soft constraints and their major impact on the strategy and performance of organizations. The hard constraints are the many small-scale plants of Philips, the lack of overseas capacity of Matsushita, the control systems of Matsushita, etc. These we define as “technological feasibility” and they are clearly hard to change in the short-run. For example, Philips worked on concentrating production into larger plants for over a decade and Matsushita failed to achieve its overseas capacity goals throughout the 1980s.

These hard constraints are also distinct from the soft but equally important constraint of “managerial orientation.” The vision of globalization via the transnational form had a powerful effect on the senior executives of both companies. Both have moved energetically to achieve this form, yet neither reached their espoused goals, and neither has achieved the performance they would have wished.

Indeed, in 1999 the question is still open as to whether both companies were wise to attempt to become more like each other. In the case of Philips, management is trying to radically remake the company as a transnational—yet its feasible technology (hard and soft) was initially very focussed on being locally responsive and self-sufficient. It is therefore not surprising that the process has been arduous and not profitable. Matsushita too is trying to remake itself—this time from a highly integrated and focussed exporter into a transnational. Again hard and soft constraints have made this difficult. The question is whether alternative strategies would have been more profitable for both companies—in other words, the “path of efficient strategy” to an appropriate point on the frontier rather than the radical re-orientation that both embarked on. As the natural experiment has not been conducted we will never know the answer—but the IRC framework suggests it is a valid one to ask.

Whatever we think about the strategic choices made by these two firms, it is clear that we need to consider the nature of their value chains in any discussion. The transactional pressures facing Philips—with its numerous local operations—are likely to have been very different from those facing Matsushita with
most of its manufacturing initially located in Japan. Moreover, we can see that despite competing for many of the same markets, and recording similar performance levels, Philips and Matsushita have different orientations on the three dimensions of global integration, local responsiveness and transactional completeness, and these different orientations have co-existed for decades. Equally, whilst we do not know how their performance relates to any efficient frontiers, we can see that the new components of the IRC model potentially add insight to the interpretation of this case.

6 Conclusion

In this paper we have made a modest attempt to build on the seminal work of authors in the fields of organizational economics and international business. Although this earlier work has done much to explain the international strategies of firms, there are few frameworks that integrate what has been established in a compelling and rigorous manner. In particular, we focused on the IR framework as the best current approach for explaining international strategic orientation. Although this framework provides an excellent starting point for our endeavors, we believe it to have important limitations. We try to overcome these limitations by formalizing and extending the IR framework into the IRC model described in Section 4. This model explains the transactional nature of inter-unit coordination and allows environmental pressures, organizational constraints and managerial beliefs to interact in a goal driven manner.

Whilst the IRC framework is less parsimonious than the IR framework on which it is built it encompasses more completely the range of phenomena suggested by the literature. Any theory of international strategy needs, at the minimum, to encompass economies of scale and scope, local market conditions, organizational form, firm history and managerial orientation. Any such theory needs to do so in a manner that explains firm performance—in particular why firms with quite different configurations in similar markets can have similar performance. By our three illustrations in Section 5—determination of organizational form; Ericsson, Motorola and Nokia; and Philips and Matsushita—we showed that the IRC framework has the potential to shed light in areas that the IR framework cannot.

However, by no means do we regard the IRC framework as a finished work. First, the nature of the model raises important methodological issues that need to be addressed. Second, there are unresolved questions that suggest that further conceptual development may be required. We look at each in turn.
6.1 Methodological Issues

The first priority for any new theory should be validation through empirical analysis. The IRC model has two methodological implications that are important to highlight. The first is the distinction between formative and reflective indicators. The second is the form of empirical analysis implied by the model.

**Formative and reflective indicators.** Although many aspects of validating the theory appear straightforward—for example, defining the various facets of the three dimensions and managerial orientation and developing and validating measures of these constructs—special attention must be paid to which arrows in Figure 1 are formative and which are reflective. In particular, we would speculate that the three dimensions are best thought of as formative indicators. This is because their facets (subsets of pressures within a dimension) are not necessarily correlated in the same way as typical questionnaire scales. This is not a substantive issue as this issue is well understood by methodologists (Chin, 1998).

**Empirical frontier analysis.** Perhaps the most important implication of the IRC model is that its use of an efficient frontier requires *a de facto* change in our analysis methodology. The three dimensional topology of this frontier needs to be measured and the performance of the sample of firms related to this topology rather than to that of the average firm (Day, Lewin and Li, 1995). In a sample of firms we might expect to find some on the frontier and some not. Although economic theory might suggest that such inefficient firms would be driven out, in reality imperfections can exist for some time—particularly for complex organizations where cross-subsidies can exist between business units. We consider that an adaptation of either Data Envelopment Analysis (Charnes, Cooper and Rhodes, 1978) or Stochastic Frontier Analysis (Bauer, 1990) will provide the basic methodology for understanding the frontier. Both these methods match well with our model since they allow you to (1) measure the determinants of the frontier and (2) measure those firm-specific constraints responsible for less than optimal performance.

6.2 Unresolved Questions

There are three unresolved questions about the IRC model that we can identify at this time. In increasing order of importance they are (1) incorporating other factors mentioned in the literature, (2) integrating organizational knowledge and learning and (3) creating a dynamic formulation of the model.

**Integrating other factors.** The logic of our modeling structure allows for the integration of other factors. For example, political influences can be directly related to one of the three dimensions (for
example, government policies to encourage plant location to the global integration dimension) or integrated into the orientation of managers (e.g., focus of Chinese managers towards exports). Factors such as managerial competencies or internal mechanisms for marshalling resources and coordinating activities (such as teams or cross-business unit committees) can also be integrated into one of our three dimensions. For example, it is arguable that managers are hired or developed in accordance with the prevailing managerial orientation and hence their competencies are likely to be correlated with this construct. Similarly, we might speculate that organizational form heavily influences the efficacy of teams or committees and hence these matters are secondary to transactional completeness.

**Organizational knowledge and learning.** A number of authors have proposed that organizational knowledge and learning need to be integrated into the theory of the global firm to make it more complete (e.g. Bartlett and Ghoshal, 1989; Gupta and Govindarajan, 1994; Roos, von Krogh and Yip, 1994). Although we agree that organizational learning is critical to the understanding of international business operations, we speculate that the nature of organizational learning, and the knowledge that results from it, is influenced by all three of the underlying dimensions.

*Ceteris paribus,* as the level of responsiveness to diverse local markets increases, there is the potential for the diversity of knowledge available to the firm to increase, as too will the diversity of applications to which the resultant learning might be applied (Nohria and Ghoshal, 1997). The potential for learning may also increase as global integration increases due to the public good nature of information and the associated economies of scale. More globally integrated firms may be able to use and invest in more numerous sources of learning and, hence, be more efficient in the utilization of any one piece of knowledge. Finally, the nature of learning may be directly related to the transactional completeness of the market for knowledge. Proprietary and protectable knowledge will differ from non-proprietary and “public good” knowledge. It is generally recognized that the more important knowledge is to the competitive functioning of a firm, the more likely it is that the firm will attempt to internalize and protect this knowledge (Teece, Pisano and Shuen, 1997; Harvey and Lusch, 1997).

For example, a firm that sources intermediate products on open markets (e.g. a personal computer manufacturer) will make a different set of strategic choices to one that is required to produce them
internally (e.g. a professional services firm). These choices will in turn influence the nature and extent of any worldwide learning that occurs within each firm.

The difficulty that exists with integrating learning into the IRC model is the fact that it is a meta-function; that is, a function that may necessarily span other functions. Therefore, the management of organizational learning and knowledge is not neatly compartmentalized like the management of marketing or operations. Thus to us there is an issue as to whether organizational learning should be incorporated as an additional environmental dimension, as suggested by Bartlett and Ghoshal (1989), or as an endogenous outcome of managerial choice of strategy and structure. We prefer the latter for reasons that relate to our third and final unresolved question.

Toward a dynamic IRC model. The most critical limitation of the IRC model is that our analysis in this paper is essentially static. This static analysis is inadequate as firms continually learn and adapt to changing circumstances or they cease to exist. These circumstances include, inter alia, changes to their competitive environment and changes to their understanding of their own operations. We therefore need to incorporate a more dynamic perspective into the various components of the model. For example, the industry efficient frontier can be redefined either because of the competitive actions of leading firms (e.g. technological innovation) or because of changes in underlying pressures (e.g. government regulations.) The firm itself can also change its technological feasibility or managerial orientation in a variety of ways.

As Levinthal and March (1993) note firm adaptations involve two types, exploitations and explorations. They argue that exploitations (incremental efficiency improvements, product extensions, etc.) tend to be favored by managers because they involve less risk, albeit also lower returns, than explorations (innovations, changing the rules of competition, etc.). Moreover, to be successful at exploration requires that the firm have the capabilities to create or absorb new knowledge from outside the firm, and to implement this knowledge effectively. Thus we might speculate that exploration is related to redefining the industry frontier whilst exploitation is related to changing technological feasibility.

It is important to note that the IRC model is primarily about why managers make the choices they do. The model addresses the forces and influences that shape these managerial decisions and is not, as yet, a prescriptive one. That is, it does not identify, from all the possibilities, the one best trajectory that a specific firm should follow for achieving “best” performance. In order to do so, we need to incorporate
additional forces and influences. And the preceding discussion suggests to us that the key is to incorporate the nature of competitive dynamics more formally into the model. These might include the degree of competitive pressure to change and the economic efficiency of the market. Both will be related directly to the level of the industry frontier (how much profit exists) and to the tolerance of inefficient performers (how far below the frontier a firm can be and still be viable). Competitive dynamics might also include the risks and returns of various courses of action, including both exploitation and exploration. Gaining a better understanding of competition pressures, risk and return would be an important step toward a more dynamic IRC model.
1 For the sake of simplicity of exposition we assume the ‘market’ and ‘industry’ can be defined appropriately for any particular analysis. On many occasions this might be a strategic market segment (e.g. personal computers or prestige automobiles) or if there are production or marketing synergies between such segments we might analyze the larger industry (e.g. computers, automobiles).

2 Which formulation is closer to reality is an empirical question. Our contention is that existing empirical research points toward a partially deterministic formulation. However, even if this were incorrect, although the form of the model would be different, the fundamental logic would remain the same.

3 The ‘as if’ in this sentence is important. It is possible that no external market exists but that one could arise under different price and profit conditions. Under these circumstances the market would be transactionally complete even though it did not exist!

4 We will use the term iso-profit and efficient frontier interchangeably. Our model is completely generalizable to situations where firms are maximizing profit or a multidimensional measure of efficiency.

5 The argument being made here is simply that a frontier of equally profitable and viable strategies exists. Mathematically, the only requirement made of the frontiers is monotonicity; i.e., the profits are strictly increasing or decreasing as one moves further and further from the origin.

6 There are measurement issues concerning the operationalization of these dimensions in a manner consistent with the iso-profit frontier. As this is a conceptual paper we have chosen not to discuss these.

7 There is no reason to believe that the managerial orientation function is increasing continuously in either or both dimensions. One possibility is that managerial orientation is an ‘ideal point’ where movement in any direction is viewed as bad by the management. This affects the normative conclusions derived from our framework and not the framework itself. We are grateful to José de la Torre for pointing this out to us.

8 Our example is based on information from the web sites of these companies. We chose mobile phones because they are significant revenue generators for these companies.

9 Our example is based on material presented by these authors—together with press articles and annual reports.
REFERENCES


Figure 1: Overview of the model of international strategic orientation
Figure 2: The integration-responsiveness framework

<table>
<thead>
<tr>
<th>Pressures for Local Responsiveness</th>
<th>Global Integration</th>
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<tbody>
<tr>
<td>Weak</td>
<td>Strong</td>
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<td>Weak</td>
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<tr>
<td>Industry environments—International, Multinational, Global, Transnational</td>
<td></td>
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<tr>
<td><em>Firm strategies</em>—Export, Multidomestic, Global, Transnational</td>
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<td>Organizational logic—International division, Federal, Global, Matrixed</td>
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Figure 3: Two alternative optimal formulations based on the IR framework

(a) Fully Deterministic Model

(b) Partially Deterministic Model

Degree of Global Integration

Degree of Local Responsiveness

Efficient Strategies

Inefficient Strategies

Maximum Iso-Profit Frontier for Market M
Figure 4: Alternative industry frontiers

(a) A More ‘Global’ Industry

(b) A More ‘Federal’ Industry
Figure 5: Feasible technological frontiers and alternative strategies
Figure 6: Strategic orientation and strategic choice
Figure 7: Moving from inefficient to efficient strategic choice

(a) Altering Feasible Technology

(b) Altering Managerial Orientation

Degree of Global Integration

Degree of Transactional Completeness

Degree of Local Responsiveness

Maximum Iso-Profit Frontier for Market M
Table 1: Summary of the components of the IRC model

<table>
<thead>
<tr>
<th></th>
<th>Global Integration (GI)</th>
<th>Local Responsiveness (LR)</th>
<th>Transactional Completeness (TC)</th>
<th>Managerial Orientation (MO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forces</td>
<td>Economic/Technological</td>
<td>Market/Customer</td>
<td>Interactional</td>
<td>Psychological/Cultural</td>
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<td>Objective</td>
<td>Efficiency</td>
<td>Customer satisfaction</td>
<td>Overcoming market inefficiencies</td>
<td>Organizational fit</td>
</tr>
<tr>
<td>Source of advantage</td>
<td>Cost and productivity</td>
<td>Differentiation &amp; customer fit</td>
<td>Structure and organizational interaction</td>
<td>Matching of technology with philosophy</td>
</tr>
<tr>
<td>Observable strategic characteristics</td>
<td>Economies of scale; Internal trade</td>
<td>Autonomous local subsidiaries; Local marketing activities</td>
<td>Locus of decision making; Structure of local operations; Reliance on governance/contracts</td>
<td>Cultural orientation; Managerial hubris</td>
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