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Characteristics of the
Integration-Responsiveness Pressures

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W.P.No. 2001-08-03

August 2001

11667

2001-08-03
2001-08-03
(1667)

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August 2001

We would like to thank the participants at the 2000 AIB Conference, the 2000 EIBA Conference, seminar participants at the University of Illinois and the AGSM as well as the reviewers and editor of the Journal of International Business Studies for their comments on previous versions of this paper. This research is supported by a grant from the Australian Research Council. The authors are listed in reverse alphabetical order with each having contributed equally to the project.

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Integration-Responsiveness Pressures**

ABSTRACT

Although the integration-responsiveness framework has been used extensively in the international business and strategy literature, empirical validation of the framework has largely focussed on the strategy and structure of MNCs in response to the environmental pressures confronted by the firm. There have been few attempts to directly investigate the characteristics of the diverse environmental pressures confronted by multinational firms as they conduct their value creating activities worldwide.

In this study, we propose five factors to examine in detail the characteristics of the integration-responsiveness pressures. These are depth, dimensionality, direction, distinctiveness and dynamic. Using data from MNC subsidiaries, we empirically test the nature of the environmental pressures that impact on MNC strategy and organisation. Based on our findings, we propose an alternative representation of the integration responsiveness framework that is more meaningful, useful and consistent with the contemporary behavior of MNCs than the current framework. In particular, the alternative representation isolates the issues of strategy and structure from that of the business environment and overcomes the recurrent problem of confounding among these concepts in the literature. Second, the proposed IR framework better captures the trade-off between integration and responsiveness that needs to be managed to operate global businesses. Finally, in contrast with the current IR framework wherein the environmental pressures are *a priori* classified as GI or LR thus making the framework static and rigid, the alternative framework is dynamic and flexible as it allows the pressures to be classified as GI, LR or both contingent upon the nature of the business, firm, function, task, country and customer segments, and over time.

INTRODUCTION

The integration-responsiveness (IR) framework of Prahalad and Doz (1987) has been used extensively in the international business literature to identify the diverse and often-conflicting pressures confronted by firms as they expand their activities worldwide. The framework has also been used to discuss how these pressures impact on key decisions that affect firm performance—e.g., whether firms should standardize marketing activities globally or adapt them to local conditions, or whether firms should centralize or decentralize control of subsidiary operations (e.g., Johansson and Yip, 1994; Martinez and Jarillo, 1991). Although the IR framework has been developed and applied for more than a decade, the focus of most theoretical and empirical studies to date has been to assess the impact of the integration-responsiveness pressures on firm strategy, structure and performance, rather than to investigate the characteristics of the integration-responsiveness pressures per se. In addition, the studies *infer* the nature of the environmental pressures from firm strategy and structure rather than directly and explicitly model and measure the characteristics of these pressures. In contrast, the aim of our study is to investigate in detail the rich and diverse characteristics of the integration-responsiveness pressures confronted by multinational firms.

The remaining paper is organized as follows. The next section briefly reviews the IR framework, followed by a discussion of the underlying characteristics of the IR pressures. Next, we explain the methodology used for the data collection and analysis and present the results of our study. We conclude with a discussion of our findings and directions for future research.

THE INTEGRATION-RESPONSIVENESS FRAMEWORK

The IR framework grew out of earlier evolutionary theories of the development of multinational enterprises (MNEs) (e.g., Perlmutter, 1969; Stopford and Wells, 1972; Vernon, 1966). Although these models were popular, their limitation was that they provide simplistic

solutions to complex problems in multinational organizations (Bartlett, 1986). This oversimplification was due, in part, to their neglect of the global business environment—in particular the many technological, market, competitive and governmental factors that impact on the MNE. In response to this omission, a number of authors—beginning with Prahalad (1975) and Doz (1976) and followed by Prahalad and Doz (1987)—reformulated the classic differentiation and integration approach of Lawrence and Lorsch (1967) into the IR framework we recognize today.

Prahalad and Doz (1987) identified the economic, technological, political and competitive factors that create the GI and LR pressures on the diverse businesses and functions in multinational firms. Initially, they classified the environmental pressures on MNEs along three dimensions: (1) the need for *global integration* of activities, (2) the need for *global strategic coordination*, and (3) the need for *local responsiveness*. Because they argued that the needs for global integration of activities and global strategic coordination were highly correlated, they combined the three into two essential dimensions—global integration (GI, or I) and local responsiveness (LR, or R)—resulting in the IR grid that became so popular. Indeed, the grid became epitomized in the famous phrase “think global, act local”—that is, effective managers are those who respond to the twin pressures of global integration and local responsiveness.

The IR framework has proved useful for mapping the different types of MNEs and their international strategy and organizational structure resulting in a simple categorization of firms into four types: international, multinational, global and transnational (see, e.g., Bartlett and Ghoshal, 1989). These four types of firms pursue strategies that are appropriate for their respective *international*, *multinational*, *global* and *transnational* business environments. Although strategy is shaped by the structural characteristics of the industry, it is well recognized (e.g., Porter, 1986) that firms with different strategies can coexist in the same

industry. This being said, what 'coexistence' means and how it remains stable is not a particular focus of the IR framework. What we can conclude is that the nature of international strategy varies widely not only across industries (as a consequence of their differing environments), but also among firms competing within the same industry (as a consequence of their differing histories and sources of competitive advantage).

Bartlett and Ghoshal (1989) and others show that in the increasingly complex international business environment, successful MNEs are those that create a transnational organization with multidimensional capabilities. Murtha, Lenway and Bagozzi (1998) provide an empirical test of the constructs of integration, responsiveness and coordination—falling back on Prahalad and Doz's (1987) original formulation of the IR framework rather than the current version. Although their measures are validated with data from a single, diversified multinational, they conclude that it is important to cross-validate these measures with data from other MNEs. Taggart (1998) nominates the IR framework as one of the two dominant models of international strategy, the other being the configuration-coordination model of Porter (1986). Indeed, we would not be criticized for saying that development of the typology and the intellectual debate that it has engendered has led to a radical expansion of the realm of issues being studied by international business scholars. These works provide valuable reasoning about the nature of managerial *decisions*, but their methodologies do not allow us to address the validity of the IR *pressures* through structured measurement and formal analysis.

Notwithstanding the seminal contribution made by the proponents of the IR framework in recognizing the importance of the environmental pressures, the focus of researchers has largely been on studying the strategy, structure and performance of MNCs rather than to investigate the nature and character of the environmental pressures themselves. This could be attributed, in part, to Prahalad and Doz's (1987) view that it is the firm's *decisions* about their strategy that drive changes in the industry structure. In their seminal 1987 book, they

postulate that successful firms migrate their businesses from one type of strategy to another over time, and gain competitive advantage over firms that continue to pursue the old business model. For example, by using a new *global* strategy, Japanese firms such as Matsushita, who were late entrants in the consumer electronics business, successfully gained competitive disadvantage against pioneering competitors such as Phillips that continued to pursue the old *multidomestic* strategy to manage its worldwide businesses.

However, our conceptualisation is slightly different. We believe that it is the structure of the *environmental pressures* that is dynamic and changes over time. And firms that quickly recognise and respond to these changes, and align their internal organisational strategy, structure and processes to fit the changes in the external environment, are likely to outperform those that respond slowly to these changes. Our view is consistent with the well-known structure-conduct-performance paradigm in the industrial organisation literature that posits that the industry structure, that is, the business environment influences firm conduct, and both the environment and conduct influence firm performance (Scherer, 1996; Scherer and Roos, 1990)¹. It is imperative, therefore, that international business scholars and managers have a detailed, fine-level understanding of the diverse environmental pressures that impact on multinational firms.

Despite its importance, however, there have been few attempts at examining the business environment in the mainstream managerial IB literature. The current body of research – both theoretical and empirical – mainly focuses on MNC *conduct*, that is, on firm *strategy* and *structure*, and *performance* in response to conduct, with only few studies explicitly examining the *environmental pressures* on MNCs (e.g., Johansson and Yip, 1994). We believe that it is important to first understand in detail *what* are the different types of environmental pressures confronted by MNCs and the characteristics of these pressures, *before* addressing the next important question of *how* these pressures impact on the firm.

Since most studies focus on the second question of MNC strategy and structure, our aim is to explore the first question, that is, to investigate in detail the characteristics of the environmental pressures confronted by MNCs. A detailed, fine-level examination of the IR pressures would improve our understanding of the complex, rich and diverse nature of the pressures that underpin the IR dimensions, and potentially enhance the usefulness of the IR framework for MNC researchers and practitioners.

Thus, the objectives of our study are three fold. First, to examine in detail the nature of the GI and LR pressures confronted by multinational firms. Second, to empirically explore the characteristics of these pressures using data from MNCs. Finally, to propose alternative representation of the IR pressures, strategy and structure that both captures the essence of the current IR framework and at the same time is more consistent with the contemporary behavior of MNCs.

UNDERSTANDING THE STRUCTURE OF THE IR PRESSURES

As our discussion indicates, there has been no direct quantitative empirical validation of the IR pressures that encompasses both a broad coverage of the environmental pressures and a large sample of firms. Here, we propose five characteristics to examine in detail the structure of the IR pressures. These are depth, dimensionality, direction, distinctiveness and dynamic.

Depth refers to the extent to which the diverse measures of the IR pressures are *single level* or *multiple level*. That is, whether the measures are related directly with the latent constructs of the GI and LR pressures, or whether the measures relate with the constructs through one or more intermediate-level components, resulting in one-, two- or more-level measure-construct relationship. In-depth examination of the IR pressures would help us to identify the diverse range of the environmental factors that impact on the firm, and ensure that all critical and relevant environment related issues are taken into consideration for managerial problem-solving, analysis and decision-making.

Dimensionality refers to the extent to which the measures of the IR pressures are unidimensional or multidimensional in nature. The issue of dimensionality is closely related to the issue of depth discussed earlier. For example, if the measures of the IR pressures are modeled as *single-level*, it implicitly means that the pressures underlying the IR dimensions are either unidimensional in the case of reflective measures or multidimensional in the case of formative measures. But, if the IR measures are modeled as *multilevel*, it implies that the pressures underlying the IR dimensions are multidimensional, with the higher-level measures further measured with a number of lower-level reflective or formative indicators.

Examining the depth and dimensionality of the relationship between the measures and constructs of the IR pressures is useful from two distinct perspectives. On the one hand, it helps us to identify and examine in detail both the depth and breadth of the diverse pressures underlying the IR dimensions, and thereby helps MNC managers to take into consideration the entire gamut of the environmental pressures that affect the firm. On the other hand, it allows us to reduce the data to a few key dimensions by combining similar measures into homogenous components or sub-dimensions using factor or principal components analyses.

The process of data reduction is especially useful when the measures are highly correlated and there is a high level of commonality and redundancy among the measures. However, reducing the data to one or a few dimensions can be potentially disadvantageous especially if it results in the loss of fine level detail and richness underlying the diverse environmental pressures, and reduces the degrees of freedom for managerial action and decision-making. On the other hand, due to the *bounded rationality* of managers (Williamson, 1975), it may seem useful to reduce the number of environmental dimensions that need to be considered by managers for effective decision-making. It is therefore important to take into consideration the trade-off involved in simultaneously achieving the dual but conflicting objectives of data reduction and data richness with more depth and dimensions. This is

especially so in the context of measuring and modeling the complex and diverse constructs of the GI and LR pressures.

Direction refers to the nature of relationship between the IR pressures and their measures. That is, whether the measures of the IR pressures are *reflective* or *formative* in nature. If the measures are *reflective*, the arrows representing measure-construct relationships point from the construct to the measures, whereas if the measures are *formative*, the arrows point in the opposite direction, from the measures to the construct (Figure 1). The nature of the measures – reflective or formative – influences the decision about the number of measures required to adequately tap into the complex domain of the GI and LR pressures. According to Bollen and Lennox (1991), if the measures are reflective, a small sample of measures from the population of measures of a construct is adequate to represent the construct. But if the measures are formative, a large number of measures are required to adequately tap into the broad domain of the construct being measured.

[Figure 1 here]

Distinctiveness refers to the extent to which the measures of the GI and LR pressures are *independent* or *correlated*. That is, the extent to which the measures have high correlation with the construct that they intend to measure and low cross-correlations with the construct that they are *not* intended to measure.

Finally, *Dynamic* refers to the differences and changes in the structure of the pressures underlying the IR dimensions, both over time and across industries. Although we make some conjectures about the changes in the IR pressures in our present study, we regard this as one of the most interesting aspects of the business environment that needs more detailed investigation in future research. According to the current IR framework, *customer and government-related pressures* force firms to adapt their strategies and become increasingly locally responsive. However, with increasing globalisation, there is a trend towards

homogenisation of customer tastes and preferences across a diverse range of products such as fast food, entertainment, consumer electronics, cars and banking services. As a result, customer-related factors are increasingly becoming pressures for global integration and standardisation rather than adaptation.² Similarly, with the formation of the World Trade Organisation, for example, there is a drive towards greater harmonisation of international trade policies and practices with regard to lower tariffs, removal of quotas, and a more open global trade regime. These and other similar global institutions and mechanisms may indirectly reduce the role and influence of country governments as pressures for local responsiveness.

In the same way, when we look at the *global competitive and technological pressures* that are traditionally regarded as pressures for global integration, we again find trends of their movement in the opposite direction, from being GI pressures to becoming a source of LR pressures. For example, with increasing economic development of the erstwhile less-developed economies to newly industrialised economies (e.g., the tiger economies of Asia), a number of large, domestic firms are becoming global in competitive scope. These emerging global firms are likely to offer intense competition to the foreign MNC especially in the domestic market of the emerging MNC, and force the foreign MNC to become locally responsive. Similarly, with respect to the *technological* factor, earlier research suggests that MNCs are mechanisms for internally leveraging the home-country technological advantages on a global basis (e.g., Dunning, 1988). However, research by Bartlett and Ghoshal (1989) and Birkinshaw, Hood and Jonsson (1998) shows that increasingly, MNCs use their subsidiaries as sources of innovations that the firm can leverage on a global basis. Thus, whereas technology-related factors in the past resulted in centralised decision-making, in future, the same factors may become a force for providing greater autonomy to the subsidiary

managers in order to motivate them to generate the innovations that the MNC can leverage on a global basis.

Taking into consideration these five characteristics of the IR pressures, the question is: what are the different plausible structures of the measures underlying the IR pressures? In other words, how are the measures related to the respective underlying, latent constructs of the GI and LR pressures? To empirically model and test the relationship between the measures and constructs, we considered the first four characteristics of the IR pressures, namely, depth, dimensionality, direction and distinctiveness. Although we can potentially have several possible combinations of measure-construct relationships, here, we discuss and illustrate with diagrams two main types and five sub-types of structures to represent the range of possible relationships between the measures and constructs of the GI and LR pressures.

[Figure 2 here]

Figure 2 shows three forms of *single level structures* that one might postulate. (In all the figures that follow, UPPER-CASE letters indicate *constructs* and lower-case letters indicate *measures*.) The most common method of modelling the GI and LR pressures is by using a simple *single level independent reflective structure*. In this structure, the measures are deemed to have a *single level* relationship with the constructs. Also, the measures are regarded as *reflective*, that is, have high correlation with the underlying construct that they intend to measure, and *independent*, that is, have no or low cross-correlations with the other constructs in the model (Figure 2a). Analytically this would be determined by factor analysis—an approach originating from psychology and the development of scales.

But if the measures representing the GI and LR dimensions are not highly correlated, a better way to operationalise the GI and LR pressures would be to regard the measures as formative rather than reflective, resulting in a *single level, independent, formative structure* (Figure 2b). That is, the construct is formed by an aggregation of the measures and the arrows

point from the measures to the construct instead of from the construct to the measures as is the case of reflective measures. For example, in the case of the LR pressures, differences in consumer tastes and preferences across countries may not be highly correlated with, say, differences in government regulations across countries. Analytically this would be determined using a technique such as regression analysis—an approach originating from economics and the development of indices. In the case of formative measures, we are concerned that they fit logically under the construct being studied.

Another difference could be that the measures are related to more than one construct resulting in what we call a *single level mixed formative structure* (Figure 2c). This creates problems in the sense that if a number of measures are believed to affect more than one dimension, the separability of the dimensions becomes muddled and we must ask whether the real structure is more parsimonious than the one being posited. However, if the number of ‘mixed’ measures is small, they may not invalidate the independence of the measures underpinning the IR dimensions.

The second level of complexity may arise with regard to the *depth* of relationship between the measures and the GI and LR constructs. That is, the measures may have second or higher order relationship with the constructs, with the measures being reflective or formative at each level. Figure 3 presents two examples of *multiple level structures* wherein the measures are reflective at the first level and formative at the second level.³ Underlying each dimension are categories of pressures that need to be aggregated in some fashion. Such measures are formative in the sense that they logically fit under the dimension being studied but do not necessarily tap the same tendencies (as might be evidenced in their correlation matrix). Hence, local responsiveness may be thought of as made up of pressures such as the “diversity of consumer wants” and “local government interference in the market”. The two may be uncorrelated but lead to managerial decisions to cater to local tastes. Each of these

category constructs themselves may be 'reflected' in specific measures. For example, a GI pressure like "scale economies" could be measured using multiple items that capture the extent of the importance of size of production in the industry.

Figure 3a shows a *multiple level independent structure* wherein the constructs—A, B, and C are independent of the constructs X, Y and Z. However, this need not always be the case. There could be significant *cross-correlations* between the measures and constructs with the measures theoretically deemed to measure the GI pressures loading on the LR pressures and vice versa. We could, for example, argue convincingly that "diversity of consumer wants" would affect both LR—we need to cater to local tastes—and GI—customer diversity affects product variety and our ability to capture scale economies. This is the example shown in the *multiple level mixed structure* (Figure 3b).

The above discussion suggests that there are a number of possible structures that we might consider to validate the IR dimensions. The question that arises is – which of these possible structures are most appropriate for modelling and empirically testing the GI and LR pressures? Examination of the prior literature does not clearly indicate which of the structures we have discussed is appropriate (e.g., Roth and Morrison, 1990; Martinez and Jarillo, 1991; Johansson and Yip, 1994; Birkinshaw, Morrison and Hulland, 1995; Johnson, 1995; Taggart, 1997; Birkinshaw *et al.*, 1998; Harzing, 2000). Since there is little prior theory to guide us, for the purpose of our study, we hypothesize a combination of one level and two level structure to represent the GI and LR pressures, with the measures being reflective at the first level and formative at the second level. The reason is simple. The range of phenomena incorporated within "environmental pressures" appears too diverse for a simple single level, reflective approach to work well. However, our hypothesis is speculative. Depending on the nature of the constructs under investigation, researchers need to explore alternative structures in terms

of the five characteristics of the measures and constructs that we discussed earlier, namely, depth, dimensionality, direction, distinctiveness and dynamic.

EMPIRICAL MODELING

We investigate these structures by utilizing the data from a large study of MNE marketing managers. Because this database contains a large number of measures from the literature, it is better able to tap the broad domain of the GI and LR pressures. These measures comprise both single items and what we term *components*. Components are multiple item scales with acceptable reliabilities that reflectively measure one category of pressure (such as “global coordination of activities” or “local government influence on business decisions”). The database contains 5 component and 5 single item measures for the GI pressures and 4 component and 7 single item measures for the LR pressures (together with other measures discussed later). These measures were drawn from the prior literature as listed in Table 1.⁴

[Table 1 here]

Data and Response Sample

A stratified random sample of MNE subsidiaries was selected from the Dun and Bradstreet WorldBase database. To ensure sufficient variance in the data, the sample was selected to include firms operating in manufacturing and services businesses, consumer and industrial product businesses and subsidiaries located in both industrial and developing countries. The heterogeneous sample not only incorporates the required variance for testing validity, but also captures the full diversity in the international environments of these firms, thereby enhancing the generalisability of our findings. Additionally, to obtain data from informed respondents, the data was collected by self-administered questionnaire from marketing managers responsible for major business units within the country subsidiaries of multinational firms.

The questionnaire was mailed to 728 subsidiaries. 191 business units responded from 126 subsidiaries of 119 parent MNEs. This response compares favorably with those reported in the literature for global mail surveys (Harzing, 1997). The sample encompasses MNE subsidiaries engaged in 84 different manufacturing sectors and 24 different service sectors, with nearly equal numbers operating in consumer and industrial markets. The subsidiaries are located in 36 countries around the globe but their parents are mainly located in three countries, Japan (24%), UK (24%) and USA (40%). These are large MNEs, with the median number of global employees being 22,000 and that in the subsidiary itself being 325. The business unit managers who responded had an average of ten years experience.

Preliminary Dimensional Analysis

The IR grid seemingly postulates that the environmental pressures are best represented as two orthogonal dimensions that should be reflected in the responses to the questions about the IR pressures that we asked our managers. Given this theoretical framework, and the data we have, the appropriate test of validity is a confirmatory factor analysis (CFA). CFA, with its origins in psychology, assumes a common factor model (underlying unobserved constructs) and reflective measures of these factors. CFA allows us to hypothesise how many factors there are and, through an initial *target* matrix, how each measure should relate to each factor. These initial hypotheses are then tested through maximum likelihood methods. Table 2 shows the results from a CFA of our data.

[Table 2 here]

At first glance there is some support for the IR framework in this Table. Some measures postulated to reflect the GI pressures load on this dimension, just as some postulated to reflect the LR pressures load on that dimension. However, closer inspection reveals a number of problems. First, several components that others and we would believe to be an important part of environmental pressures (for example, "scope economies" and "customer heterogeneity")

do not load on either factor. Second, some measures load on the 'wrong' dimension (for example, "level of advertising necessary in the local market"). Third, there are very few high loadings (≥ 0.60) indicating relatively weak relationships between the measures and underlying dimensions (also seen in the low correlations between measures and factors). But most telling of all are the very poor fit statistics for this structure. Indeed, the simple form of the IR framework is rejected ($\chi^2 = 307, 168$ df, $p < 0.0001$) with a Bentler & Bonnett's NFI = 0.47 (well below the minimally acceptable index of 0.85). *Thus we can conclude that the single level structures in Figure 2 probably do not accurately represent the IR pressures.* The overall pressures for GI and LR are more likely to derive from a number of different categories of underlying pressures—a multiple level structure in our terminology. This being the case we should investigate: (1) how many more dimensions are needed to account for the environment, (2) the appropriateness of the common factor model for these dimensions, and (3) whether the dimensions are distinct, that is, uncorrelated or mixed.

To explore whether more dimensions are needed we conducted a series of maximum likelihood factor analyses with 2 to 6 dimensions. These again use the common factor model but make no hypotheses as to which items load on which factors. The results confirm that more than two dimensions are needed, indeed they suggest that at least five dimensions are necessary (the test of more than 5 factors being needed yielded a $\chi^2 = 126, 100$ df, $p=0.04$). However, whilst this analysis supports the multiple level perspective the resulting solution is not particularly compelling (and is not shown here). As with Table 2 there are items of theoretical interest that do not load on any factor and there are relatively few high loadings. In addition, two items load on more than one factor, making interpretation difficult.

This lack of interpretability suggests that we should question the appropriateness of the common factor model as a way of combining our lower level pressures. To do so, we conducted a five dimensional principal components analysis of the same data. The difference

between a common factor and a principal component is that whereas the former assumes an underlying construct the latter is simply the linear transformation of observed variables that best explains variance. With our data a principal component analysis represents a multiple level aggregation of reflective components and items. The results of this principal component analysis are shown in Table 3.

[Table 3 here]

This is a better solution—particularly in that most items now load on a factor and that there are many more high loadings. It can also be argued that the nature of the dimensions is clearer than in the earlier solutions. Dimension One relates to *competitive scale*, Dimension Two to the *nature of customers* and their impact on coordination, Dimension Three to the *nature of the host country*, Dimension Four to the *importance of the subsidiary* and Dimension Five to *host government influence*. Interpretation aside, this analysis suggests that a formative aggregation might be better than a reflective one and, if this is true, the typical approach to dimensional analysis, i.e. factor analysis, may not be the most appropriate method.

The third issue is whether the dimensions are orthogonal or correlated. In factor analysis this is an issue of interpretation rather than variance explained. Once the number of factors is determined, a judgement as to whether an orthogonal or oblique rotation is better essentially depends on which the investigator believes sheds more insight. We ran oblique rotations on our factor solutions but we do not report these because they are similar to those in Tables 2 and 3. Taken at face value they suggest that a modest correlation between Dimensions 1 and 2 might add to our understanding. Indeed, if we correlate summated scales of the items that load highly on each factor we observe a significant empirical correlation of 0.34 between Dimensions 1 and 2. We also note that some of the dimensions themselves span both GI and LR measures. Thus if we wish to keep the elegance of the IR framework we may

need to allow for some modest mixing of constructs. Nonetheless, there is some degree of independence between many of the constructs relating to the GI pressures and those relating to the LR pressures. Overall, the results from Tables 2 and 3 suggest that it is better to look at the IR pressures as a set of multiple level formative structures that are themselves made up of a mixture of reflective components and measures.

RESULTS AND DISCUSSION

Our research produced a number of very interesting but somewhat controversial findings. Here we discuss the findings with respect to the five characteristics of the IR pressures proposed earlier. First, on the issue of *depth*, we found that both the GI and LR pressures are best operationalised using a combination of one level and two level measures, with one level measures being the single items and two level measures being the components (Figures 2 and 3, Table 3).

Second, with regard to the characteristic of *dimensionality*, the results of confirmatory factor analysis (Table 2) and principal components analysis (Table 3) show that *neither the GI pressures nor the LR pressures are unidimensional*. If these pressures were each one-dimensional, the diverse measures of the GI and LR pressures would 'reflect' a simple two-dimensional structure with the GI measures loading on one dimension and the LR measures on the other. Instead, factor analysis indicates that: (1) the measures of the GI and LR pressures load on at least *five* dimensions, and (2) principal components may represent these data better than common factors. Since each of these pressures is composed of multiple dimensions, representing the diverse and complex GI and LR pressures on a simple, single level, two dimensional IR framework may be somewhat inaccurate.

Third, considering the *direction* of measure-construct relationships, we again found that the most optimal way to operationalise the relationship between the latent GI and LR pressures and their respective measures was by using a mixture of formative and reflective

indicators. Thus, the latent GI and LR pressures are measured with a number of formative single item and component measures, with each component itself measured with a number of reflective items. Fourth, with respect to the characteristic of *distinctiveness* of the GI and LR dimensions, we found some degree of cross-correlation among the measures of the GI and LR pressures. These results support our initial hypothesis of a *multiple level mixed structure* for the IR pressures (as shown in Figure 3b but with one difference – the facets of the GI and LR pressures that are formatively combined are composed of both single items and components). The hypothesis is further supported by the fact that several of the dimensions load on measures from both domains. However, the five dimensions appear themselves to be substantively independent with only a modest degree of mixing (e.g., correlation of 0.34 between dimensions 1 and 2 in Table 3).

Finally, cross-correlation among the measures of the GI and LR pressures suggests potential changes in the way the IR pressures may be viewed by MNC managers nowadays vis-à-vis the way these pressures were perceived at the time the IR framework was proposed over a decade ago. In other words, the classification of the environmental pressures into the GI and LR dimensions may not be temporally stable. Earlier research suggests that firms go international in order to exploit home-based advantages across multiple locations (Dunning, 1988). However, recent research (e.g., Birkinshaw *et al.*, 1998) shows that the MNE subsidiaries are increasingly regarded as sources of innovations that the firm can leverage on a global basis. Thus, the pressure of technological change for example, which is regarded by Prahalad and Doz (1987) as a GI pressure resulting in standardisation and centralisation, may work as a LR pressure in future resulting in decentralisation. That is, technological change may result in greater autonomy for the MNE subsidiaries in order to provide the managerial incentives to create globally competitive innovations.

ALTERNATIVE REPRESENTATIONS OF THE IR FRAMEWORK

Here, we propose alternative representations of the IR framework that we believe better capture the relationship between the environmental pressures, firm strategy and MNC organisation structure. In the present IR framework, the two dimensions of the GI and LR pressures are assumed to coexist and may be positively correlated. As shown in Figure 4a, these pressures can potentially lie on the upward sloping diagonal from left to right on the IR grid.

But, if standardisation-adaptation and centralisation-autonomy are considered to be trade-offs, as is often the case, it is presumably difficult to conceive a firm to simultaneously achieve a high level of both at the finest level of its value creating activities at which the MNC managers typically take decisions for a given country market and customer segment at a given point in time. This does not, however, preclude a firm from pursuing, for example, varying levels of standardisation-adaptation for different functions and activities, for different country markets and customer segments and at different points in time. It is even plausible that within a given function, business or firm, some fine-level tasks or activities are highly globally integrated whereas others are highly locally responsive across consumer or country segments.

Nonetheless, differentiation in firm strategy along the standardisation-adaptation dimension across businesses, functions, tasks and activities, or country and customer segments, does not automatically make these concepts two-dimensional, as suggested by Prahalad and Doz's (1987) IR framework. Our contention is supported by the numerous illustrations contained in Prahalad and Doz's highly influential 1987 book wherein most firms, businesses, functions and tasks lie on the downward sloping diagonal from left to right on the IR grid (e.g., Prahalad and Doz, Table 2.2, p.23 and Figure 2.1, p.24; also Bartlett and Ghoshal, 1989, p.67). This suggests that the two-dimensional IR framework may be more

precisely conceptualised, both in theory and practice, on a single dimension. This is shown in Figure 4b wherein the IR pressures, strategy and structure are assumed to fall along the downward sloping diagonal from left to right on the IR grid.

[Figure 4 here]

Since the GI and LR pressures are found to be neither completely *unidimensional* nor *independent*, there are two ways of developing an alternative framework. One is to represent the environmental pressures with five or more dimensions instead of the current two dimensional IR structure. Alternatively, for the sake of parsimony, we can combine all facets of the environment into a single block called the environmental pressures while retaining the GI-LR dichotomy within the broad heading of the environmental pressures (similar to Johansson and Yip, 1994). We propose the latter option for two reasons. First, the dimensions underlying the GI and LR pressures may not be completely known *a priori*. Second, and more importantly, even if the current dimensional structure is known, it may vary and change over time as well as across businesses, functions, geographic areas and market segments. In contrast, the proposed one-dimensional representation would allow us to flexibly and more appropriately model the IR pressures in terms of the five characteristics discussed earlier, namely, depth, dimensionality, direction, distinctiveness and dynamic.

Additionally, to avoid the problem of confounding the concepts of the IR pressures, strategy and structure, we represent these concepts separately. Two alternatives are possible. In the first alternative, Figure 5a, we separate the concept of the environmental pressures, and label the axes of the current IR framework to simply represent firm strategy and structure. In the second alternative, Figure 5b, we separate strategy and structure into two separate blocks and represent all the three concepts of the environment, strategy and structure on a single dimension each. In the interest of consistency in the model, we propose the second alternative, that is, Figure 5b, and refer to it as the *dynamic IR framework*.

We further enrich the proposed framework in two directions⁵. First, we add a new block called *company focus* to incorporate Porter's (1985) generic firm orientations of low cost and differentiation to correspond with the pressures of GI and LR respectively. Second, to overcome potential criticism of the proposed one dimensional framework with regard to its inability to represent the transnational MNC of Bartlett and Ghoshal (1989), we add a second dimension to the framework called *dynamism in GI and LR pressures*. The pressures of dynamism in the GI and LR pressures force firms to focus on organisational learning, pursue innovative strategies and use network or team-based structures for organisational decision-making, implementation and control. The broad domain underlying the concepts of the environmental pressures, company focus, firm strategy and organisation structure, and the likely relationships among the constructs representing these concepts are shown in Table 4 and Figure 5b.

[Figure 5 and Table 4 here]

An important difference between the current IR framework and our proposed framework is that in the case of the former, the environmental pressures are *a priori* classified as GI or LR, and the classification remains fixed for all businesses, functions, tasks and activities, geographic areas as well as over time. In contrast, we believe that the framework should be adaptable to allow differences in the grouping of the environmental pressures into GI or LR based on the specific business context as well as over time. Thus, a key feature of the proposed *dynamic* IR framework is that it allows us to track changes over time in the nature of each facet of the environment and its classification into GI, LR or both based on differences across businesses, functions, tasks and activities. In addition, our framework neatly overcomes the common problem in the literature of confounding the IR pressures with IR decisions regarding firm strategy and structure.

The concept of the global business environment is too complex and dynamic a construct to be adequately captured with a simple one dimensional or even a two dimensional framework. Each aspect of the environment is critically important in its own right, and needs to be studied in detail rather than aggregated under the broad umbrella of the IR pressures. Such aggregation, although theoretically elegant, is likely to be of little value to practising managers in multinational firms. Ultimately, MNC managers are more interested in knowing and understanding the diverse facets of the environment and their effect on firm strategy and structure, rather than simply their classification into GI or LR pressures, or even how the broad aggregate concepts of the GI and LR pressures influence managerial decisions. For this reason, the facets that underpin each pressure, such as global competition, new technology, local customers and government factors, need to be given primary importance and explicitly considered and evaluated individually with respect to their impact on MNC strategy, structure and performance, and not simply regarded as measures of the broad GI and LR pressures. The danger with the latter approach may be that some of the important facets of the GI and LR pressures may either be overlooked or not given their due importance.

In the proposed dynamic IR framework, although we combine all the environmental imperatives into a single block called the environmental pressures, we would like to emphasise that in applying the framework, it is imperative that all possible facets of the environment are identified and analysed in detail. It is the complex interaction of these pressures filtering through manager's beliefs (as justified by authors such as Murtha *et al.*, 1998) that affect a firm's choice of strategic orientation and organisation structure. Indeed structural equations modelling allows for the measurement of the effect of each pressure on each decision outcome. Such an approach would enhance the usefulness of the proposed dynamic IR framework for scholars to study the MNC environment in detail, and for

practicing managers to help them design strategy and structure that best fit their business environments.

CONCLUSIONS

Because of their simplicity, the concepts of the GI and LR pressures have been extensively used in the literature but there have been few subsequent attempts to validate them empirically. Instead, scholars have assumed that globally integrated firms confront high GI pressures and that locally responsive firms face high LR pressures. But the strategy literature views managerial decisions not only as a product of the firm's business environment but also of its history, competitive advantages and organisational culture. Thus it is important to measure the GI and LR pressures confronted by MNEs explicitly, and not confound their measurement with choice of strategy or structure (Devinney, Midgley and Venaik, 2000). To validate GI and LR pressures empirically, we believe it is important to first identify and measure the underlying facets of these pressures in a formal manner. Only when this has been achieved should we empirically examine the linkages between these facets and the MNE's choice of strategy and structure. Much of the research reviewed here did not aim to 'falsify' the IR pressures and hence cannot be looked on as valid empirical tests of its validity.

Due to the dynamic nature of the global business environment, we believe that *a priori* classification and aggregation of the environmental pressures as GI and LR, as in Prahalad and Doz (1987), may not be very meaningful. For this reason, and based on our findings, we propose an alternative dynamic IR framework wherein both the GI and the LR pressures are combined into a single block called the environmental pressures. We retain the extremely useful GI-LR dichotomy but with one difference. We propose that the pressures that underlie these dimensions should be individually identified and analysed in detail based on the specific context of the industry and at a given point in time, and then classified into GI, LR or both and not *a priori* generalised and classified across all industries for all times. The reason being

that there may be fundamental changes in the character of the measures from being a source of GI pressure to LR pressures or both, and vice versa due to changes in the nature of competition, changes in customer tastes and preferences across segments, and changes in country government rules, regulations, policies and procedures.

We also proposed five characteristics, namely, depth, dimensionality, direction, distinctiveness and dynamic, on which each facet of the environmental pressures should be examined using a combination of theoretical arguments and empirical analysis, and with specific reference to the context of each business decision. More importantly, by separating the exogenous environmental pressures from the endogenous business decisions, the proposed alternative IR framework successfully overcomes the frequent problem of confounding in the literature between these two distinct aspects of strategic analysis in MNCs. Finally, the proposed framework incorporates both the static and the dynamic aspects of the business environment, company focus, firm strategy and organisation structure.

Exactly what sits behind these pressures must be left to further empirical investigation, however, we could certainly argue for a set of 'fundamental' pressures spanning competitive structure, technology, government intervention/risk, production structure (technological feasibility not firm choice of production structure), transaction structure, the nature of customer demand and country infrastructure. The results of our PCA hint at what five of these might be, however, repeated empirical investigation is required to develop a set of measures that meet all the requirements normally expected of general scales. There is a rich agenda for future research in developing these scales.

Because these fundamental pressures are not necessarily 'theoretically' correlated we are left with the problem of how to shape them into constructs and how to aggregate them into an overarching environmental pressure measure. As noted by Edwards and Bagozzi (2000) just allowing the empirical results to justify the choice of model form is a gross violation of

scientific principals. Hence, the choice of how we develop these measures must be driven by theoretical considerations and an accumulation of repeated empirical observation. However, we would argue that there is little theoretical justification for anything other than a formative structure. The 'fundamental' pressures we listed above are in no way, shape or form reflecting some singular underlying force facing MNEs and must be treated as separate factors that can affect types of decision and specific firms differentially. Hence, the issue of creating an "environmental pressures" construct is less important than being able to justify that the pressures of importance are affecting specific decisions such as whether a firm adapts its marketing mix to local tastes.

There are several important implications and advantages of exploring and understanding the characteristics of the IR pressures. A systematic approach to environmental analysis will help researchers to identify in detail, and more precisely measure and model the diverse facets of the IR pressures in terms of the five characteristics discussed earlier. Second, absence of distinctiveness of the measures would indicate that a measure could simultaneously be a source of both the GI and LR pressures. Finally, whether a measure is a source of GI pressure or LR pressure may not be fixed or known *a priori*, but vary with industry, function, task and activity, as well as over time.

Our alternative representation of the IR framework may also be more useful from a managerial standpoint. Ultimately, MNE managers are less interested in the labels used to describe overall pressures and more interested in how the different underlying facets of these pressures affect international strategy and organisational structure and what they must do to manage them. Going back to more fundamental constructs and clearly related measures allows managers to better manage the pressures they are facing.

In summary, our empirical work shows that representing GI and LR pressures as simple two dimensional constructs may be somewhat imprecise. Based on our findings, we suggest

an alternative dynamic IR framework that better reflects the contemporary reality observed in multinational firms. Although a small beginning, it is hoped that this work brings to the fore a greater understanding of the importance of empirical validation in developing international business theories.

Clearly there are limitations in this work. We don't know that the structure discovered here is robust when studying other functions within MNEs (e.g., finance or production) or MNEs from countries other than the US, Japan and the UK. Furthermore, we relied on the literature to derive the underlying measures—a backward looking process. Much of the IR typology was developed before there was a real understanding of intangible asset structures and the role of knowledge and intellectual capital in driving MNE expansion and organization structure (e.g., Morck and Yeung, 1991). Subsequent attempts at dealing with this issue have labored under just how to integrate such ideas into the existing framework. For example, how are technologies that allow for flexible manufacturing, just-in-time operations, customization and outsourcing to be empirically integrated into the GI and LR dimensions when they are all related in a complex manner?

With the rapid emergence of open system approaches to the management of procurement, production and interunit communication and the consequent effects on firm and market structure there may be new measures we need to be investigating. However, what these limitations point to is the same as the findings of our study—the need for further fundamental analysis of basic pressures and repeated empirical examination of phenomenon so as to provide a consistent basis on which scholars can examine the unique character of MNE structure and performance.

ENDNOTES

1. Although the SCP framework is applied at the level of the industry, it can be easily adapted to the level of the firm.
2. One could counter argue that since multinationalisation causes problems, real or perceived, for a large number of people due to closure of small and/or inefficient enterprises, end of small scale entrepreneurship and loss of jobs, etc., it may result in anti-MNC protests and force MNCs to become increasingly locally responsive.
3. It is also possible to postulate multiple level reflective structures (as in second order factor analysis) but for the sake of brevity we do not include these in Figure 3.
4. A technical appendix is available from the authors. This describes the measures, reliability statistics, tests of scale equivalence and non-response bias, and provides full references to the sources of these measures.
5. The framework could be further extended by adding the transactional completeness and managerial orientation dimensions proposed by Devinney *et al.* (2000).

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Table 1 Sources of Measures

- Buzzell, *Harvard Business Review*, 1968
Cavusgil and Zou, *Journal of Marketing*, 1994
Cavusgil, Zou and Naidu, *Journal of International Business Studies*, 1993
Douglas and Wind, *Columbia Journal of World Business*, 1987
Ganesh, Kumar and Kotabe, *Academy of International Business Conference*, 1996
Ghoshal and Nohria, *Sloan Management Review*, 1993
Jain, *Journal of Marketing*, 1989
Johansson and Yip, *Strategic Management Journal*, 1994
Johnson, *Journal of International Business Studies*, 1995
Kobrin, *Strategic Management Journal*, 1991, *Journal of International Business Studies* 1994
Martinez and Jarillo, *Journal of International Business Studies*, 1991
Prahalad and Doz, *The Multinational Mission*, 1987
Roth and Morrison, *Journal of International Business Studies*, 1990
Walters, *Journal of International Business Studies*, 1986
Wind, Douglas and Perlmutter, *Journal of Marketing*, 1973

Note: Fully referenced in an appendix available from the authors.

Table 2 Confirmatory Factor Analysis of Global Integration and Local Responsiveness as Two Orthogonal, Reflective Dimensions

Measures	Rotated Factor Loadings*		Squared Multiple Correlations
	GI	LR	
GLOBAL INTEGRATION			
<i>Components</i>			
Extent of Global Competition	0.60	-0.07	0.37
Intensity of Competition	0.21	-0.04	0.05
Global Coordination of Activities	0.55	0.04	0.30
Sharing of Activities (Scope Economies)	0.25	0.06	0.07
Technological Dynamism of the Industry	0.48	0.04	0.23
<i>Single items</i>			
Large Production Investment Required	0.60	0.15	0.39
Global Dispersion of Production Facilities	-0.02	0.17	0.03
Variation in Production Cost Across Countries	0.17	0.38	0.18
High Transportation Cost	0.16	0.37	0.16
Large R&D Investment Required	0.52	0.03	0.28
LOCAL RESPONSIVENESS			
<i>Components</i>			
Customers Vary Across Countries	0.11	0.14	0.03
Local Government Influence on Business Decisions	0.05	0.29	0.08
Local Trade Barriers	0.02	0.62	0.39
Local Business Infrastructure	-0.26	0.39	0.22
<i>Single Items</i>			
Level of Advertising Necessary in Local Market	0.43	0.16	0.21
Demand Level in Local Market	0.07	0.19	0.04
Local Government is a Customer	0.09	0.03	0.01
Subsidiary Market Importance to Parent Company	0.03	0.09	0.01
Locality of Customers (local versus global)	-0.10	0.17	0.04
Local Market Sales Relative to Parent Company Sales	-0.01	0.02	0.00
Importance of Subsidiary to Local Government	0.18	0.34	0.15

* Bold figures are used to indicate salient loadings following the convention ≥ 0.30 .

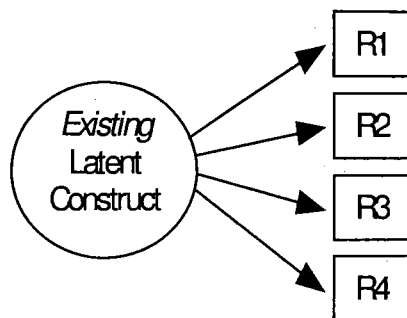
Table 3 Principal Component Analysis, Five-Factor Orthogonal Solution, Loadings ≥ 0.30

Measures	Rotated Factor Loadings				
	One	Two	Three	Four	Five
GLOBAL INTEGRATION					
<i>Components</i>					
Extent of Global Competition	0.64				
Intensity of Competition		0.37			
Global Coordination of Activities	0.45	0.45		0.31	
Sharing of Activities (Scope Economies)		0.59			
Technological Dynamism of the Industry	0.66				
<i>Single items</i>					
Large Production Investment Required	0.68				
Global Dispersion of Production Facilities					
Variation in Production Cost Across Countries					
High Transportation Cost			0.58		
Large R&D Investment Required	0.68				
LOCAL RESPONSIVENESS					
<i>Components</i>					
Customers Vary Across Countries		0.39			
Local Government Influence on Business Decisions					0.63
Local Trade Barriers			0.61		
Local Business Infrastructure			0.64		
<i>Single Items</i>					
Level of Advertising Necessary in Local Market	0.32	0.63			
Demand Level in Local Market			0.40		
Local Government is a Customer					0.68
Subsidiary Market Importance to Parent Company				0.56	
Locality of Customers (local versus global)	-0.34	0.44			0.36
Local Market Sales Relative to Parent Company Sales				0.71	
Importance of Subsidiary to Local Government			0.32	0.45	0.36

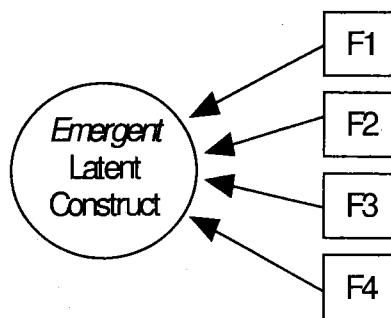
Table 4 Concepts and Constructs in the Proposed Dynamic IR Framework

Environmental pressures	Company focus	Firm Strategy	Organisation Structure
Global integration	Low cost	Standardisation	Centralisation
Local responsiveness	Differentiation	Adaptation	Autonomy
Dynamism in GI and LR	Learning	Innovation	Networking

Figure 1 Reflective versus Formative Indicators



R1, R2, R3, R4 Reflective Indicators



F1, F2, F3, F4 Formative Indicators

Figure 2 Single Level Integration-Responsiveness Framework Structures

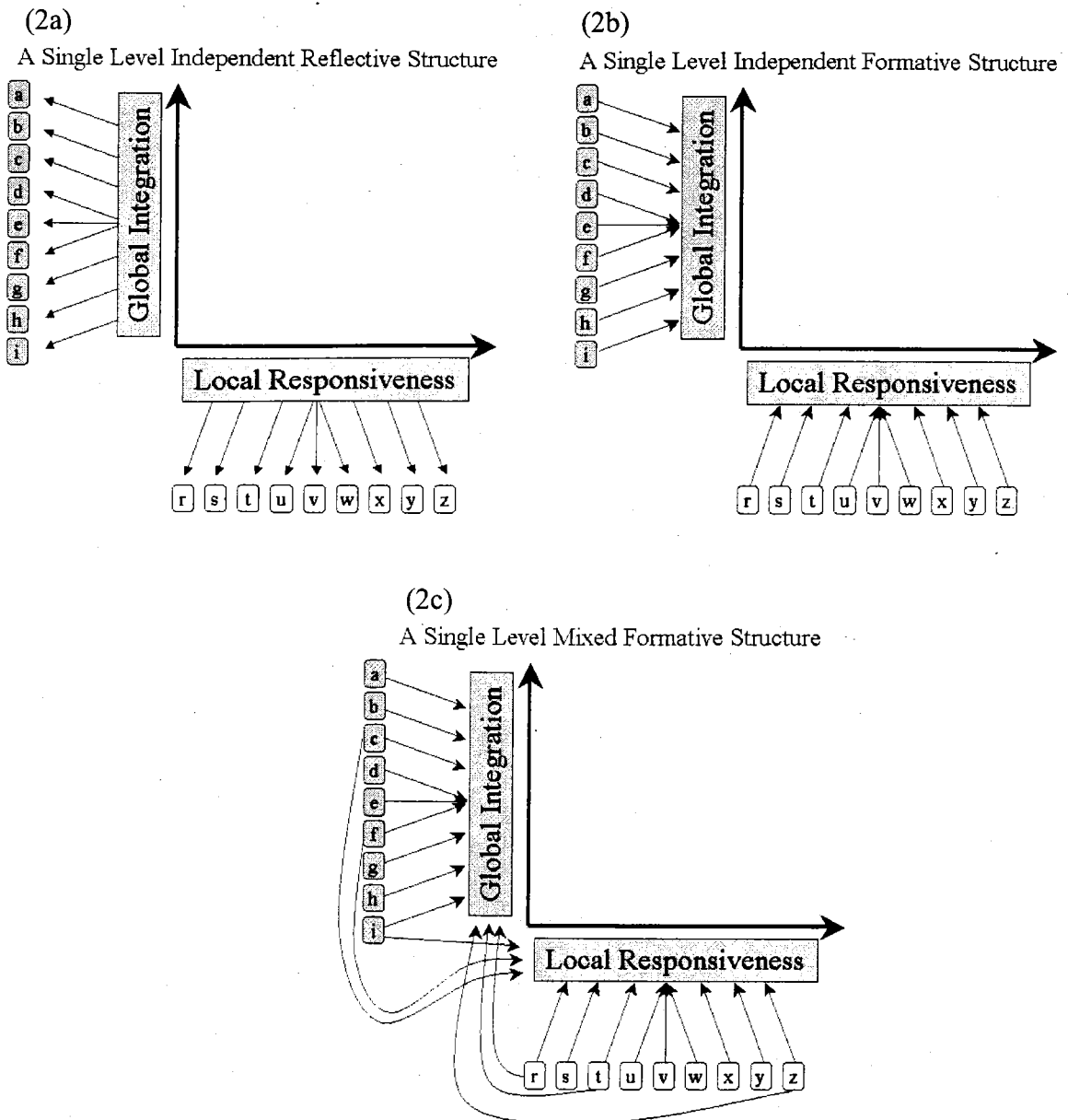


Figure 3 Multiple Level Integration-Responsiveness Framework Structures

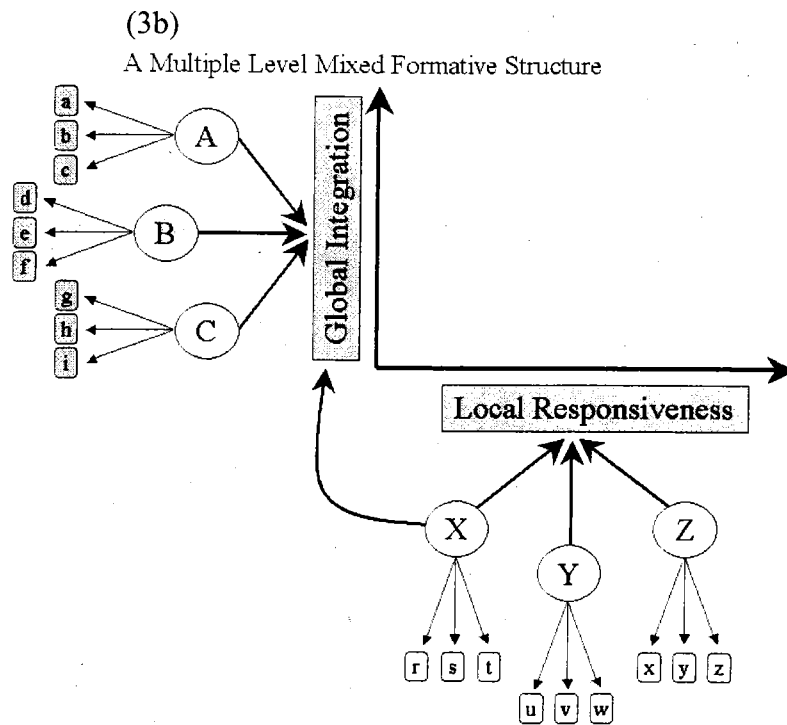
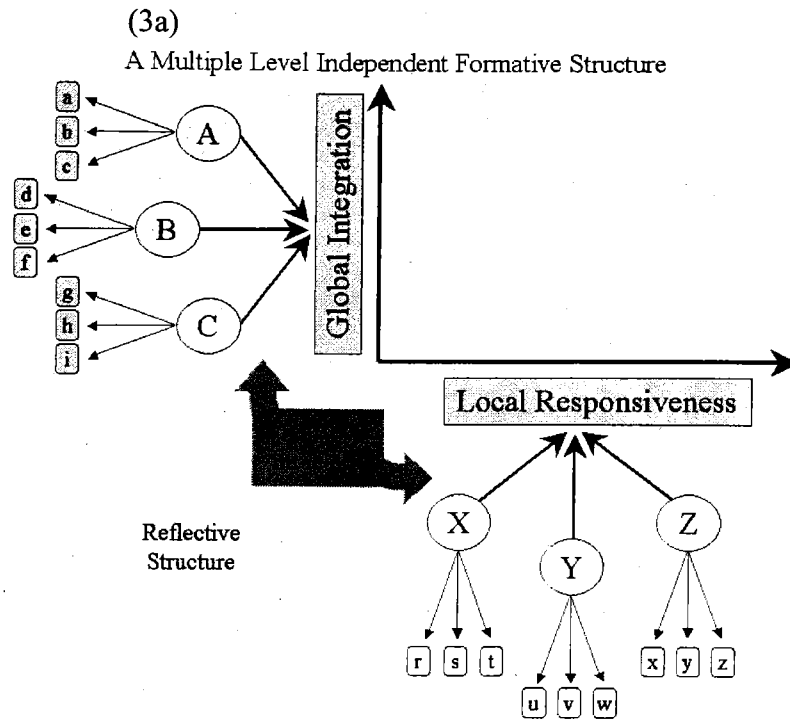


Figure 4a Current two dimensional IR framework

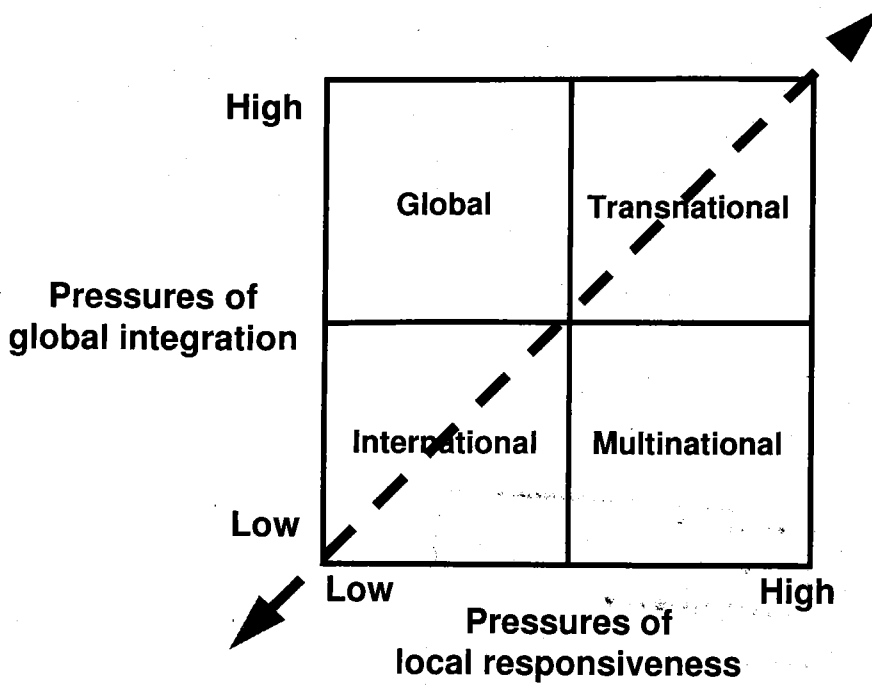


Figure 4b Proposed one dimensional IR framework

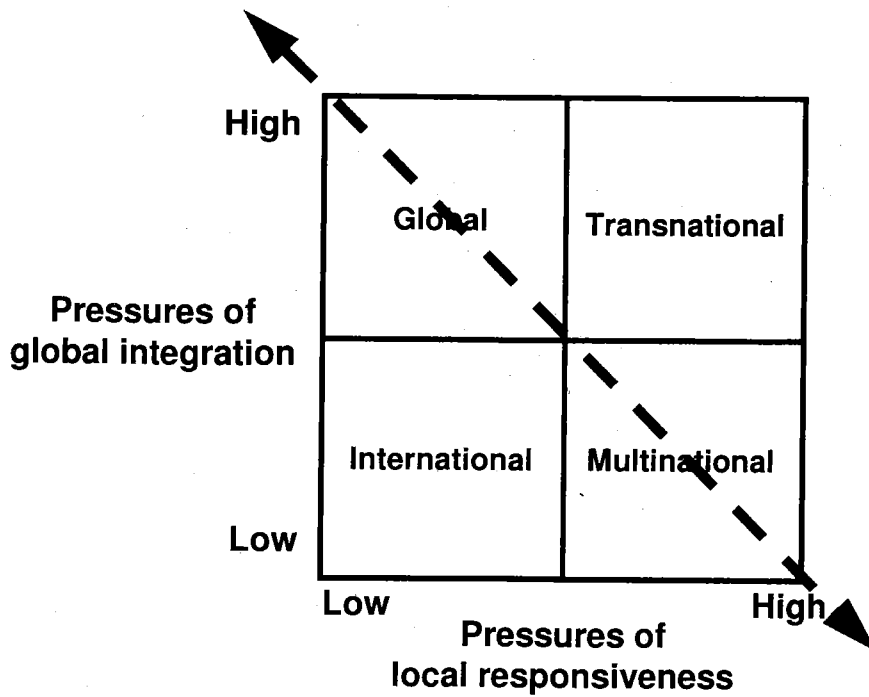


Figure 5a New representation of the IR framework – Alternative 1

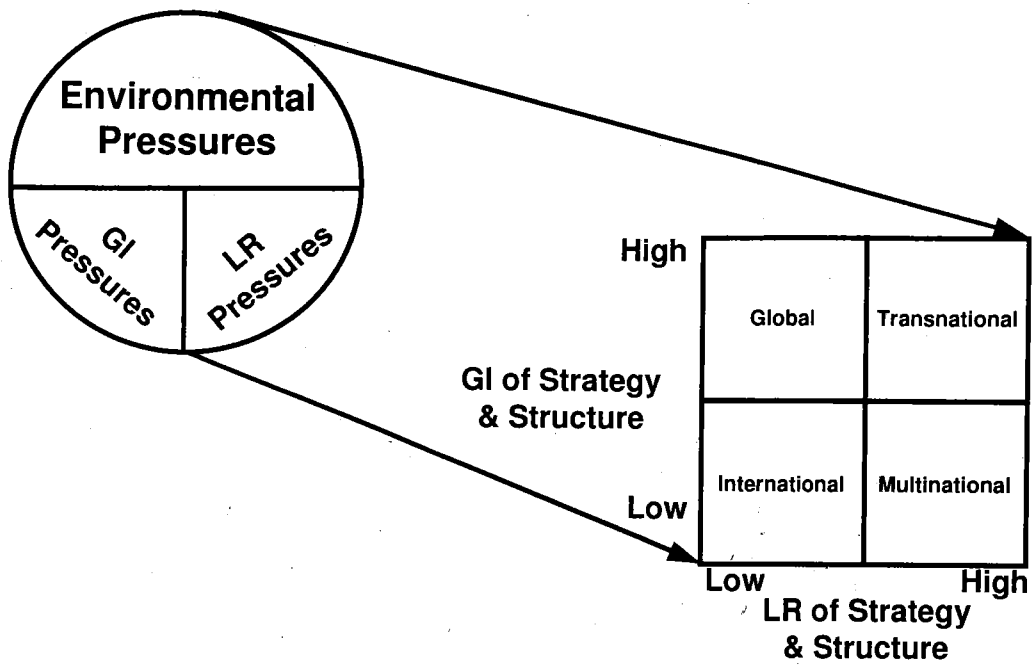


Figure 5b Proposed Dynamic IR framework

