

# Integrated Market-related Internal Communication: Development of the Construct

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## Abstract

Although companies are increasingly using integrative communication processes to develop and improve market information dissemination, research in marketing has typically conceptualised and measured dissemination in terms of the use and frequency of information-sharing activities. In view of this asynchrony between theory and practice, this research explores the above neglected domain of market information dissemination, proposing a new construct that we call ‘integrated market-related internal communication’ (IMIC), which encompasses the integrative communication processes implemented by firms aimed at enhancing employees' market information processing. After conceptualising IMIC as a four-dimensional construct, we developed and validated a measurement instrument for assessing this emergent concept. In particular, the proposed dimensions were confirmed as reflective factors of the higher order-construct IMIC, and nomological validity was assessed by demonstrating the positive influence of IMIC on both employees' capacity to assimilate market information and shared interpretation of this information.

# **The integration of market knowledge: Conceptualization and scale development**

## **Abstract**

Although companies are increasingly using integrative communication processes to develop and improve market information dissemination, research in marketing has typically conceptualised and measured dissemination in terms of the use and frequency of information-sharing activities. In view of this asynchrony between theory and practice, this research explores the above neglected domain of market information dissemination proposing a new construct which we call ‘integrated market-related internal communication’ (IMIC) that encompasses the integrative communication processes implemented by firms aimed at enhancing employees’ market information processing. After conceptualising IMIC as a four-dimensional construct, we developed and validated a measurement instrument for assessing this emergent concept. In particular, the proposed dimensions were confirmed as reflective factors of the higher order-construct IMIC and nomological validity was assessed by demonstrating the positive influence of IMIC on both employees’ capacity to assimilate market information and shared interpretation of this information.

## **Introduction**

A major concern for firms is how to take advantage of the market information they collect. In reaching this purpose, the role of individual employees is essential since they are the recipients of this knowledge and the cornerstone for generating a profitable response to market conditions. Clearly, the mere acquisition of market information does not ensure that employees recognise new opportunities in markets and transform market information into marketable concepts, but it also depends on the firm's capability to disseminate this information effectively. Indeed, market intelligence dissemination is conceived as an integral component of a market orientation (Kohli & Jaworski 1990).

It has been largely argued that companies that are actively engaged in disseminating market information not only increase innovativeness and new product performance and can achieve a shared interpretation of this information across departments (Day 1994; Sinkula 1994; De Luca & Atuahene-Gima 2007), but also generate increased individual-level market-oriented cognitions (Celuch *et al.* 2000). In the view of the increasing importance of distributing accurate, clear, and timely market information to employees (e.g. Jaworski & Kohli 1993; Maltz & Kohli 1996; Celuch *et al.* 2000; Byrne & LeMay 2006), and avoiding logistics problems that hinder market information processing (e.g. information excess) (Sinkula 1994), firms have evolved from using simple information-sharing activities (e.g. formal meetings, circulation of documents, reports) to more complex and integrative communication processes and systems that meet these needs. For example, companies such as Sun Microsystems or General Motors consistently combine different media to reduce the overload of information to employees and thus facilitating clarity (Rogers 1996; Grates 2005). Others such as Ocean Spray integrate marketing knowledge in a repository that provides marketplace

information needed at any time and avoids the issue of information dispersal (Johnson *et al.* 2004).

This aforementioned evolution in today's current work-related internal communication setting has not been clearly reflected in the academic field. Indeed, when researchers conceptualise and operationalise the construct market information dissemination, they basically focus on the integration of communication structure in terms of the use and frequency of information-sharing activities (e.g. Jaworki & Kohli 1993; Maltz & Kohli 1996; Celuch *et al.* 2000; De Luca & Atuahene-Gima 2007), which clearly leads to an incomplete conception of the dissemination phenomenon. This fact stirs the interest in delineating a formal concept that captures the complexity and scope of the neglected domain of market-related internal communication concerning the integrative communication processes used by firms in their task of distributing market information to employees. The practical relevance of a contribution like this is evident since it would shed light on mechanisms that managers must implement in order to distribute market information to the right employees and timely, to facilitate them to absorb and uniformly interpret market information, and to persuade them to use this information (Kohli & Jaworski 1990).

In this paper we turn our attention towards conceptualising and operationalising this overlooked domain so as to gain greater insight into this issue of growing theoretical and practical concern. Since the term 'integration' has a ubiquitous use in the field of communication management (Cornelissen 2000), we might call this concept 'integrated market-related internal communication' (IMIC) to refer to the set of processes and structures aimed at coordinating market-related internal communication activities to improve individual market knowledge processing, in contrast to the integration of

internal communication structure referring to the concrete activities aimed at ensuring cross-functional communication.

We argue that the theorisation of market information dissemination would benefit from this emergent concept to reach a better understanding of how firms organise and put into practice internal communication in this domain. It is also significantly important for firms that aspire to enhance employees' information processing as a means to develop appropriate products to satisfy customer needs and to achieve success in innovation. Our interest can be seen as a metonymic exercise in the sense that we attempt to conceptually aggregate the different facets that the proposed concept reflects. To complete this task, we focus on developing and validating a measurement instrument for IMIC and empirically examine the dimensionality of the construct. In order to assess the scale's validity in a nomological network, we explore the potential effects of IMIC on employees' capacity to assimilate market knowledge and on the development of a shared understanding of the firm's market environment (cf. Cohen & Levinthal 1990; Day 1994). In the last section, we will discuss both the implications and limitations of the study and also suggest future research directions.

### **Theoretical background**

As market uncertainty or complexity rises, so does the need for increased amounts of information, and therefore it is vital that employees develop an increased information processing capacity (Tushman & Nadler 1978). An adequate processing and/or use of market information are crucial within companies because it is closely linked to product and financial success (Ottum & Moore 1997). Specifically, firms that possess and act upon this information by their employees are likely to enhance innovation processes, to ensure the successful development of innovative products (e.g. Atuahene-Gima 1995),

to increase performance, timeliness, and creativity of new products (Moorman 1995), and to create new product advantage (Li & Calantone 1998). Market information also provides a firm with insights into the functions that technological knowledge of the firm may fulfil, so the integration of market and technological knowledge in organisational learning can also enhance innovation and performance (Lichtenthaler 2009).

A key issue in easing and improving employees' information processing capacity to enhance innovation outcomes is ensuring the effectiveness of market information dissemination. In this sense, market-related internal communication must be viewed through its role to provide employees the necessary information that allows them to operate according to a market-oriented culture and carrying out strategic responses to markets.

The literature on internal and integrated communications is briefly reviewed before conceptualising IMIC in order to provide a comprehensive background of this notion.

### ***Internal communication as an avenue for dissemination purposes***

Organisational communication literature highlights the lack of definitions of internal communication (e.g. Argenti 1996). Most of these definitions have viewed the concept from an 'exchange' perspective. For example, Frank and Brownell (1989, pp. 5-6) defined it in terms of transactions between individuals and/or groups at various levels and in different areas. However, the complex and multifaceted nature of internal communication dynamics has driven scholars to propose definitions with a 'relational' approach, for instance, Welch and Jackson (2007, p. 183) defined it as "the strategic management of interactions and relationships between stakeholders at all levels within organisations."

An overview of the marketing literature also reveals two main approaches to internal communication. The first is the *internal marketing* approach which views internal

communication from two perspectives: (i) a strategic perspective that conceives internal communication as a dimension of internal market orientation (see Lings 2004; Gounaris 2006); and (ii) an operational perspective which defines internal communication as part of the internal marketing-mix (Bitner *et al.* 1994; Piercy 1995). The second and most predominant approach is *market orientation* that conceives internal communication (i) as the means by which market information is disseminated vertically and horizontally throughout the firm, that is, market information dissemination (Kohli & Jaworski 1990; Slater & Narver 1995); and (ii) as a process that facilitates market information processing and organisational learning (Sinkula 1994; Moorman 1995; Sinkula *et al.* 1997).

### ***The integration of communication***

The term ‘integration’ is abstract in nature and encompasses a multiplicity of references and exemplars (Cornelissen 2000). In the marketing communication field, it has been referred to the coordination of marketing communication tools and media in order to deliver a consistent message to target audiences, that is, integrated marketing communication (IMC) (e.g. Schultz *et al.* 1993). Building on this domain, some scholars have expanded the concept IMC delineating a broader structure beyond mere coordination of communication disciplines (e.g. Lee & Park 2007; Kliatchko 2008). Additionally, there is an organisational dimension of integrated communication referring to the coordination and interaction between communication functions within the firm (e.g. Cornelissen *et al.* 2001). In the organisational domain, integration has been also associated with the development of structural coordination mechanisms (i.e. knowledge integration mechanisms) that ensure the integration of market knowledge among different functional units within the firm (Olson *et al.* 1995; De Luca & Atuahene-Gima 2007). In this article, however, integration is associated with many

diverse processes that share the objective of maximising the impact of market-related internal communication on employees, and have an integrative and downward nature. Coordination is mainly the key utterance of the constructs reflected by IMIC, as emphasised below.

### ***Conceptualisation of IMIC***

According to Davenport (1997), in addition to sharing information, two other major types of information behaviours within the firm are concerned with handling information overload: (1) making information engaging so that the right people recognise and use the right information, and (2) dealing with multiple meanings, that is, creating a common understanding of concepts and terms used in an organisation. In conceptualising IMIC, we based ourselves in two imperatives that are explicit or implicitly stated in the most relevant literature on market orientation and market information processing and are also consistent with Davenport's (1997) categorisation. Firstly, scholars stressed that market information must be consistently disseminated throughout the firm in order to avoid contradictions, to improve the perceived information quality, and to get a shared interpretation between organisational members (Sinkula 1994; Slater & Narver 1995; Maltz & Kohli 1996). Secondly, firms make extensive use of information technologies to compile or integrate market information and route it solely where it is required to satisfy different information needs or, if necessary, widely distribute it (e.g. Day 1994; Slater & Narver 2000; Day & Van den Bulte 2002; Lings 2004). From these assertions, subsequent discussion, and practical experiences such as those mentioned at the beginning of the paper, we can delineate the following predominant themes of the IMIC concept:

- Coordinating communication activities to transmit clear and consistent information and market-oriented values;



- Providing centralised market information through shared databases and other information technologies to relevant departments and individuals;
- Disseminating market information considering the diverse informational needs and communicational preferences within the firm.

Bearing in mind that internal relations are managed through internal communication (Ritter 1999; Asif & Sargeant 2000) and that it is compulsory to include the term relationship in any conceptualisation of internal communication (Welch & Jackson 2007), we added a relational focus to our conceptualisation as we will discuss later.

By conducting qualitative analysis based on exploratory interviews with managers (see next section), previous themes were confirmed as main integrative processes in the domain of market information dissemination. Next, we will give some background in assessing each process that we termed ‘unified internal communications to enhance consistency’, ‘integrated technologies for internal market information provision’, ‘differentiated internal communications’, and ‘relationship fostering communications with employees’.

*Unified internal communications to enhance consistency.* Consistency is a constant theme in all integration-focused communication fields of theoretical enquiry because the coherence between elements of communication plays a key role in facilitating cognitive clarity to individuals and greater consensus on the interpretation of contents (Torp 2009). We focus on the management of the dissemination of market knowledge (Maltz & Kohli 1996) to define this process as the coordination of internal communications activities to transmit consistent and clear market information as well as a shared vision and market-oriented values to employees. Information which is compatible with previous information, that is, it is clear without ambiguity, will result in an improvement of the level of information quality perceived by employees (Wang &

Strong 1996). Managers seek to achieve consensus on the interpretation of market information throughout the firm attempting to reduce information equivocality in order to promote market-based organisational learning (e.g. Sinkula 1994; Slater & Narver 1995) and, to this purpose, the coordination of the mechanisms employed to distribute this information is compulsory. Indeed, for successful knowledge management, the combined use of multiple channels that consistently reinforce one another has been recognised as a process that enhances knowledge use in companies (Davenport *et al.* 1998). By the same token, given that an effective dissemination of market information facilitates clarity of focus and consistent vision in an organisation's strategy throughout the firm (Kohli & Jaworski 1990), organisations integrate communication tools and channels effectively for vision and values to be clear, understandable, and shared by organisational members (Asif & Sargeant 2000; Ahmed & Rafiq 2002).

*Integrated technologies for internal market information provision.* Information technology (e.g. shared databases, e-mail, intranet) can play an especially useful and indispensable role in integrating and distributing market information within firm boundaries. Specifically, shared databases and specific information systems such as CRM-software facilitate the integration of information systems amongst functional areas and provide a facility to access existing market information which, in turn, allow that market information can be easily disseminated (e.g. Day 1994; Homburg *et al.* 2000; Slater & Narver 2000). Likewise, shared databases have become a basis for the integration of information (Thissen & Stam 1992) and for developing routines to improve coordination and communication flows, leading to cross-functional integration. This facet of IMIC also comprises communication technologies that allow linking information systems such as databases and people who need the information (Dewett &

Jones 2001) and can be also used to manipulate and change information itself, providing constructive capabilities for communication (Fulk & DeSantis 1995).

*Differentiated internal communications.* This supplemental aspect of IMIC underscores the coordination of different communication strategies addressed to face distinct market information needs of multiple employee segments based on the jobs they perform. Employees should be differentiated rather than be treated as a single group (Welch & Jackson 2007). The asymmetric information needs inside the firm (Katz & Kahn 1978) call for segmenting the internal audience to achieve higher effectiveness in the transmission and dissemination of market information and values (Piercy 1995; Asif & Sargeant 2000; Gounaris 2008) and to avert unnecessary overload (Edmund & Morris 2000). For example, Sinkula (1994) referred to the tactic of information routing (i.e. distribution of any particular communication to relatively few organisational units) to manage this logistics problem and achieve market-based organisational learning. Even companies customise information with direct relevance to specific job roles by using, for example, several versions of a report in order to target the audience (Meglio & Kleiner 1990). Also, firms both use and make available different media to employees to adapt to concrete media preferences, especially during the coordination of interdependent tasks (see Watson-Manheim & Bélanger 2007).

*Relationship fostering communications with employees.* Internal communication is more than a simple exchange of information. At the intra-organisational level, the transfer of information is highly dependent on relationship management skills as they contribute implicitly to the employee's capacity to absorb market information (Schlosser & McNaughton 2009). As Asif and Sargeant (2000) claimed, a unified and continuous pattern of communication with employees that seek to establish relationships within the firm will facilitate individuals' absorption of information and

institutional values. From studies such as Smidts *et al.* (2001) or Levin and Cross (2004), we can extrapolate that internal communication activities are effective when promoting close relationships within the firm. In short, communication processes should help managers to foster employee involvement and commitment with the company by solidifying long-term relationships.

### **Scale development**

The conceptual basis used to define IMIC and to identify its underlying structure was employed to develop measures that more accurately shed light on how IMIC is manifested in the practice of market knowledge dissemination. Our main purpose here is then to develop an initial measure of this multidimensional construct.

#### ***Method***

Previous review was compared with findings from field interviews with thirty-six managers of large Spanish companies knowledgeable about the topic. These companies marketed consumer and industrial products. Each interviewee was asked about the issue we investigated and we found that our conceptualisation was congruent with the view that emerges from the interviews, as the communication practices and insights managers provided in the course of the interviews coincided with key aspects of the dimensions previously discussed. This established a clearer idea of the construct's domain. We used these insights in the first stage of the scale development process. Since scales were not available to measure the proposed constructs, a pool of items was generated for our measurement instrument on the basis of a literature review and field interviews. Following Churchill's (1979) recommendations, we consulted with twenty-one managers and also with four academic experts through personal interviews to judge the appropriateness of each item to accurately measure what was intended to be measured

(i.e. content validity). In this phase, all items were rated as representative of the dimension they measure (Bearden *et al.* 2001). We made some modifications to the questionnaire items based on the feedback we received. We next administered the preliminary draft questionnaire to a pilot test group of managers of large industrial firms. The profile of the respondent closely resembles the profile of the targeted population from whom the data was collected in the succeeding phase. The questionnaire was revised drawing on the feedback from the pilot experiment incorporating some minor rewording on some of the items. One item was proposed for removal during this phase of the research for a final set consisting of 18 items.

### ***Sample and data collection***

After pre-study phases, data collection for the major study was undertaken. We collected data from Spanish manufacturing companies that were selected from the S.A.B.I. database (Iberian Balance Sheet Analysis System), which is the main database of general information and annual accounts on Spanish companies. We chose the manufacturing industry because it covers companies across different sectors that face a highly uncertain and competitive environment, where the need for market information and knowledge dissemination mechanisms is intensive. Following practitioner recommendations, we selected firms with at least 100 employees. Clearly, medium-large sized firms are more likely to have well-developed knowledge management processes and systems (see Wong & Aspinwall 2004). The final list consisted of the 1,853 largest manufacturing companies within the Spanish market.

A major market research company in Spain carried out the data collection using a CATI system to administer each survey. Of the 1,853 firms, the study used a sample of 750 firms selected randomly that were approached via telephone in order to request their agreement to participate in the survey. A total amount of 324 showed initial

interest in participating. In order to assess if the potential respondents were appropriate and met the criteria of involvement and knowledge (Campbell 1955), we used a short pre-screening questionnaire to determine their position with the firm, the number of years in that position, the extent to which respondents were personally involved in market knowledge dissemination to employees, and how knowledgeable they were about information dissemination mechanisms and market information processing within the firm. Of the 324 firms, we eliminated 19 because the potential respondents were lacking in the knowledge and involvement criteria (i.e. scored lower than six on a seven-point scale).

Finally, 211 firms provided full data for an effective response rate of 69.18% (211 out of 305). These firms averaged 356 full time employees and operated in a variety of sectors. The surveys were completed by top managers. The Appendix contains disaggregated information about managers' position, sectors, and details of the preliminary data assessment.

### ***Confirmatory factor analysis***

We used structural equation modelling for detailed assessment and refinement of the construct validity of the measurement instrument we propose (see Terblanche & Boshoff 2008). Previous to the above stage of the analysis, we affirmatively checked that items loaded on four factors as predicted, using principal components analysis. No items were omitted during this process. Next, we conducted a series of confirmatory factor analyses (CFA) with LISREL 8.80 to provide guidance for model re-specification and to confirm the assumed multidimensionality of the IMIC concept (Gerbing & Anderson 1988). After scale purification, the final CFA indicated an effective correspondence of the four-factor model with the data, as it was theoretically predicted ( $\chi^2=121.35$ ,  $df=71$ ,  $p=0.00019$ ; GFI=0.92; NNFI=0.98; CFI=0.99; RMSEA=0.058;

SRMR=0.052;  $\chi^2/df=1.70$ ). These results demonstrated excellent unidimensionality. A list of the items retained is presented in Table 1.

[Insert Table 1 about here]

We compared the four-factor model with a one-factor rival model and results showed that the four-factor solution was preferred. The details of the analysis are given in the Appendix.

### ***Assessment of the reliability and validity of measures***

Internal consistency reliability estimates for the IMIC scales are reported in the last column of Table 1. All criteria usually used to assess reliability such as scale composite reliability (SCR) (Bagozzi & Yi 1988) and average variance extracted (AVE) (Fornell & Larcker 1981) reached acceptable values for all dimensions considering the newness of the scales. We also assessed the IMIC scale validity to demonstrate its capacity for measuring unique dimensions of the IMIC concept, that is to say, convergent and discriminant validity, obtaining satisfactory results (see the details of the analyses in the Appendix).

Prior to addressing nomological validity, the latent structure of the IMIC scale was examined. A reflective second-order factor model was tested to assess the specific multidimensional structure being suggested. Table 2 reports the results of the structural model estimation.

[Insert Table 2 about here]

The model produced a good fit to the data and explained a significant proportion of the variance that is accounted by IMIC for each dimension especially considering the novelty of the proposal. This model is preferred to the four-factor model without the higher order factor previously estimated ( $\Delta\chi^2=1.79$ ,  $df=2$ ,  $p=0.49$ ). As results showed, all the integrative processes significantly represent first-order dimensions of the

reflective higher-order construct IMIC ( $p < 0.001$ ), so they are each strong manifestations of IMIC.

To assess the nomological validity of the IMIC scale, we propose that IMIC should be positively related to the employee's capacity to assimilate market knowledge and the shared interpretation of information. In this research, we draw on the individual dimension of 'knowledge absorptive capacity' (Cohen & Levinthal 1990; Matusik & Heeley 2005) to define employee's capacity to assimilate market knowledge as the ability of an employee to analyse, process, interpret, and comprehend market information in terms of recognising new demands, shifts in markets, and/or new opportunities for the firm (cf. Jansen *et al.* 2005). Shared interpretation is defined here as a consensus on the meaning of market information and its implications for the business (e.g. Day 1994; Slater & Narver 1995). Theory does not explicitly refer to IMIC as conceptualised in this paper. Thus, because this concept invokes strategic processes to enhance dissemination effectiveness, we based our arguments to support the proposed relationships on the impact that an effective dissemination has on employees information processing.

Firstly, Cohen and Levinthal (1990) stressed the relevance of a well-structured internal communication for individuals to absorb new external knowledge, so it is expected that when firms implement processes that facilitate communicating new knowledge to employees, the likelihood that these individuals assimilate this knowledge will increase. Only if internal communication leads to improved knowledge dissemination, the assimilation capacity will be enhanced (Daghfous 2004). Thus, it seems reasonable to think that IMIC may lead to the enhancement of employees' assimilation capacity. The second assumption is that effective dissemination of market knowledge is a critical antecedent for a shared interpretation to occur (Sinkula 1994;



Slater & Narver 1995). If internal communication mechanisms are improved like when firms actively integrate market information-related communication, firm members can better share individual interpretations of this information, making consensus development more efficient (e.g. Tippins & Sohi 2003).

We used structural equation modeling to examine the proposed relationships, after successfully assessing the psychometric properties of the scales designed to measure the model outcomes (see Table 3). As shown in Table 4, the fitness indices suggest that the model fit is satisfactory, and  $R^2$  are relatively strong. We also found positive and significant relationships between IMIC and the predicted outcomes, which evidenced the nomological validity of the IMIC scale. All correlations between each IMIC dimension with the outcomes were strong, positive, and highly significant (minimum  $t$ -value = 6.50), which highlighted this validity. Assimilation capacity is more correlated with differentiated internal communications ( $r=0.61$ ) and shared interpretation with unified internal communications ( $r=0.54$ ).

[Insert Table 3 about here]

[Insert Table 4 about here]

## **Discussion**

### ***Summary***

In this research we have explored the notion of IMIC as an emergent concept which represents the underlying framework upon which firms build the integrative communication processes managed to promote employees' processing of market information. After carrying out a theoretical and qualitative analysis, we stated that IMIC implies unified internal communications to enhance consistency, integrated technologies for internal market information provision, differentiated internal

communications, and relationship fostering communications with employees. By developing a multidimensional scale, we empirically confirmed that these dimensions are solid manifestations of the concept.

### ***Theoretical implications***

This study is expected to contribute to previous research in many ways. Firstly, one of the main contributions of the IMIC scale is overcoming the limited nature of previous measures of market information dissemination based on the use of information-sharing activities. In this respect, our construct captures processes that firms develop to effectively manage market information, so researchers must be guarded in considering the proposed measurement to avoid inaccuracy in the representation of the content domain of the construct. Secondly, the psychometric properties reveal that the IMIC scale can be valuable for academic research in market orientation and managerial activities. The availability of such a multidimensional scale should facilitate future research on top-down communication processes used to encourage market-oriented cognitions (e.g. acquisition and use of market information) in the firm. Thirdly, our findings showed empirical support to the theoretical relationship between internal communication and absorptive capacity (Cohen & Levinthal 1990) by concluding that IMIC facilitates the ability of employees to assimilate external information. Also, IMIC is positively associated to shared interpretation and, specifically, unified internal communication is the dimension more correlated with this variable. The rationale for the latter result may be traced to the process of sense making (Weick 1995). As people tend to make sense of the information they receive in various different ways, the coordination of communication activities to transmit consistent market information and coherent values to organisational members will be related to a reduction of equivocality.

### ***Managerial implications***

Our findings also have valuable managerial implications. Firstly, confirming the existence of four IMIC dimensions provides a better insight of the specific strategic applications needed to promote the development of market-oriented competencies, especially consumer understanding and new product development. In this sense, firms should be concerned about all these integrated processes rather than one mechanism or information-sharing activity in particular.

Secondly, this research could be especially critical in companies with information management problems, such as the dispersal of information, information overload, redundancy, or inconsistency, as the processes reflected by IMIC might help to mitigate these obstacles. Indeed, companies with a large market knowledge base may benefit from IMIC in managing such a volume of information, since processes such as differentiated internal communications could facilitate minimising overload or redundancy, and integrated information technology may reduce the dispersal of this amount of information. Also, firms should apply IMIC-related processes because they ensure that employees adequately assimilate market information and reach a common understanding of it. Given all these positive associations, managers should prevail over organisational barriers that could constrain IMIC implementation and development.

Thirdly, a useful outcome to practitioners is that our measure of IMIC gives guidance on investment in and the development of the specific IMIC-related processes. Firms could evaluate existing market information dissemination policy by using the proposed measurement scale with the goal of ascertaining whether their approach is complete. In fact, IMIC measure can serve to establish a baseline for managing dissemination. Subsequently, it should be employed as a diagnostic tool to stress shortcomings that demand changes on the process of market information dissemination, and should also be used to assess the potential effects of the integrative processes on

individual's information processing and innovation performance, or to establish target levels of IMIC practice based on strategic objectives. For instance, one potential application of IMIC scale is to determine the relative importance of the four processes in influencing employee's perceived capacity to process market knowledge in order to track which one has more impact, or in solving information management problems in cases of firms with a large knowledge base.

### ***Limitations and directions for future research***

There are several limitations inherent to our study, which drive future research. Although the empirical results are consistent with the theoretical reasoning, cross-validation would be desirable because there is always the possibility that one has capitalised on chance (Terblanche & Boshoff 2008). Thus, to make the claim that our instrument is performing in a valid manner, replication studies must be developed (Flynn & Percy 2001) in other types of organisations (e.g. services firms) and cultural settings. Until then, results should be interpreted cautiously and considered tentative. However, our attempt makes possible the availability of such a multidimensional scale which should encourage future research on market information dissemination from a more holistic perspective.

Despite the fact that our measurement analysis indicates reliable and valid measures, it is a limitation that all measures are based on data reported by a single respondent in each firm. In this respect, it is necessary to keep in mind that the respondents were the most knowledgeable in each firm about the topic, but it would be recommendable to include other respondents that permit an organisation-wide perspective. For instance, an argument can be made that assimilation capacity is best assessed by employees. Still, from a practical point of view, this was not feasible because many companies limited the access to these potential respondents.

Another fruitful research opportunity concerns the study of relationships between IMIC and other variables. For example, in line with the previous observation, it would be beneficial to determine the impact of IMIC on employees' processing capacities by monitoring them directly. It may also be interesting to investigate the effects of contingency variables such as organisational structure variables or organisational members' resistance to change on IMIC implementation, in order to study in depth possible barriers that hinder its development and acceptance within the firm. Another direction is the empirical investigation about the role of IMIC to cope with communication problems such as information overload.

### **Conclusions**

The IMIC concept does hold promise as one formula that assists to configure the process of market information dissemination in firms. Our conceptualisation and measure of IMIC offer a means to investigate this potential. This paper especially provides guidance to market-oriented firms that pursue bettering employee's market information processing, by emphasising the need for integrating market-related internal communication. In an increasingly competitive world, this is particularly relevant given that market information must cut across all functional areas and effective dissemination is crucial to enhance product innovation performance. To gain an insight into how to take advantage of IMIC, practitioners should develop the proposed four different processes making up the construct. A valuable contribution of this research is that the IMIC measure can be used as an indicative lead indicator of the effective application of these processes and, thus, it allows evaluating the quality of market information dissemination and may also help to respecify this component of a market orientation.

## Appendix

### *Sample profile and preliminary data assessment*

#### *Position*

Human resource managers (43.1%); internal communication managers (22.3%); marketing managers (13.7%); others, e.g., general managers (20.9%).

#### *Industry*

Food (24.2%); chemicals and plastics (24.6%); construction materials (25.1%); machinery equipment (14.7%); electrical equipment (9.5%); transportation (1.9%).

#### *Data assessment*

Analysis of variance and *post hoc* Tukey multiple comparison tests revealed no statistically significant differences on the mean responses on any of the key variables in this study across respondents. To check for non-response bias, we compared the early and the late respondents on demographic (i.e., number of employees, sales volume, and sector) and model variables (Armstrong & Overton 1977). The *t*-tests yielded no statistically significant differences on any variable, so non-response bias was not a significant problem in the study.

#### ***Model comparison (one-factor model vs. four-factor model for the IMIC concept)***

The one-factor solution was found to provide a poorer fit for the data than the four-factor solution ( $\chi^2=434.79$ ,  $df=77$ ,  $p=0.0$ ; GFI=0.76; NNFI=0.89; CFI=0.91; RMSEA=0.16; SRMR=0.083;  $\chi^2/df=5.64$ ). This compared solution also serves to demonstrate that common method variance does not represent a problem in the data ( $\Delta\chi^2=313.44$ ,  $df=6$ ,  $p<0.001$ ).

#### ***Scale validity***

##### *Evidence of convergent validity*

The factor loadings of the items were found to be highly significant (the lowest  $t$  is 6.59) on their corresponding dimensions (Bagozzi & Yi 1988; Bollen 1989) (see Table 1).

*Evidence of discriminant validity*

(i) As we showed, forcing the items to measure IMIC onto a unique dimension lead to a significant deterioration of the model fit and thus a four-factor solution is better.

(ii) No confidence intervals of the correlations between any of the latent indicators included 1.0 (Anderson & Gerbing 1988).

(iii) In six additional confirmatory factor analyses separately constraining two subconstructs' correlations to 1.0, the resultant models produced poorer fits ( $\Delta\chi^2$  increases with 1 additional  $df$ ,  $p < 0.001$ ) (Anderson & Gerbing 1988).

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**Table 1. IMIC final CFA results**

<b>Dimensions and items*</b>	<b>Completely standardised loadings (<math>\lambda</math>)</b>	<b>t-values</b>	<b>Reliability (SCR<sup>a</sup>, AVE<sup>b</sup>, <math>\alpha^c</math>)</b>
<p><i>Unified internal communications to enhance consistency</i></p> <ul style="list-style-type: none"> <li>– Our company coordinates internal communication channels and tools to transmit clear and consistent market information to employees.</li> <li>– Our company communicates and/or sells a consistent vision and solid market-oriented values throughout the firm.</li> <li>– Our company strategically controls that market information transmitted through different media is not contradictory or incongruent.</li> </ul>	0.58	8.88	SCR=0.83 AVE=0.62 $\alpha$ =0.81
	0.95	16.99	
	0.86	14.69	
<p><i>Integrated technologies for internal market information provision</i></p> <ul style="list-style-type: none"> <li>– Our information technologies are designed and managed to route new or stored market information to the appropriate employees and induce them to use it.</li> <li>– Our company combines the available information technologies to facilitate access to market information and achieve a synergistic information distribution.</li> <li>– Our company uses information technology (e.g. shared databases, e-mail, intranet) to provide or distribute market information to employees at the time it is needed.</li> <li>– Our company integrates market information collected or generated from different areas, divisions or external sources into shared databases.</li> </ul>	0.77	12.51	SCR=0.81 AVE=0.52 $\alpha$ =0.81
	0.70	10.89	
	0.82	13.68	
	0.59	8.87	
<p><i>Differentiated internal communications</i></p> <ul style="list-style-type: none"> <li>– Our company distributes market information solely to where and when it is needed based on employees' specific roles and/or tasks.</li> <li>– Market information is customised to adapt to employees' specific roles and/or tasks (e.g. by using several versions of a report).</li> <li>– Our company employs the internal communication tools and channels that are most suitable and preferred by employees to receive market information.</li> </ul>	0.80	12.97	SCR=0.71 AVE=0.45 $\alpha$ =0.70
	0.46	6.59	
	0.77	12.25	
<p><i>Relationship fostering communications with employees</i></p> <ul style="list-style-type: none"> <li>– Our market-related internal communication activities help to strengthen the relationship with our employees.</li> <li>– Our company uses relationship management skills to ensure employees view the firm as actively engaged in market information dissemination.</li> <li>– Our internal communications strategy generates market-oriented cognitions by enhancing employees' satisfaction with market information received and the dissemination process carried out.</li> <li>– Our company maintains a unified and continuous strategic pattern of market-related internal communication that solidifies long-term relationships with employees.</li> </ul>	0.79	13.37	SCR=0.90 AVE=0.70 $\alpha$ =0.90
	0.85	15.03	
	0.86	15.38	
	0.87	15.58	

Goodness of fit statistics:  $\chi^2=121.35$ ,  $df=71$ ,  $p=0.00019$ ; GFI=0.92; NNFI=0.98; CFI=0.99; RMSEA=0.058; SRMR=0.052;  $\chi^2/df=1.71$

\* 7-point scale ranging from “Strongly disagree” (1) to “Strongly agree” (7) with no verbal labels for the intermediate scale points accompanied each statement. The statements were randomly positioned on the final survey instrument.

<sup>a</sup> Scale composite reliability; <sup>b</sup> Average variance extracted; <sup>c</sup> Cronbach's alpha

**Table 2. Second-order model results**

Dimensions	Completely standardised coefficients ( $\gamma$ )	t-values	R <sup>2</sup>
Unified internal communications to enhance consistency	0.66	6.88	0.43
Integrated technologies for internal market information provision	0.81	9.95	0.66
Differentiated internal communications	0.96	6.48	0.92
Relationship fostering communication with employees	0.87	11.25	0.77

Goodness of fit statistics:  $\chi^2=123.14$ ,  $df=73$ ,  $p=0.00022$ ; GFI=0.92; NNFI=0.98; CFI=0.99; RMSEA=0.057;  $\chi^2/df=1.68$

**Table 3. CFA results for model outcomes**

Predicted outcomes and items*	Completely standardised loadings ( $\lambda$ )	t-values	Reliability (SCR <sup>a</sup> , AVE <sup>b</sup> , $\alpha^c$ )
<i>Employees' capacity to assimilate market knowledge (adapted from Jansen et al. 2005)</i>			SCR=0.88 AVE=0.70 $\alpha=0.87$
– Our employees quickly recognise shifts in market from the information distributed to them.	0.78	12.99	
– New opportunities to serve our clients are quickly understood by our employees from the information distributed to them.	0.89	15.75	
– Our employees quickly analyse and interpret changing market demands from the information distributed to them.	0.84	14.54	
<i>Shared interpretation of market information (adapted from Tippins &amp; Sohi 2003; Hult et al. 2005)</i>			SCR=0.90 AVE=0.69 $\alpha=0.90$
– Our employees develop a shared understanding in our organisation of the available market information.	0.82	14.08	
– Our employees develop a shared understanding in our organisation of the implications of market information for our business.	0.82	14.12	
– When faced with new market information, our employees usually agree on how the information will impact our firm.	0.86	15.10	
– Our employees tend to be on the same page when it comes to interpreting market information (e.g. the needs of our customers).	0.83	14.48	

Goodness of fit statistics:  $\chi^2=305.45$ ,  $df=174$ ,  $p=0.00$ ; GFI=0.88; NNFI=0.98; CFI=0.98; RMSEA=0.057; SRMR=0.051;  $\chi^2/df=1.75$

\* 7-point scale ranging from “Strongly disagree” (1) to “Strongly agree” (7) with no verbal labels for the intermediate scale points accompanied each statement.

<sup>a</sup> Scale composite reliability; <sup>b</sup> Average variance extracted; <sup>c</sup> Cronbach's alpha

**Table 4. Structural model results: Relationships of IMIC to outcomes**

Model outcomes	Completely standardised coefficients ( $\gamma$ )	t-values	R <sup>2</sup>
Employees' capacity to assimilate market knowledge	0.67	8.65	0.45
Shared interpretation of market information	0.62	8.21	0.39

Goodness of fit statistics:  $\chi^2=347.74$ ,  $df=183$ ,  $p=0.00$ ; GFI=0.87; NNFI=0.98; CFI=0.98; RMSEA=0.060;  $\chi^2/df=1.90$