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The Impact of Organizational Values on the Effectiveness of Market-oriented Behaviors

Seán Meehan, Patrick Barwise, Mark Vandenbosch, and Willem Smit

Market sensing is only one part of effective market orientation. For improved business performance, managers should recognize the pivotal roles of organizational values and coordination across functions.

Report Summary

Some companies are better than others at sensing the market and responding to customers' needs. What types of companies are they? How can managers mimic their successful business performance?

Here, the authors decompose the effect of companies' market-oriented values and behaviors on business performance. They hypothesize that market-oriented behaviors have two complementary roles: (1) understanding the market, and (2) exploiting this understanding to deliver superior customer value. They explore the relationships among market-oriented behaviors, market-oriented values, and business performance. Drawing on previous research, they develop an integrated model of market-oriented behaviors and values and, using a two-step methodology, test it on a sample of senior executives at 430 U.K. firms.

They first analyze the relationships between market sensing (customer and competitor orientation), interfunctional coordination, and performance. They then include the effects of organizational behavior and values. The results support the view that interfunctional coordination mediates, rather than moderates, the relationship between market sensing and performance. The results for organizational values suggest that market-oriented (MO) cultures improve performance not only by encouraging MO behaviors but also by moderating the impact of those behaviors on performance.

In line with previous research, the authors find that companies that operate as adhocracies (which emphasize innovation, risk taking, and adaptability) tend to outperform hierarchies (which stress formal rules, structures, and processes). They also find that MO behaviors do not significantly enhance the performance of firms or "clans" that are internally focused and emphasize cohesiveness, participation, loyalty, and tradition. Among adhocracies, MO behaviors enhance performance only if there is also adequate attention to internal coordination. If the company is a hierarchy or a clan, investing to enhance MO behaviors—like increasing the budget for market research—is likely to be ineffective.

Overall, the results show that market sensing is only one part of effective market orientation. To turn customer and competitor insights into improved business performance, managers should recognize the pivotal roles of both organizational values and interfunctional coordination. ■

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Introduction

Research on market orientation comprises two main streams. The *behavioral stream* attributes higher firm performance to behaviors that generate, disseminate, and use information about customers and competitors (Narver and Slater 1990; Jaworksi and Kohli 1993). The *cultural stream* argues that all behaviors stem from underlying organizational values and that cultures that consistently encourage external orientation and responsiveness lead to increased customer value and, thus, firm performance (Deshpandé, Farley, and Webster 1993; Deshpandé and Farley 2004). Gebhardt, Carpenter, and Sherry's (2006) longitudinal study of seven organizations' evolution toward a market orientation highlights the essential role of organizational values. It describes how early management actions identified the required values and then rewarded behaviors aligned to them.

Other qualitative studies (Kennedy, Goolsby, and Arnould 2003; Day 2005) also underline the importance of creating a supportive culture. In transforming a firm into a market-oriented one, "[the] firm's culture can either give or deny permission" (Day 2005, p. 15). This so-called cultural imperative suggests that when market-oriented (MO) values and behaviors correspond, they reinforce each others' effectiveness. However, within the marketing orientation literature, the cultural-fit assumption has never been tested on a large scale.

In this paper, we examine the alignment of MO behaviors and values via an integrative model that brings together the two dominant streams of previous research on marketing orientation. We first briefly review the two research streams. Next, we propose our integrated model of how organizational values moderate the effectiveness of MO behaviors. We then present our methodology, data, analysis, and results. We conclude with a brief discussion of the results and their managerial implications.

Two Streams of Research on Marketing Orientation

Table 1 gives an overview of previous empirical studies on marketing orientation. Most have looked at the effect of either aggregate MO behaviors or values. Some also examine the separate effects of specific MO behaviors and their moderating or mediating effects.

Following Jaworski and Kohli (1996) and Homburg and Pflesser (2000), we distinguish two research streams. The *behavior stream* measures specific MO behaviors, mostly concerned with market sensing and integrating information about the market into the organization. Within this stream, Jaworksi and Kohli (1993) look at intelligence generation, disseminating information, and responsiveness, while Narver and Slater (1990) examine customer and competitor orientations and interfunctional coordination (IFC). Many recent studies find that specific MO behaviors have separate effects (Hult, Ketchen, and Slater 2005; Olson, Slater, and Hult 2005; Auh and Menguc 2005; Atuahene-Gima 2005; Im and Workman 2004; Frambach, Prabhu, and Verhallen 2003; Voss and Voss 2000; Han, Kim, and Srivastava 1998; Greenley and Foxall 1998; Gatignon and Xuereb 1997). There is no consensus, however, on whether interfunctional coordination mediates or moderates the effects of market sensing on performance. This is the first gap we address in this paper, hypothesizing and testing two alternative causal structures of specific MO behaviors.

The *cultural stream* of research explores the values underlying market orientation. Deshpandé, Farley, and Webster (1993) regard customer orientation and market orientation as synonymous and define it as "the set of *beliefs* that put the customers' interests first, while not excluding those of all other stakeholders such as owners, managers, and employees, in order to develop a long-term profitable enterprise" (p. 27). Studies in this stream suggest a consistent pattern across

Table 1
Overview of Research Streams in Market Orientation

	Market-oriented Behaviors				Market-oriented Culture	Research Scope		
	Sensing the marketplace*	Integrating information into organization**	Analysis level on separate behaviors	Interplay among different behaviors	Organizational values	Antecedents	Consequences	Type of consequences
MO behaviors								
Narver and Slater (1990)	ORN	IFC	—	—	—	—	Yes	Performance
Jaworski and Kohli (1993)	IG	D&R	—	—	—	Yes	Yes	Performance, organizational commitment
Slater and Narver (1994)	ORN	IFC	—	Relative sensing	—	—	Yes	Performance
Pelham and Wilson (1996)	ORN	IFC	—	—	—	Yes	Yes	Quality, new product success, performance
Gatignon and Xuereb (1997)	ORN	IFC	Yes	Moderating	—	—	Yes	Innovation
Greenley and Foxall (1998)	ORN	—	Yes	—	—	—	Yes	New product success, performance
Siguaw, Simpson, and Baker (1998)	IG	D&R	—	—	—	—	Yes	Trust, satisfaction channel member
Han, Kim, and Srivastava (1998)	ORN	IFC	Yes	—	—	Yes	Yes	Innovation types, performance
Baker and Sinkula (1999)	IG	D&R	—	—	—	—	Yes	New product success, performance
Matsuno and Mentzer (2000)	IG	D&R	—	—	—	Yes	Yes	Performance
Voss and Voss (2000)	ORN	IFC	Yes	Moderating	—	—	Yes	Performance
Lukas and Ferrell (2000)	ORN	IFC	—	—	—	—	Yes	Innovation type
Matsuno, Mentzer, and Özsomer (2002)	IG	D&R	—	—	—	Yes	Yes	Performance

continued on next page

Table 1
Continued

	Market-oriented Behaviors				Market-oriented Culture	Research Scope		
	Sensing the marketplace*	Integrating information into organization**	Analysis level on separate behaviors	Interplay among different behaviors	Organizational values	Antecedents	Consequences	Type of consequences
Frambach, Prabhu, and Verhallen (2003)	ORN	—	Yes	Moderating	—	Yes	Yes activity	New product
Sandvik and Sandvik (2003)	IG	D&R	—	—	—	—	Yes	Innovation, performance
Im and Workman (2004)	ORN	IFC	Yes	—	—	—	Yes	Creativity, performance
Kyriakopoulos and Moorman (2004)	IG	D&R	—	—	—	—	Yes	New product performance
Atuahene-Gima (2005)	ORN	IFC	Yes	Moderating	—	—	Yes	Exploitation/ exploration, innovation
Auh and Menguc (2005)	ORN	IFC	Yes	Moderating	—	Yes	—	—
Zheng Zhou, Yim, and Tse (2005)	ORN	IFC	—	—	—	—	Yes	Learning, innovation, performance
Olson, Slater, and Hult (2005)	ORN	—	Yes	—	—	—	Yes	Performance
Hult, Ketchen, and Slater (2005)	ORN, IG	D&R, IFC	Yes	Mediating	—	—	Yes	Performance
MO values								
Deshpandé, Farley, and Webster (1993)	—	—	—	—	Yes	Yes	Yes	Innovativeness
Deshpandé, Farley, and Webster (2000)	—	—	—	—	Yes	Yes	Yes	Innovativeness, performance
Liu, Luo, and Shi (2002)	—	—	—	—	Yes	—	Yes	Market program dynamism
Despandé, and Farley (2004)	—	—	—	—	Yes	—	Yes	Innovativeness, performance
Integrated studies								
Moorman (1995)	IG	D&R	Yes	—	Yes	Yes	Yes	New product outcomes

continued

Table 1
Continued

	Market-oriented Behaviors				Market-oriented Culture	Research Scope		
	Sensing the marketplace*	Integrating information into organization**	Analysis level on separate behaviors	Interplay among different behaviors	Organizational values	Antecedents	Consequences	Type of consequences
Homburg and Pflesser (2000)	IG	D&R	—	—	Yes***	Yes	Yes	Market and financial performance
This study	ORN	IFC	Yes	Moderating Mediating	Yes	Yes	Yes	Performance

*Market sensing behaviors are either operationalized as intelligence generation activities (IG) (cf. Jaworski and Kohli 1993) or as activities which are labeled customer orientation and competitor orientation (ORN) (cf. Narver and Slater 1990); **Behaviors confined to integrating the obtained information into the organization are operationalized either as information dissemination and organizational responsiveness (D&R) (cf. Jaworski and Kohli 1993) or as interfunctional coordination (IFC) (cf. Narver and Slater 1990); ***In this study a specific set of market-oriented values was measured; the other studies look at the influence of more general cultural values of the organization.

national cultures: more externally oriented (competitive, entrepreneurial) organizational values stimulate MO behaviors and performance, while internally oriented (bureaucratic, consensual) values tend to reduce performance (Deshpandé and Farley 2004).

Each stream represents important aspects of market orientation. However, two previous studies have developed a broader approach combining the two streams. Moorman (1995) examined organizational information processes, their cultural antecedents, and their effect on new product outcomes. Her results suggest that exploiting market information requires trust and commitment among organizational members and thus relies on the internal organizational culture. Homburg and Pflesser (2000) explored the influence of various manifestations of cultural values on MO behavior, e.g., how artifacts (stories, rituals, language) trigger the firm's ability to process market information. While these two studies have looked at MO values as *antecedents* of MO behaviors, to study the cultural fit of marketing orientation we also explore the possible *moderating* effects of values on the relationship between that orientation and performance.

In general, less attention has been paid to the antecedents than to the consequences of MO behaviors (cf. Kirca, Jayachandran, and Bearden 2005; Cano Rodriguez, Carrillat, and Jaramillo 2004). Researchers have, however, explored three sets of antecedents: top management, interdepartmental dynamics, and formal systems such as market-based rewards, centralization, and MO training. But perhaps these antecedents are themselves reflections of the underlying culture? This concerns the second gap we address: the fit between a market orientation and organizational culture. Most studies of contingency factors moderating the performance effect of a market orientation have focused on external factors: market and technological turbulence and competitive intensity. The moderating effects of internal organizational factors (e.g., top management emphasis, interdepartmental relationships, organizational systems) on the effectiveness of market orientation have not been investigated except for Olson, Slater, and Hult's (2005) study of the moderating effect of business

strategy. We develop and test a model hypothesizing the influence of organizational culture on the effectiveness of MO behaviors.

Our overall aim is to decompose the effect of MO values and behaviors on business performance. We argue that the aggregate performance effect of market orientation has two different aspects: (1) the causal relationship between the MO behaviors and their combined effect on performance, and (2) how this effect is influenced by the organization's cultural values.

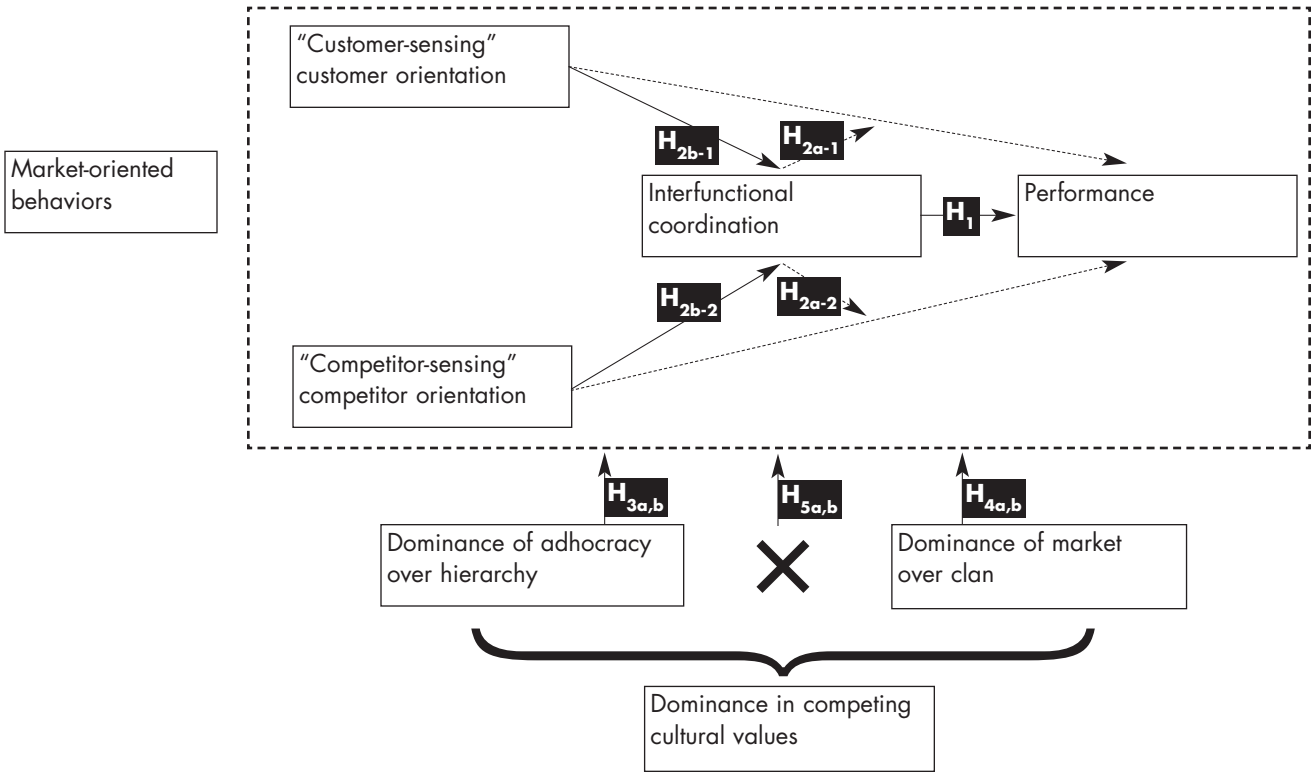
Research Model

Our integrated model hypothesizes (1) the interrelationships between the different MO behaviors and their effects on performance and (2) how these relationships are moderated by organizational values (see Figure 1).

The causal structure of MO behaviors

Our first aim is to clarify the relationships among customer orientation, competitor orientation, interfunctional coordination, and performance. Following Day's (1994) distinction between "market sensing" and "market relating," we hypothesize that MO behaviors have two complementary roles: (1) understanding the market, and (2) exploiting this understanding to deliver superior customer value. In line with this hypothesis, Voss and Voss (2000), Atuahene-Gima (2005), Auh and Menguc (2005) and Hult, Ketchen, and Slater (2005) all find that market sensing and the integration and use of market information have complementary roles in enhancing business performance. Market sensing creates favorable conditions for becoming market-oriented by providing information about customer needs and competitors' value propositions. The extent of market sensing can be indicated by the amount of intelligence gener-

Figure 1
Research Model: Effectiveness of Market-oriented Behaviors Moderated by Organization Cultural Values



ation (Kohli and Jaworski 1990) or by the degree to which firms are oriented toward their customers and competitors (Narver and Slater 1990).

The second role of MO behaviors is to integrate and exploit the information acquired by market sensing. The main activity here is interfunctional coordination (IFC) (Voss and Voss 2000). The role of information dissemination, responsiveness (Jaworski and Kohli 1993), and IFC (Narver and Slater 1990) is quite distinct from that of market sensing. Previous studies have found that such coordination promotes creativity in marketing and product innovation (Im and Workman 2004); increases the introduction of line extensions and reduces the number of me-too products (Lukas and Ferrell 2000); stimulates administrative innovations, especially in more turbulent environments (Han, Kim, and Srivastava 1998); and advances superior market learning and performance (Luo, Slotegraaf, and Pan 2006; Maltz and Kohli 1996).

Causal Structures. Thus far, two main perspectives about the complementary causal structures of MO behaviors have been empirically tested. The first assumes that interfunctional coordination has a *moderating* influence on the relationships between market sensing and performance (Gatignon and Xuereb 1997; Voss and Voss 2000; Atuahene-Gima 2005). Here, more coordination between functions and departments within the firm strengthens the positive influence of customer and competitor orientations on exploration and exploitation competences (Atuahene-Gima 2005) and enhances the impact of these external orientations on successful innovation (Gatignon and Xuereb 1997).

The second perspective assumes that the effect of customer and competitor orientation is *mediated* by interfunctional coordination. This view is similar to Day's (1994) notion of "market learning," where market-sensing precedes market-relating or customer-linking activities. Similarly, Achrol and Kotler (1999) argue that "*a firm's future adaptive capacity is seriously endangered. . . "* (p. 148) when coordination is weak. On this view, customer and competitive sensing are knowledge-creating activities feeding the coordination with market insights in order to be effective. Hult, Ketchen, and Slater (2005) found empirical evidence of this type of mediating causal structure. By looking at how organizational responsiveness carries the effect of MO and learning orientation, their results suggest an essential role for interfunctional coordination in exploiting market knowledge.

Both perspectives assume that interfunctional coordination has a positive effect on performance. Hence, we hypothesize that:

H1: The greater a firm's interfunctional coordination, the stronger its overall performance.

The two perspectives disagree on whether market sensing directly influences performance. We therefore hypothesize two alternative causal structures. For coordination to have a *moderating* influence, we hypothesize:

H2a-1: The greater a firm's interfunctional coordination, the greater the positive effect of its customer orientation on performance.

H2a-2: The greater a firm's interfunctional coordination, the greater the positive effect of its competitor orientation on performance.

For IFC to have a *mediating* influence, we hypothesize:

H2b-1: The positive effect of customer orientation on performance is mediated by the degree of the firm's interfunctional coordination.

H2b-2: The positive effect of competitor orientation on performance is mediated by the degree of the firm's interfunctional coordination.

Table 2
Progress of Insights into the Organizational Culture-Performance (OC-P) Relationship

Stages in Insight into OC → P link	Organizational Culture Literature	Marketing Orientation Literature
1. Identification of OC-P effect (OC → P) (whatever values and norms as long as they are strong and widely shared)	"Strong culture" (Peters and Waterman 1982; Deal and Kennedy 1982; Sørensen 2002), consistency (Denison 1990), cultural intensity and homogeneity (Calori and Sarnin 1991)	n.a.
2. OC-P effect depends on type of values (OC → P)	Adaptability, involvement, and mission (Denison and Mishra 1995), adaptability (Gordon and DiTomaso 1992).	Deshpandé, Farley, and Webster (1993)
3. OC-P effect is mediated by behaviors (OC → B → P)	Alignment can help performance, but only if the resulting actions fit an intelligent business strategy for the specific environment in which the firm operates. (Kotter and Heskett 1992; Marcoulides and Heck 1993)	Moorman (1995) Pelham and Wilson (1996) Homburg and Pflesser (2000) Kennedy, Lassk, and Goolsby (2002) Wei and Morgan (2004)
4. OC-P effect is completed by a moderator of the relationship between behavior and performance (OC × B → P)	Compatibility of information systems with organizational cultural values (e.g. Cooper 1994; Jones, Jimmieson, and Griffiths 2005)	This study

Moderating effects of organizational values on the effectiveness of MO behaviors

Our second aim is to explore how organizational values influence MO behaviors and their impact on performance. Organizational culture is "the pattern of basic assumptions that was learned by [the organization] as it solved its problems of *external adaptation* and *internal integration* that has worked well enough to be considered valid, and therefore to be taught to new members as the correct way to perceive, think and feel in relation to those problems" (Schein 2004, p. 17). We can argue that the adoption of the marketing concept (i.e., becoming more market-oriented) is a particular form of such problem-solving behavior, with an emphasis on encouraging the organization to adapt to the external market. Little is known, however, about the relationship between specific MO behaviors and cultural values. Day (1994; 2005) argued that the effectiveness of such behaviors relies on cultural support. Recent qualitative studies (Kennedy, Goolsby, and Arnould 2003; Gebhardt, Carpenter, and Sherry 2006) illustrate the cultural imperative, which was emphasized earlier by Deshpandé, Farley, and Webster's (1993) observation that Narver and Slater's (1990) and Kohli and Jaworski's (1990): ". . . simple focus on information about the needs of actual and potential customers is inadequate without consideration of the more deeply rooted set of values and beliefs that are likely to consistently reinforce such a customer focus and pervade the organization" (p. 27).

Table 2 summarizes the evolution of research into the mechanism through which organizational culture (*OC*) influences performance (*P*).

The so-called "strong culture" hypothesis has attracted much interest (e.g., Peters and Waterman 1982; Deal and Kennedy 1982; Denison 1984; Sørensen 2002). In particular, cultural intensity and homogeneity (Calori and Sarnin 1991) and consistency (Denison 1990; Denision and Mishra 1995) have been found to contribute to superior performance. Having strong, consistent organizational values is not sufficient; however, some values are better than others. Values about stability of

mission and consistency are the best predictors of profitability, while flexibility traits such as adaptability and involvement increase sales growth (Denison and Mishra 1995). In the literature on marketing orientation, the direct influence of culture on performance has been studied by Deshpandé, Farley, and Webster (1993) and Deshpandé and Farley (2004), providing empirical evidence that businesses with externally oriented values tend to enjoy superior performance.

Other research has explored *how* the organizational culture-performance relationship works. The expectation that firms with strong cultures will perform better arises because they can achieve goal alignment and employee engagement using informal structures and controls (Kotter and Heskett 1992). The consistency between values and behaviors is critical, implying an indirect relationship between culture and performance. Generic values, such as risk taking, productivity, and responding quickly to market opportunities, affect performance indirectly because they manifest themselves only through specific everyday behaviors and attitudes (Marcoulides and Heck 1993). Similarly, several studies of marketing orientation assume indirect relationships between culture and performance through MO behaviors. Organizational culture is here seen as a source of sustainable competitive advantage because the ways in which it drives MO behaviors are hard for competitors to copy. Strongly held beliefs and norms about delivering superior customer value are here seen to provide organizational focus and consistency that then result in higher quality, customer satisfaction and loyalty, and profitability. Examples of empirical studies positing this indirect mechanism through behaviors are Moorman (1995), Pelham and Wilson (1996), Homburg and Pflesser (2000), Wei and Morgan (2004), and Kennedy, Lassk, and Goolsby (2002).

Whereas the hypothesized indirect relationship of culture with performance assumes that values and behaviors go hand in hand, it is an empirical question whether performance is lower when values and behaviors are incongruent. Potentially, values can impact performance in two ways: (1) indirectly through MO behaviors and (2) as a moderator through the congruency or fit between values and behaviors. The congruency effect is based on the argument that behaviors are effective performance levers only when they genuinely reflect a firm's core values (Barney 1986).

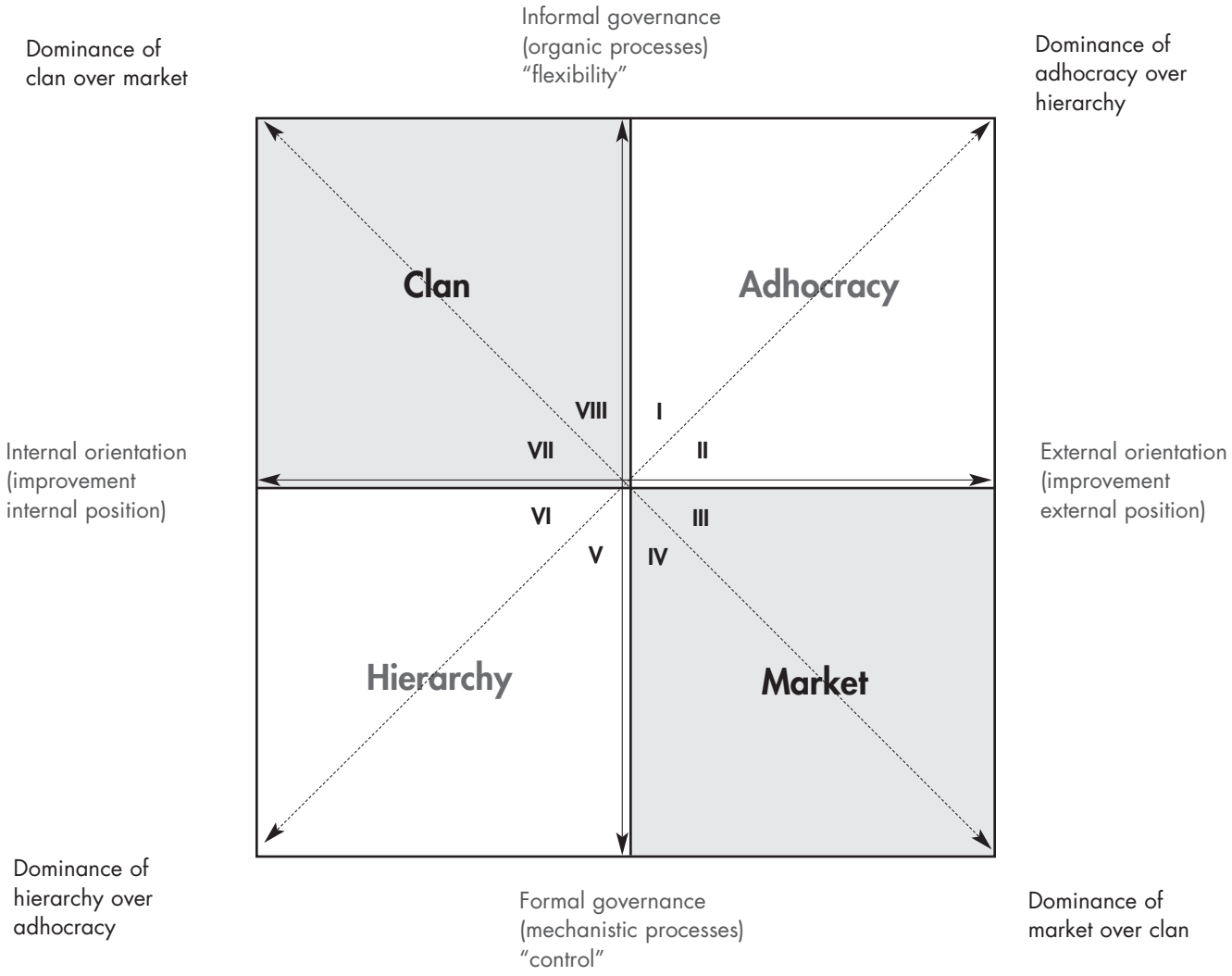
Some support for the congruency effect can be found in the information systems literature (Leidner and Kayworth 2006, p. 368). The evidence shows that firms that implement information systems compatible with their culture are more successful. For instance, Cooper (1994) found that firms with a strong adhocracy culture require systems that focus on the external environment. In contrast, for human-resource information systems, the most successful firms were those in which "clan" values dominated (Jones, Jimmieson, and Griffiths 2005).

We here hypothesize about both the indirect effects of culture and the congruency of values and behaviors. We follow earlier studies that have conceptualized organizational culture as a set of competing values (Quinn and Rohrbaugh 1983; Quinn 1988). Figure 2 shows Quinn and Rohrbaugh's competing values framework. The two axes form a 2x2 classification that identifies four organizational culture types: adhocracy, hierarchy, market, and clan. A cultural type is defined by shared values and beliefs about dominant organizational attributes, leadership styles, bonding mechanisms, and overall emphasis.

The vertical axis (*informal-formal governance*) reflects organizational processes, with a continuum from organic to mechanistic processes. The horizontal axis (*internal-external orientation*) shows a range from emphasis on maintaining the internal sociotechnical system or on improving the firm's external competitive position through innovation and task achievement.

Figure 2

The Competing Values Framework: The Two Dominances in Opposing Value Sets and the Eight Subgroups



Adapted from R. E. Quinn and J. Rohrbaugh (1983), "A Spatial Model of Effectiveness Criteria: Toward a Competing Values Approach to Organizational Analysis." *Management Science* 29 (March), 363-77.

- An *adhocracy* emphasizes innovation, risk taking, and adaptability. Important values are flexibility and tolerance. An adhocracy's effectiveness is defined mainly in terms of finding new opportunities for growth.
- The diametrically competing value system is a *hierarchy*. Hierarchies stress formal rules, structures, and processes. Their leaders excel at coordination and organization. Strategically they emphasize stability, predictability, and smooth, efficient operations.
- *Markets* are task-oriented and emphasize competitive actions and achievements. Leaders in market cultures are achievement-oriented and decisive. They are bonded by task focus and competition.
- In contrast to markets, the values of a *clan* are internally oriented. Clans emphasize people issues such as cohesiveness, participation, loyalty, and tradition. Their leaders are mentors, facilitators, or parent-figures.

In researching the influence of the firm's competing values on the effectiveness of MO behaviors, we focus on the tensions between the two sets of opposing values: adhocracy

(entrepreneurial) versus hierarchy (bureaucratic) and market (competitive) versus clan (consensual). By including in the framework the balance between these two dimensions, we articulate eight different organizational cultures, giving a finer-grained classification than in previous studies. For instance, we distinguish between two types of adhocracy, one with more emphasis on informal governance (I) and the other with more emphasis on external orientation (II). Similarly, there are two types of clan, one with more internal orientation (VII), the other emphasizing informal processes (VIII), etc.

Dominance of Adhocracy over Hierarchy. Adhocracies are dynamic and entrepreneurial, encouraging MO behaviors (Matsuno, Mentzer, and Özsomer 2002) and values (Deshpandé and Farley 2004). Adhocracies are also good at boundary spanning (Quinn 1988) and are relatively customer- and competitor-oriented.

Conversely, hierarchies tend to be more specialized, with routine operating tasks and a proliferation of formal procedures, rules, and communications (Mintzberg 1983). Their emphasis on smoothing processes may discourage market sensing and adaptation to the external environment. Hierarchies are therefore expected to be less customer- and competitor-focused.

Multifunctional teams in adhocracies, and other mechanisms designed to improve interfunctional coordination, have been associated with innovation success by enhancing the speed of response to new market opportunities (Eisenhardt and Tabrizi 1995; Mintzberg 1983).

Communication becomes more cumbersome when the number of organizational layers increases. Hierarchies discourage the generation, communication, and utilization of market information (Deshpandé and Kohli 1989; Jaworski and Kohli 1993; Quinn and Spritzer 1991; Deshpandé and Farley 2004). Hierarchies reward planning, objective setting, and evaluation (Quinn and Rohrbaugh 1983) but are less good at encouraging people to adapt to external market changes; rather they try to ensure smooth, predictable internal processes.

Since we argue that adhocracies value their external links and promote interfunctional coordination more than hierarchies do, we hypothesize that firms in which adhocracy dominates hierarchy are more likely to exhibit MO behaviors. Hence:

H3a: The more a firm's values are dominated by those of an adhocracy rather than a hierarchy, the more it will be:
1. customer-oriented,
2. competitor-oriented, and
3. interfunctionally coordinated.

The impact of organizational values is determined not only by the indirect (mediated) effect of values through behaviors on performance, but also by the congruency (moderating) effect of the fit between values and behaviors. We expect MO behaviors to encounter a more supportive climate in adhocracies than in hierarchies. Hence:

H3b: The dominance of adhocracy-like values over hierarchy values:
1. strengthens the positive effect of customer orientation on interfunctional coordination,
2. strengthens the positive effect of competitor orientation on interfunctional coordination,
3. strengthens the positive effect of interfunctional coordination on performance.

Dominance of Market over Clan. Markets' emphasis on goal achievement manifests itself in the markets' concern for achieving competitive position (Deshpandé, Farley, and Webster 1993). We hypothesize that this is likely to drive market sensing to inform the development of a competitive market offering. Markets are therefore expected to be relatively customer- and competitor-oriented. Denison

and Spritzer (1991) and Moorman (1995) have argued that information use will also be heightened when market values are strongly held. Markets are therefore also likely to emphasize interfunctional coordination.

As for clans, empirical studies report mixed findings. Deshpandé and Farley (2004) found that clans tend to be less inclined to adopt a market orientation. Despite their internal orientation, however, clans are characterized by "tremendous energy and willingness to adapt" (Ouchi and Wilkins 1985, p. 479). Clans are the most information-intensive culture type and are especially good at transmitting and utilizing information (Moorman 1995). This stems from their high levels of trust, teamwork, and mutual support (Moorman, Zaltman, and Deshpandé 1992; Ouchi 1980; Zammuto and Krakower 1991). We therefore hypothesize that clans have a positive effect on interfunctional coordination, but a negative effect on customer and competitor orientation.

Since we argue that markets and clans are both positively associated with interfunctional coordination, we do not expect a dominance of market over clan to be associated with the extent of such coordination. We do, however, expect that firms in which market values dominate clan values will be more customer- and competitor-oriented. Hence:

H4a: The more a firm's values are dominated by those of a market rather than a clan, the more it will be:
1. customer-oriented and
2. competitor-oriented.

We also look at the *moderating* effects of the market–clan value dominance. Since markets and clans both promote interfunctional coordination, we do not expect dominance of market over clan to impact the effectiveness of coordination on performance. We do, however, expect a difference in the effectiveness of customer and competitor orientations. Hence:

H4b: The dominance of market over clan:
1. strengthens the positive effect of customer orientation on interfunctional coordination,
2. strengthens the positive effect of competitor orientation on interfunctional coordination, and
3. does not change the positive effect of interfunctional coordination on performance.

Combining the Value Dominance Dimensions. An organization's dominant values can range from "closed and internally focused" (clan and hierarchy) to "open and externally focused" (adhocracy and market), or in Schein's words from "internal integration" to "external adaptation" (2004). Since an organization's total culture combines both value dominances, examining their effects separately gives only a partial representation of the complete value system.

To theorize about the congruency effect of organizational values, we invoke the idea that an overemphasis on either internal integration (types VI and VII in Figure 2) or external adaptation (types II and III) fails to support effective MO behaviors that seek to combine externally focused market sensing with internally focused interfunctional coordination. Conversely, we hypothesize that in companies where external adaptation and internal integration are more equally valued (types I, IV, V, and VIII), MO behaviors are likely to be more effective, because external learnings are integrated and exploited, enabling the organization to adapt successfully. Hence:

H5a: The combination of dominant clan with dominant hierarchy values negatively influences the effects of customer orientation and competitor orientation, through interfunctional coordination, on business performance.

H5b: The combination of dominant adhocracy with dominant market values negatively influences the effects of customer orientation and competitor orientation, through interfunctional coordination, on business performance.

Methodology

Data collection

Questionnaire Development. A preliminary survey instrument (drawing on scales used by previous researchers of marketing orientation) was refined via eight in-depth interviews with senior managers, lasting on average two hours, and 23 self-administered pretests. A pilot survey ($N = 50$) was then used to check the efficiency and face validity of the final questionnaire.

Sample Frame. The sample frame was defined as U.K.-based businesses listed on the London Stock Exchange (LSE) that trade goods and services in competitive markets. Using standard LSE classification data, we excluded 21% of listed firms (e.g., investment trusts and regulated monopolies) because they did not meet this definition. For the remaining companies, their principal trading subsidiaries (PTSs) were identified from the LSE data. To ensure that no parent company's subsidiaries were overrepresented, no more than five PTSs were selected from each. Beyond the top 150 companies, only one PTS was selected per parent. This gave a total sample frame of 1,414 PTSs of which 1,388 were validated.

Key Informants. Following Moorman (1995) and Han, Kim, and Srivastava (1998), we relied on a single, senior respondent from each company because of his or her knowledge of the firm and its environment and access to strategic and financial information.

Response. The data were collected using self-administered questionnaires. To enhance participation, we obtained the endorsement of a high-profile U.K. businessperson. Additionally, a prenotification card was sent to all prospective respondents. The questionnaire was mailed (with a prepaid, preaddressed envelope) two weeks later, and follow-up mailings to nonrespondents were dispatched one and two months after that. Data collection closed 30 days after the second follow-up mailing, by which time 430 usable responses (31%) had been received. Of the respondents, 65% were CEOs; the rest were other senior executives.

Coding of the questionnaires allowed independent sourcing of industry type and allowed us to compare the responses of late and early respondents. Industry representation of the sample and the sample frame were compared. The calculated chi-square is 2.88 and the tabulated chi-square with 10 degrees of freedom is 14.68. On the basis of this, we cannot reject the null hypothesis that the industry representation of the sample is the same as the sample frame (at the $p < .10$ level). Following Armstrong and Overton (1977), responses to the first and third mailings were compared. *T*-tests were performed at the level of individual questionnaire items. Differences on all but two of the 58 items were insignificant at the $p < .05$ level. We concluded that the timing of response was not an indicator of systematic respondent bias. Collectively, these preliminary analyses suggest that our sample is representative of the sample frame.

Measures

Our measures of MO behaviors, values, and performance are presented in Table 3.

MO Behaviors. These were measured by Narver and Slater's (1990) scales comprising "customer orientation," "competitor orientation," and "interfunctional co-ordination." The behaviors have been widely adopted (e.g., Gatignon and Xuereb 1997; Han, Kim, and Srivastava 1998; Voss and Voss 2000; Im and Workman 2004). In scale purification, as explained later, we subsequently eliminated four items: two for customer orientation, one for competitor orientation, and one for interfunctional coordination.

Competing Values. We used an operationalization based on the "Competing Values" model adopted by Deshpandé, Farley, and Webster (1993); Moorman (1995); White, Varadarajan, and Dacin (2003); and Deshpandé and Farley

Table 3
Construct Measures of Organizational Values and Market-oriented Behaviors

Dominance of adhocracy-like values over hierarchy-like values (two scales adapted from: Quinn and Spritzer 1991) (4 items)		
Difference:	**Adhocracy**	**Hierarchy**
1. AD1 –/– HR1	AD1. This company is very dynamic and entrepreneurial.	HR1. This company is formalized and structured.
2. AD2 –/– HR2	AD2. Effective leaders in this company are generally considered to be innovators or risk-takers.	HR2. Effective leaders in this company are generally considered to be coordinators and organizers.
3. AD3 –/– HR3	AD3. This company is held together by commitment to innovation and development.	HR3. This company is held together by formal rules and policies.
4. AD4 –/– HR4	AD4. This company emphasizes growth and acquiring new resources.	HR4. This company emphasizes permanence and stability.
Dominance of market-like values over clan-like values (two scales adapted from: Quinn and Spritzer 1991) (4 items)		
Difference:	**Market**	**Clan**
1. M1 –/– CL1	M1. This company is task- and achievement-oriented.	CL1. This company is personal. It is like a family.
2. M2 –/– CL2	M2. Effective leaders in this company are generally considered to be producers and doers.	CL2. Effective leaders in this company are generally considered to be mentors and sages.
3. M3 –/– CL3	M3. This company is held together by an emphasis on tasks and goal accomplishment.	CL3. This company is held together by loyalty and tradition.
4. M4 –/– CL4	M4. This company emphasizes competitive actions and achievements.	CL4. This company emphasizes people and human resources.

continued

(2004). Quinn and Spritzer tested the psychometric properties of the Likert scale version we used, concluding that it "may be used . . . where the data will be submitted to more complex analyses such as inferential statistics requiring interval scales" (1991, p. 125).

Eight Subgroups. Based on the two dominance variables of the competing values framework, we created the eight subgroups of organizations (I to VIII) in Figure 2. To calculate the dominance of adhocracy over hierarchy, we summed the differences of the adhocracy and hierarchy measures for each of the four measured elements (organizational attributes, leadership styles, bonding mechanisms, main emphasis; see Table 3). The same procedure was adopted to calculate the dominance of market over clan. We used the "zero" as the cut-off value for both dimensions. For instance, when a firm had a positive score on both value dominance dimensions, it was assigned to either subgroup II or III. To discriminate between II and III, we compared the (absolute) values on the two dimensions; if dominance of adhocracy over hierarchy was higher than dominance of market over clan, the case was assigned to subgroup II; conversely, if the value dominance of adhocracy over hierarchy was lower than market over clan, the case was assigned to subgroup III. As a result, group I has 50 cases; II, 91; III, 140; IV, 59; V, 30; VI, 29; VII, 16; and VIII, 15.

In line with most previous market-orientation research, *performance* was operationalized by five self-assessed subjective measures (sales growth, market share, operating profit as a percent of sales, profit growth, and return on assets, as recommended by Dess and Robinson [1984]), all expressed relative to the respondent's main competitor over the last year.

Table 3
Continued

Customer orientation (CUST) (borrowed from: Narver and Slater 1990) (4 items)	**Competitor orientation (COMP) (borrowed from: Narver and Slater 1990) (3 items)**
1. Our business objectives are driven primarily by customer satisfaction.	1. We regularly share information across functions/departments concerning competitors' strategies.
2. We constantly monitor our level of commitment and orientation to serving customer needs.	2. We respond to competitive actions that threaten us.
3. Our strategy for competitive advantage is based on our understanding of customer needs.	3. Top management regularly discusses competitor's strengths and strategies.
4. Our business strategies are driven by our beliefs about how we can create greater value for our customers.	4. We target customers where we have opportunities for competitive advantage.*
5. We measure customer satisfaction systematically and frequently.*	
6. We give close attention to after-sales service.*	
Interfunctional coordination (IFC) (borrowed from: Narver and Slater 1990) (3 items)	**Performance (*PERF*) (adapted from: Dess and Robinson 1984) (5 items)**
1. Our top managers from every function regularly visit our current and prospect customers.*	A description of the business performance on the following dimensions *relative to main competitor* in the *principal served market* over the *past year.* (1 = much worse than main competitor; 4 = about the same as main competitor; 7 = much better than main competitor).
2. We freely communicate information about our successful and unsuccessful customer experiences across all functions.	1. Sales growth
3. All our business functions are integrated in serving the needs of our target markets.	2. Market share
4. All our managers understand how everyone in our business can contribute to creating customer value.	3. Operating profit as a % of sales
	4. Profit growth
	5. Return on assets

* Item deleted during scale purification.

Data analysis using PLS

For four reasons, we used Partial Least Squares (PLS) to test our model. First, like all second-generation multivariate analysis techniques (Fornell 1987), PLS allows for the examination of both latent (theoretical) and manifest (observable) variables simultaneously.

Second, PLS is well suited to our analysis since we want to estimate the separate and combined effects of MO behaviors on performance. PLS differs from other structural equation modeling techniques, such as LISREL, in that it tests the strength of individual component relationships rather than the overall fit of the model. The significance of the individual paths indicates whether the model components are statistically supported.

Third, PLS infers the relative strength of the relationships among the variables from their path loadings. We can also judge the extent to which variation in one set of variables accounts for variance in another variable of interest through the R^2.

Finally, PLS demands a minimal sample size. Dividing our total sample into eight subgroups

reduces the number of observations for each group, which turned out to be a further benefit of PLS.

Analysis and Results

Measurement validity

We started by checking the correlations among the items for each scale in Table 3, removing those with low correlations. We then did a principal components analysis to test each scale's unidimensionality (Churchill 1979) and further refined the scales when necessary. We ran the PLS model and checked whether each item's loading on the construct was more than .707, meaning that more than half of its variance (the squared loading) could be attributed to the construct. The composite reliability assesses the inter-item consistency, which should have a minimum value of .707; after the elimination of four items with lower loadings (two for customer orientation, one for competitor orientation, one for *IFC*), all of the MO behavior scales were acceptable on this basis. For performance, we included all five measures because of the scale's formative nature and in order to be consistent with previous studies. Table 4 shows the loadings of the measurement items on their constructs. The composite reliabilities of all three reflective MO measures have scores of at least .829 (*IFC*). The average variance extracted (AVE), i.e., the average amount of variance that a construct captures from its indicators relative to the measurement error, was calculated for each scale. All three AVEs exceed .5, meaning that more than half the variance in indicators has been accounted for (Chin 1998).

To check the discriminant validity of the MO behaviors constructs, we tested whether the latent constructs are closer to their measurement items than to any other constructs. Therefore, we compared the variance shared by the constructs with the AVE for each construct measurement item (Fornell and Larcker 1981). If the AVE score of a construct were lower than its shared variance with another latent construct, there would be insufficient distinction between them. Table 5 shows that all the bivariate correlations of the constructs (all ≤ .65) are much less than the square roots of AVE for the constructs' measurement items (all ≥ .77).

The causal structure of MO behaviors

Bootstrapping was used to test the statistical significance of the relationships in Figure 1 (Chin 1998; Hulland 1999). This entailed generating random subsamples of cases from the original data. Path coefficients were then generated for each random subsample. *T*-statistics were calculated for all coefficients, based on their stability across the subsamples, indicating which links were significant.

We first tested hypotheses 1, 2a, and 2b relating to the causal structures among the MO behaviors (Figure 1). Table 6 shows that *IFC* has a significant positive effect on performance (*PERF*) in all five models, with respective path coefficients .18 (t = 2.19), .31 (6.77), and .18 (2.13). Hence, we accept H1.

Market sensing behaviors have a strong effect on performance when we do not control for *IFC* (Model 2a; respectively β = .20 (t = 3.25) and β = .18 (t = 3.21)). When *IFC* is included in the model, however, these direct effects weaken or even disappear in Model 1 (without interaction) and Model 3 (with interaction). Only the direct effect of competitor orientation on performance remains marginally significant. The interaction effects of customer and competitor orientation with *IFC* (Model 3) have opposite signs but are not statistically significant. We therefore do not find evidence for a positively moderated effect of *IFC* on the performance impact of market sensing. Thus we reject hypotheses 2a-1 and 2a-2.

In contrast, the results for Model 2c support *IFC* as a mediator, specifically hypotheses 2b-1 and 2b-2. All three parameters are highly significant: both customer orientation (β = .52,

Table 4
Convergent Validity Checks for Reflective Measures

Item Name	Loading	Squared Loading	Residual Variance	Composite Reliability	AVE
Customer orientation (*CUST*)					
cu1	.778	.606	.394	.856	.597
cu2	.779	.607	.393		
cu3	.782	.611	.389		
cu4	.751	.564	.436		
cu5	*				
cu6	*				
Competitor orientation (*COMP*)					
co1	.831	.691	.309	.850	.655
co2	.758	.574	.426		
co3	.836	.699	.301		
co4	*				
Interfunctional coordination (*IFC*)					
ic1	*			.829	.618
ic2	.742	.551	.449		
ic3	.791	.626	.374		
ic4	.824	.678	.322		
Performance (*PERF*)**					
dep1	.694				
dep2	.737				
dep3	.709				
dep4	.572				
dep5	.895				

* Item deleted from scale.
** Performance is a formative scale where the indicators form an index combining the various aspects of business performance. We also estimated the model with performance as a reflective scale. That did not significantly change the results presented here.

t = 12.95) and competitor orientation (β = .27, t = 6.25) have a positive influence on *IFC*, which in turn has a positive impact on performance (β = .31, t = 6.77).

We further examined the extent to which *IFC* mediates the effects of customer and competitor orientation, using Baron and Kenny's (1986) three-step regression approach. That is, to establish mediation of *IFC*, (1) customer and competitor orientation must affect performance when *IFC* is excluded, and (2) *IFC* must also affect performance. As the results from testing models 1 and 2a in Table 6 show, all three MO behaviors positively influence performance. The results of Model 2b show that customer and competitor orientations affect *IFC* (t > 6.67; p <.01). The comparison of models 1 and 2a shows that the inclusion of *IFC* reduces the strength of the effects of customer and competitor orientations. To calculate how much of the influence of these two variables is carried by *IFC*, we performed the Sobel test. The *Z*-values of the Sobel test are statistically significant: 2.86 for customer orientation and 2.67 for competitor orientation.

Table 5
Bivariate Correlations and Descriptive Statistics

	Correlation of Constructs*					Descriptives				
	CUST	*COMP*	*IFC*	*PERF*	*DOM-AH*	Mean	*(sd)*	min	max	*N*
CUST	*.77*					5.13	–1.03	1.50	7.00	430
COMP	**.49**	.81				5.08	–1.11	1.33	7.00	430
IFC	**.65**	**.52**	*.79*			4.61	–1.09	1.33	7.00	430
PERF	**.26**	**.26**	**.29**	n.a.						
DOM AH	**.21**	**.22**	**.25**	**.33**	n.a.	2.34	–6.14	–17.00	18.00	430
DOM MC	*–.10*	.08	*–.10*	.04	*.15*	4.25	–5.31	–15.00	22.00	430

Note: If | *r* | > .095 then $p < .05$; if | *r* | > .125 then $p < .01$.
*Diagonal elements in the "correlation of constructs" are the square roots of average variance extracted (*AVE*). For adequate discriminant validity, diagonal elements should be greater than corresponding off-diagonal elements.

Table 6
Comparative Models Explaining the Effects of Specific Market-oriented Behaviors

	No Interplay	**Mediation**			**Moderation**
	Model 1: Direct effects on performance	Model 2a: Direct effects on performance	Model 2b: Direct effects on *IFC*	Model 2c: IFC mediating effects of *CUST* and *COMP* on *PERF*	Model 3: Interaction effects with *IFC* on performance
Paths					
CUST → *IFC*	—	—	**.52 (13.16)**	**.52 (12.95)**	**—**
CUST → *PERF*	.10 (1.17)	**.20 (3.25)**	**—**	—	.08 (.95)
COMP → *IFC*	—	**—**	**.27 (6.67)**	**.27 (6.25)**	**—**
COMP → *PERF*	**.13 (1.99)**	**.18 (3.21)**	**—**	**—**	**.14 (2.19)**
IFC → *PERF*	**.18 (2.19)**	**—**	**—**	**.31 (6.77)**	**.18 (2.13)**
CUST × *IFC* → *PERF*	—	—	—	—	–.16 (1.78)
COMP × *IFC* → *PERF*	—	—	—	—	.11 (1.10)
Variance explained R^2					
IFC			.48	.48	
PERF	.12	.11		.10	.13

Note: The estimation of the significance of the parameters is done by bootstrapping method. Parameters shown here are from original total sample. The boldface numbers indicate significant paths ($p < .05$). Numbers in parentheses represent *t*-values (obtained from bootstrapping simulation).

This means that both effects on performance are mediated by *IFC*. We therefore accept hypotheses 2b-1 and 2b-2.

The effects of organizational values

We hypothesized that organizational values influence MO behaviors and performance in two ways. First, these behaviors may partly reflect organizational values. Secondly, values may also moderate the relationships between the behaviors and performance. To test for these effects, we first divided the total sample into the eight subgroups in Figure 2, as already discussed.

Table 7
Means Comparison: Eight Organizational Culture Subgroups

Organizational Culture	Total Sample	Adhocracy		Market		Hierarchy	Clan
		(I)	(II)	(III)	(IV)	(V) + (VI)	(VII) + (VIII)
Values relative emphasis		Informal governance	External orientation	External orientation	Formal governance		
Customer orientation	5.14 (1.03)	**5.58 (.92)**[a]	5.30 (.93)[ab]	5.14 (1.06)[bc]	4.78 (1.06)[d]	4.87 (.99)[bcd]	5.16 (1.08)[abcd]
Competitor orientation	5.08 (1.11)	5.18 (1.23)[e]	**5.35 (.97)**[e]	5.17 (1.12)[e]	5.01 (.99)[ef]	4.65 (1.15)[f]	4.67 (1.18)[f]
Interfunctional coordination	4.61 (1.09)	**5.03 (1.17)**[g]	4.89 (.99)[g]	4.58 (1.01)[h]	4.24 (1.05)[i]	4.27 (1.10)[hi]	4.67 (1.25)[ghi]
Performance	4.84 (1.08)	5.12 (1.03)[jk]	**5.26 (.92)**[j]	4.86 (1.05)[kl]	4.86 (1.09)[lm]	4.33 (1.19)[mo]	4.50 (.90)[lo]
N	430	50	91	140	59	59	31

Note: The same superscript indicates that the means of the groups are not significantly different from each other. The **bold** and underlined numbers show the highest and lowest scores respectively.

Effects of Organizational Values on MO Behaviors. The dominance of adhocracy over hierarchy (*DOM_AH*) has a positive influence on all three MO behaviors ($r > .20$; $p < .001$; see Table 5). H3a is accepted. Perhaps surprisingly, however, the dominance of market over clan (*DOM_MC*) does not have significant positive associations with customer and competitor orientation (respectively, $r = -.10$; $p < .05$; and $r = .08$; $p > .05$). We even find indications that when clan is stronger than market, customer orientation and *IFC* increase. Both H4a-1 and H4a-2 are therefore rejected.

Due to the small number of observations in subgroups V to VIII, we merged V and VI into one hierarchy group and VII and VIII into one clan group. Table 7 shows the means for the resulting six groups. The highest performance is for adhocracies that emphasize external orientation (subgroup II; average = 5.26). This level of performance is not significantly higher than for the other adhocracy culture (I), however. The lowest average performance is for hierarchies (V and VI; average = 4.33), but this was not significantly lower than either clans or market cultures where formal rules and governance are emphasized (subgroup IV; average = 4.86). For both adhocracies, the levels of customer orientation, competitor orientation, and *IFC* are also significantly higher than for most of the other groups.

Moderating Effects of Organizational Values on the MO-Performance Relationship. To investigate the moderating effects of organizational values, we performed a multigroup PLS analysis with the six subsamples. We tested the model in each subgroup and then checked whether the paths differed significantly between subgroups. Table 8 shows the results of testing both causal structures—the upper half with *IFC* as mediator, and the lower half with *IFC* as moderator.

The multigroup path models in Table 8 differ in the variance explained for performance. For subgroups I through V and VI, the model with a moderated causal structure in each case explained more of the variance in performance than did its moderated counterpart (e.g., 56% versus 40% for subgroup I). For clans (VII and VIII), the sample was too small to make this comparison. More importantly, the significance levels of the estimated structural relationships are much higher for the mediated causal structures than for the moderated causal structures. The path models testing the moderated causal structures do not show any significant moderating effects.

Table 8
Multigroup Path Analyses: Eight Organizational Culture Groups

Organizational Culture	Total Sample	Adhocracy		Market		Hierarchy	Clan
		(I)	(II)	(III)	(IV)	(V) + (VI)	(VII) + (VIII)
Values relative emphasis		Informal governance	External orientation	External orientation	Formal governance		
Mediated Causal Structure							
CUST → *IFC*	**.52 (12.95)**	**.64 (7.77)**	**.59 (3.38)**	**.42 (5.23)**	**.55 (5.63)**	**.60 (6.59)**	**.58 (3.11)**
COMP → *IFC*	**.27 (6.25)**	**.28 (3.09)**	.12 (1.01)	**.35 (5.11)**	.20 (1.44)	.21 (1.78)	.24 (1.39)
IFC → *PERF*	**.28 (6.77)**	**.63 (7.92)**	.20 (.94)	**.42 (6.21)**	**.36 (2.32)**	.36 (1.12)	.23 (1.09)
N	430	50	91	140	59	59	31
Variance explained (R^2)							
IFC	.48	.69	.45	.44	.44	.52	.58
PERF	.10	.40	.04	.18	.13	.13	.05
Moderated Causal Structure							
CUST → *PERF*	.08 (.95)	.21 (.83)	–.06 (.24)	–.06 (.51)	.39 (1.56)	.23 (.69)	**
COMP → *PERF*	**.14 (2.19)**	**–**.11 (.54)	.40 (1.85)	.01 (.10)	–.14 (.72)	.24 (.91)	**
IFC → *PERF*	**.18 (2.13)**	.37 (1.36)	–.01 (.04)	**.43 (2.84)**	.06 (.22)	.00 (.01)	**
CUST × *IFC* → *PERF*	–.16 (1.78)	.38 (1.23)	.09 (.22)	–.20 (1.10)	–.05 (.15)	.24 (.75)	**
COMP × *IFC* → *PERF*	.12 (1.10)	.11 (.43)	–.39 (1.30)	.05 (.31)	–.30 (.78)	–.35 (.90)	**
N	430	50	91	140	59	59	31
Variance explained (R^2)							
PERF	.10	.56	.17	.21	.32	.28	**

Notes: Boldface numbers indicate significant paths. Numbers in parentheses represent *t*-values.
The same superscript indicates that the parameters (that are significant different from zero) of the groups are not significantly different from each other.
*Due to too few observations in these four subgroups (the largest group V has 30 cases), we combined the two subcultures to perform the PLS analyses.
**PLS processing detected too many errors for estimating the moderated model for this subgroup; too few observations relative to the number of model parameters.

As for the models assuming mediated causal structures, the six subgroups have the following similarities and differences. In all cases, customer orientation positively affects interfunctional coordination (all β's ≥ .42; all *t*'s ≥ 3.11). In adhocracies with a main emphasis on informal governance (I) and markets with a strong external orientation (III), competitor orientation significantly increases *IFC* (β's ≥ .28; $t \geq 3.09$). In adhocracies with an emphasis on informal governance (I) and in both types of market (III and IV), *IFC* significantly increases performance (β ≥ .36; $t \geq 2.32$).

When we compare the two adhocracies (I and II) with the hierarchies (combined V and VI), we see that customer orientation positively influences *IFC* in all three subgroups. We therefore reject H3b-1. We partially accept H3b-2, as competitor orientation does not enhance *IFC* in *both* types of adhocracies. In hierarchies, more competitor orientation does not lead to more IFC. The effect of *IFC* on performance is significant only in a certain type of adhocracy (I); we therefore partially accept H3b-3.

When we compare the two markets (III and IV) with clans (VII and VIII), we find that in all three subgroups, customer orientation has a positive effect on *IFC*; we reject H4b-1. Competitor orientation positively affects *IFC*

Table 9
Results of Hypotheses Testing

Hypotheses		Test Result*
1	**The greater a firm's IFC, the stronger its overall performance.**	**A**
2a–1	The greater a firm's IFC, the greater the positive effect of its customer orientation on performance.	R
2a–2	The greater a firm's IFC, the greater the positive effect of its competitor orientation on performance.	R
2b–1	**The positive effect of customer orientation on performance is mediated by the degree of the firm's IFC.**	**A**
2b–2	**The positive effect of competitor orientation on performance is mediated by the degree of the firm's IFC.**	**A**
3a	**The more the values of a firm's values are dominated by those of an adhocracy rather than a hierarchy, the more it will be:**	
3a–1	**Customer-oriented**	**A**
3a–2	**Competitor-oriented**	**A**
3a–3	**Interfunctionally coordinated**	**A**
3b	The dominance of adhocracy-like values over hierarchy:	
3b–1	Strengthens the positive effect of customer orientation on IFC	R
3b–2	**Strengthens the positive effect of competitor orientation on IFC**	**PA**
3b–3	**Strengthens the positive effect of IFC on performance.**	**PA**
4a	The more a firm's values are dominated by those of a market rather than a clan, the more it will be:	
4a–1	Customer-oriented;	R
4a–2	Competitor-oriented.	R
4b	The dominance of market-like values over clan:	
4b–1	Strengthens the positive effect of customer orientation on IFC	R
4b–2	**Strengthens the positive effect of competitor orientation on IFC**	**PA**
4b–3	Does not change the positive effect of IFC on performance.	R
5a	The combination of dominant clan with dominant hierarchy negatively influences the effects of customer-orientation, and competitor orientation through IFC on business performance.	n.a.
5b	**The combination of dominant adhocracy with dominant market negatively influences the effects of customer-orientation and competitor orientation, through IFC on business performance.**	**PA**

* A = accepted; R = rejected; PA = partially accepted.

in one type of market culture; we therefore partially accept H4b-2. The effect of *IFC* is significant in the two market subgroups and not in clan cultures. We reject H4b-3.

To compare the subgroups VI and VII in order to test H5a, we had too few observations per subgroup. In comparing subgroups II and III, there are significant differences in the causal structure of MO behaviors. Only in markets does competitor orientation significantly affect *IFC* ($\beta = .35$; $t = 5.11$) and *IFC* lead to a significantly better performance ($\beta = .42$; $t = 6.21$). In adhocracies with relatively more emphasis on external orientation, neither competitor orientation leads to *IFC* ($\beta = .12$; $t = 1.01$) nor is *IFC* positively associated with performance ($\beta = .20$; $t = .94$). Yet in markets with a strong external orientation (III), competitor orientation contributes to *IFC* and subsequently more *IFC* leads to better performance ($\beta = .42$; $t = 6.21$). We therefore partially accept H5b.

Table 9 summarizes the test results with the accepted and partially accepted hypotheses highlighted.

Discussion

This paper contributes insights into the effectiveness of market orientation in the following ways. First, it investigates the causal structure of MO behaviors and performance. Second, it looks at the alignment between values and behaviors and how organizational values impact the effectiveness of MO behaviors. In contrast to the *strategic* fit of MO behaviors (Matsuno and Mentzer 2000; Olson, Slater, and Hult 2005), the *cultural* fit of such behaviors with organizational values has not been investigated on a large scale, although previous qualitative studies have suggested that organizational values and norms are critical in developing and maintaining a market orientation (Kennedy, Goolsby, and Arnould 2003; Day 2005; Gebhardt, Carpenter, and Sherry 2006).

This study suggests that the positive effect of both customer and competitor orientation on performance is indirect and mediated by interfunctional coordination. It supports the view of Day (1994) and Achrol and Kotler (1999) that the specific MO behaviors are sequentially dependent: good interfunctional coordination is crucial in affecting performance, but can be effective only if it is continuously fed with good market intelligence.

The results also suggest, however, that the adoption of these behaviors is not enough. Cultural fit is also critical: MO behaviors are not equally effective in all organizational cultures. This study identifies several types of context where the fit or misfit between MO values and behaviors affects performance. First, it shows which cultures discourage these behaviors, and where they are not effective (hierarchies: V and VI). Second, it shows which cultures spontaneously promote MO behaviors and where they are effective in enhancing performance (adhocracies with emphasis on informal governance: I). Third, it reveals cultures which drive the behaviors, but where these behaviors do not improve performance (clans: VII and VIII; and adhocracies with strong external orientation: II). Finally, it identifies organizational cultures where MO behaviors are not automatically encouraged, but where they do seem to have a positive impact on performance (markets: III and IV).

In short, in organizations with strong internally focused values, MO behaviors are unlikely to lead to enhanced performance. Their values are so internally oriented that they inhibit market sensing. In three of the four externally oriented organizational cultures, the behaviors are effective. However, we find an important exception for a certain type adhocracy where the behaviors are not effective: in adhocracies with more emphasis on external orientation than on informal cohesion, MO behaviors are less effective, presumably due to weak interfunctional coordination in such cultures. In contrast, in adhocracies in which clan values dominate market values, the behaviors do lead to improve performance. Appendix 1 shows that the firms in the subgroups do not significantly differ in terms of their main characteristics: whether they are product or service providers, or whether they primarily serve consumers or businesses.

Managerial implications

First, managers must recognize the pivotal role of interfunctional coordination and internal cohesion. Investments in increasing customer and competitor orientation by spending more on market research and other sources of customer- and competitor-insight without enhancing IFC and internal cohesion are unlikely to result in better performance.

Second, managers must determine *in which organizational circumstances* they should invest in market orientation in order to improve performance. Before engaging in a change program for promoting such an orientation, managers should assess their organization's value system. If it might reasonably be described as a hierarchy or a clan, investing to enhance MO behaviors—like increasing the budget for market research—is again likely to be ineffective. If the organization is characterized as a market, investment in market orientation is more likely to improve performance.

Perhaps the most interesting case is when the organization is an adhocracy, emphasizing innovation, risk taking, and growth. In line with previous research, we find that adhocracies tend to be good at market sensing and to exhibit above-average business performance. But further investment in market-oriented behaviors will lead to further improvements in performance only for those adhocracies that also sufficiently emphasize the clanlike values of cohesion, loyalty, and mutual respect.

Appendix 1

Firm Background Characteristics: Six Organizational Culture Groups

Organizational Culture	Total Sample	Adhocracy		Market		Hierarchy	Clan
		(I)	(II)	(III)	(IV)	(V) + (VI)	(VII) + (VIII)
Values relative emphasis		Informal governance	External orientation	External orientation	Formal governance		
B2B service providers	31.1	44.0	28.0	24.1	28.8	39.0	40.6
Consumer service providers	11.3	12.0	12.9	9.2	8.5	15.3	12.5
B2B product suppliers	36.9	26.0	37.6	40.4	44.1	33.9	28.1
Consumer product suppliers	20.7	18.0	21.5	26.2	18.6	11.9	18.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Pearson chi-square (*df* = 15) = 17.870 (*p* = .27); the differences in background characteristics among the organizational cultures are not statistically significant.

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