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Abstract

Purpose – The purpose of this paper is to investigate how strategic corporate real estate (CRE) management varies across different types of organizational culture. Additionally, the authors examine how a set of well-established strategies is categorized by CRE executives and investigate whether there have been any changes in priorities of managers' rating in importance of these strategies compared to a post-GFC study.

Design/methodology/approach – A wide-scale survey of CRE managers was undertaken in summer 2016. Two key components of the survey are namely importance scoring of CRE strategies after the framework of Gibler and Lindholm (2012) and organizational culture assessment based on the competing values framework of Cameron and Quinn (2006). Analysis of CRE strategy importance is undertaken based on the average score comparison per each cultural family, and additional features are reported based on the industry sector, firm size and CRE department size. Principal component analysis is used to provide statistical evidence on the grouping of CRE strategies by practitioners.

Findings – Empirical evidence points toward a clear division on the organizational culture dimension that differentiates effectiveness criteria of flexibility and discretion from stability and control. More specifically, clan and adhocracy cultural types prioritize employee-centric CRE strategies, whereas hierarchy and market cultures consider "Reducing real estate cost" as their single most influential strategy.

Research limitations/implications – The competing values framework has been adapted from the original ipsative scoring process to reflect the fact that only one respondent per firm assesses their organization's culture.

Practical implications – The findings of this study are useful to CRE managers striving for maximum strategic fit within their firms as they unveil clear patterns of CRE strategy prioritization among different organizational culture types.

Originality/value – To the authors' best knowledge, this is the first study that analyzes the inter-relationships among CRE strategies and organizational culture variations. Additionally, the paper provides a categorization of CRE strategies through statistical methods that follow a clear pattern based on the scope of each strategy.

Keywords Corporate real estate, Competing values framework, Organizational culture, Strategic management, Corporate real estate management, CRE strategies

Paper type Research paper

1. Introduction

With real estate costs continuously figuring among the top two items in the corporations' accounting agenda, a growing consideration for strategic management of corporate

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property has been experienced, particularly in the last three decades (Veale, 1989; Nourse and Roulac, 1993; Roulac, 2001; Lindholm *et al.*, 2006; Heywood and Kenley, 2008; Gibler and Lindholm, 2012). Recent evidence shows that multinational corporations are faced with the need to centralize decision-making regarding their real estate to increase its agility in meeting rapidly changing business needs (JLL, 2015). Understanding cultural variations across nations and organizations alike is crucial in this new scenario of "acting globally and thinking locally". From a wider strategic management perspective, a major concern for multinationals is striking the balance between culture and strategy. This paper advocates that similar considerations should apply to organizational culture and corporate property, considering the latter's importance to firms. Multinationals' business operations have a well-established global dimension with specific considerations for local idiosyncrasies implying increased importance on cultural variations. Therefore, understanding the dimensions of organizational culture and the respective differences of corporate real estate (CRE) strategies is crucial to a firm's success.

Analyzing the link between CRE strategies and organizational culture is essential for understanding the wider scale of strategic fit that delivers added value to multinationals. Previous studies have analyzed general strategic management variations across different organizational culture dimensions providing well-grounded operational frameworks (Scholz, 1987; Hofstede, 1991; Cameron and Quinn, 1999). Strategic management of CRE, however, has received no attention regarding its inter-relationships with organizational culture, mainly because of the relatively recent consolidation of CRE management as a discipline. To the best of our knowledge, this study provides the first foundation stone to bridging this gap by empirically investigating this topic with data from a survey of CRE managers. Consequently, the paper is mainly concerned with the existence of inter-relationships between the two concepts under investigation and patterns of association as observed by variations of importance of different strategies across organizational culture types.

This paper is structured as follows. Section 2 provides the theoretical background to the research on CRE strategies and organizational culture. Additionally, it details the operational framework of the study by analyzing the adopted frameworks in each of the constituent domains. Section 3 provides a concise description of the survey, including the assessment of organizational culture and the scoring process of CRE strategies and the data used in the empirical analysis. The latter is the focus of Section 4 where we investigate the interrelationships between CRE strategies and organizational culture. Cultural variations across other attributes, namely, industry sector, organization size and CRE department size, are additionally analyzed. Here, a brief comparison is made with a previous survey administered with the same pool of respondents. Finally, a categorization of real estate strategies based on principal component analysis is provided. Section 5 draws conclusions from the empirical findings.

2. Theoretical background

2.1 Strategic management of corporate real estate

The strategic approach to managing corporate property stems from the growing importance of CRE for the firm and the inefficiency of practices that treat it as merely a cost factor. From a theoretical standpoint, the discipline has built upon the 10 schools of thought on strategic management (Mintzberg *et al.*, 1998), although initial considerations toward the need for strategic management of CRE and the emergence of a new management discipline can be traced back to the work of Veale (1989). The most prominent strategic management schools of thought that have found wide application in CRE management are, namely, the design school and the positioning school.

The design school sees management as a planned perspective delivering a unique strategy, based on a basic process which is cerebral, simple and informal, judgmental and deliberate with the chief executive officer as the central actor. It proposes a model of strategy-making that seeks to attain a match or fit between internal capabilities and external possibilities through one-of-a-kind strategies resulting from an individualized design process (Mintzberg *et al.*, 1998). In CRE management, the influence of the design school's strategic fit approach is evident in the work of, among others, Edwards and Ellison (2003), Scheffer *et al.* (2006), Osgood (2008), Haynes (2008) and De Jonge *et al.* (2009). The positioning school has its origins in the work of Porter (1980) on competitive strategy who followed most of the premises of the design school and emphasized the importance of the content of strategies. The main ideological line of this school (seen in contrast to the previous one) is that only a few key strategies which can be defended against existing and future competitors are desirable in any given industry (Mintzberg *et al.*, 1998). In CRE management, examples of achieving strategic fit through the positioning school ideological line can be found in the works of, among others, Nourse and Roulac (1993), O'Mara (1999), Lindholm *et al.* (2006) and Gibler and Lindholm (2012).

The body of knowledge on CRE management refers to the strategic fit mostly as "alignment" which is about the relationship between CRE and organizational strategies to deliver value. In the spirit of Mintzberg *et al.* (1998) and from a corporate property perspective, CRE management can be considered as the "internal capability", while the organizational strategies are partially seen as the "external environment". Recent research on CRE alignment (read strategic fit) modeling traced four building blocks of alignment. These are, namely, understanding corporate strategy, understanding real estate performance, making real estate strategy and implementing real estate strategy (Heywood and Arkesteijn, 2017). In this framework, the external environment (with reference to CRE) can be associated with the first building block, whereas the internal capabilities can be associated with the third, fourth and partially the second ones. We acknowledge the various approaches to strategic management, including the critique related to the two schools of thought discussed above and concentrate particularly on the internal capabilities and the importance of their strategic content. In Section 2.3, we proceed with the development of an operational framework by focusing on the work based on the positioning school line of thought as represented by a predefined set of CRE strategies.

2.2 Organizational culture: emergence and assessment

Cultural dimensions have been extensively reported to influence strategic management of firms. The body of knowledge on the topic underlines that there is no single or correct definition of culture, resulting in a wide variety of cultural dimensions and operational frameworks used by empirical studies. An important distinction has been made particularly with regard to national culture and organizational culture. As management is "getting things done through other people", understanding the background, and consequently, culture of these people is paramount to the competitive advantage of the firm (Hofstede, 1991). We do not particularly focus on the definition of culture, however, acknowledge the clear distinction between national and organizational cultures and focus on the latter. The official introduction of the term "organizational culture" is often attributed to Pettigrew (1979) who used the strong anthropologic foundations of meaning through symbols, beliefs, visions, ideologies and myths for the purpose. Subsequent empirical work has mainly focused on organizational culture and general strategic management. Morgan (1993), for example, investigates business strategies through different industry sector case studies from large multinational merger and acquisitions to show how organizational culture differences were addressed to ensure business continuity and innovation. Qualitative approaches based on case studies have been the main *modus operandi* of the related body of work calling for a focus on more quantitative evidence.

Subsequent to the wide acceptance of organizational culture theories, a need for assessment of this "new" organizational quality concept emerged particularly in the 1980s and 1990s. Among the most cited studies is the work of Hofstede *et al.* (1990) who investigate a set of 20 organizations in The Netherlands and Denmark via in-depth interviews with 180 representatives and a detailed survey of 135 questions for which 1,295 questionnaires were obtained. The key outcome of the study is a six-dimensional model for the definition of culture resulting from factor analysis of the original survey component scores. The authors particularly emphasize the usefulness of quantitative assessment of concepts generally perceived as "fuzzy" such as the case of organizational culture. This need for quantification has led to the development of alternative assessment tools among which one of the most widely used is the Organizational Culture Assessment Instrument (OCAI) (Cameron and Quinn, 1999, 2006).

The OCAI originates from the competing values framework which is based on a comprehensive set of 39 indicators representing different measures of organizational effectiveness (Campbell *et al.*, 1974). In subsequent studies, these indicators were reduced to two major dimensions through factor analysis. One dimension differentiates effectiveness criteria focusing on stability, order and control from those that focus on flexibility discretion and dynamism. The other dimension distinguishes criteria that focus on external orientation, differentiation and rivalry from those that focus on internal orientation, integration and unity (Quinn and Rohrbaugh, 1983). In combination, these two dimensions form a four-quadrant space, with each quadrant representing a distinct organizational culture resulting in four types, namely, clan, adhocracy, market and hierarchy. These are explained in more detail in the next section.

2.3 Operational framework

This paper uses two well-established frameworks in each of the constituent fields to investigate their inter-relationships. Strategic management of CRE comprises of a variety of decisions related to procurement and management of property that aim to support the competitive advantage of a firm. The concept is relatively broad, resulting in a large number of frameworks encompassing a wide variety of strategies for analyzing decision-making. The overarching approach to strategic management of CRE that this paper uses is given by a set of eight strategies initially proposed by Nourse and Roulac (1993), further developed by Lindholm *et al.* (2006) and used after revision in a survey of corporate managers by Gibler and Lindholm (2012). The eight strategies are categorized into two groupings, namely, profitability and revenue growth with the same common goal of maximizing an organization's shareholder wealth (Figure 1). The first five are classified as strategies that contribute to shareholder wealth maximization through revenue growth, whereas the last three fulfil their aim of wealth maximization through profitability growth. We use the same set of strategies as one of the key pillars in our empirical work to analyze their inter-relationships with the four organizational culture types. This framework is selected particularly because it has been empirically tested with a survey from the same pool of respondents in 2010 which ensures continuity of concepts and allows for (partial) comparison of the two survey results on key CRE strategy-related outcomes.

For the assessment of organizational culture, we use the competing values framework by Cameron and Quinn (1999, 2006). This research uses the six assessment domains and four types of organizational culture with a modified version of the OCAI. The four organizational culture types, namely, clan, adhocracy, market and hierarchy, are defined by the characteristics associated with the combination of the two dimensions of effectiveness criteria. A detailed description of these organizational cultures and their attributes is given in Figure 2. This constitutes the second pillar of the operational framework in this research.

Based on the dimensions defining each quadrant and the attributes they entail, the framework produces organizational culture types that are competing on the diagonal (Figure 2). More explicitly, the clan culture (upper left quadrant) emphasizes values with an organic and internal focus, while the market culture (lower right quadrant) emphasizes values with external and control focus. The adhocracy culture (upper right quadrant) emphasizes values with an external and organic focus, while the hierarchy culture (lower left quadrant) emphasizes values with an internal and control focus. The assessment of organizational culture in this research is undertaken with a set of six questions adapted to the features of this study from the OCAI framework. It categorizes the organization's dominant culture based on the congruence of the responses across the six questions. These questions are designed to assess a respondent's perception of their own firm's social

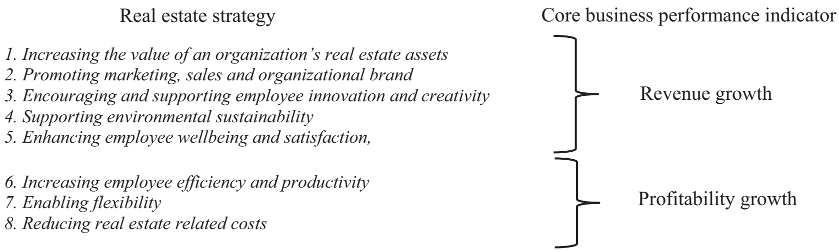

Figure 1.
CRE strategies for revenue and profitability growth (after Gibler and Lindholm, 2012)

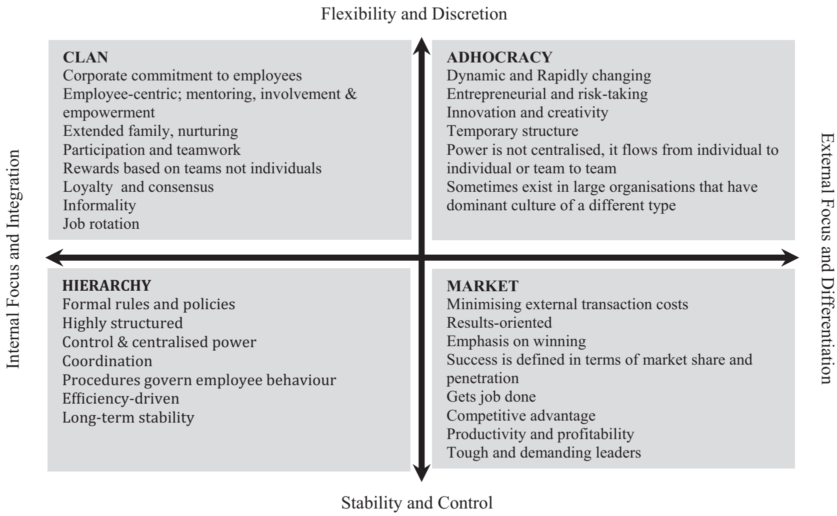

Figure 2.
The CVF and key attributes of each organizational culture (after Cameron and Quinn 2006)

atmosphere, management style, leadership style, strategic emphasis, definition of success and organizational bond or the "glue" that holds the organization together.

As stated earlier, the main rationale for choosing the competing values framework (CVF) is the fact that it has been widely used across different industries and for various organizational effectiveness output criteria. Igo and Skitmore (2006) use the CVF and the OCAI to assess the organizational culture of a single large Australian engineering consultancy firm. The findings point to an overall market-oriented culture in the firm, while the most desired form was found to be an employee-oriented one. The findings were considered important in a sector where the former culture is seen as detrimental to business, and the latter was considered crucial in achieving high-quality construction projects. Gregory *et al.* (2009) use a modified version of the CVF to investigate the relationship between organizational culture and effectiveness across 99 healthcare facilities in the USA. The authors conclude that organizations that value teamwork, cohesion and employee involvement outperform organizations that do not focus on these values. Additionally, balanced cultures (those that do not load extremely heavy on one cultural type as assessed by the OCAI) achieved higher levels of patient satisfaction than unbalanced cultures.

Analysis on organizational culture and willingness to share knowledge in four Australian project-based organizations provides further interesting results regarding this behavior and cultural differences across the competing diagonals of the CVF. Cultures displaying market-type values such as competitiveness and achievement are likely to hesitate in sharing knowledge, whereas clan-type cultures emphasizing non-competitive atmosphere and collaborative work environments are likely to share knowledge (Wiewiora *et al.*, 2013). Interesting findings are also reported from the hospitality sector in Spain regarding cultural differences between internal and external workers and their impact on the success of outsourcing (Zoghbi-Manrique-de-Lara and Ting-Ding, 2016). The authors conclude that clan and adhocracy are the only cultural types that influence measures of outsourcing success pointing to the importance of the effectiveness criteria focusing on flexibility and discretion.

Studies of cultural aspects in general are rather embryonic in the fields of facilities management and CRE management. One of the few exceptions relates to the work of Riratanaphong and Van der Voordt (2012) who investigate employee satisfaction with workplace change in Thailand and compare these findings with previous studies in Finland and The Netherlands. The authors appear to be driven by a holistic approach to culture that tries to cover both national and organizational dimensions. This has led to a lack of depth in both cultural dimension frameworks, and consequently, a relatively brief analysis of the CVF-defined types of organizational culture. The authors do point out, however, that their investigated organization in Thailand shows traits belonging to the hierarchy culture while the clan type is preferred most. In a recent work, Van der Voordt and van Meel (2017) investigate the role of culture in measuring the added value of facilities and CRE management. They conclude that assessment of the inter-relationship between culture and FM/CREM is better undertaken with quantitative tools such as questionnaires. For the particular case of organizational culture, the authors refer to the OCAI. This geographically diverse and industry-wide evidence on the effectiveness of the CVF as an appropriate assessment framework of organizational culture is the main rationale for its use in this research.

3. Data and methodology

The study is based on data from a survey of CRE managers, all members of CoreNet Global, an international association for CRE professionals across the world counting approximately 8,500 members. These are roughly categorized as service providers, end users, academics and students. The survey which was administered by CoreNet Global deployed on April 21, 2016, and ended on June 08, 2016. It was completed by 236 respondents for an approximate response rate of 3 per cent. This is a relatively good number of responses considering that the 2010 survey received a response range between 179 and 213 across the eight CRE strategies (see also Table IV for more details). The final database contained answers whereby a small number of respondents identified themselves as "Student" or "Academic". These categories fall out of the scope of the survey, and the respective entries were deleted from the database to yield a set of 231 responses for the empirical analysis. When discussing statistical analyses in the following parts of the paper, we return to the issue of sample size adequacy for the particular methodology used (Section 4.4).

"Corporate real estate strategies' and organizational culture" constituted the two key pillars around which the survey questionnaire was structured. Overall, the questions were categorized under three , namely, "General information" (questions 1-6), "Organizational Culture Assessment" (questions 7-12) and "Corporate real estate strategies" (question 13) (see Appendix for question details). The first and third grouping questions were directly used from the 2010 survey to ensure continuity in the strategy component of the analysis. Here, we slightly modify the evaluation of strategy importance from a rank ordering in the 2010 survey to a nine-grade Likert scale scoring to allow more flexibility in answering and avoid the large number of blank entries in this question observed in the preceding study (Gibler and Lindholm, 2012). As the overall pool of respondents is the same with the 2010 study, to ensure continuity, for ease of comparison and to avoid confusion in the Likert scale, we use the same annotation as in Gibler and Lindholm (2012) whereby 1 is "Very important" and 9 is "Not important at all".

Organizational culture assessment consists of a set of six questions asking the respondent's opinion about various aspects of their organization. Each question provides five alternative choice answers of which four relate to the organizational culture groupings through their key attributes as explained in the previous section. The last choice (other) gives the option to the respondent to specify different patterns/attributes from those described by the CVF. Appendix provides details on the contents of the survey and explains coding of the responses which is used in the assessment of organizational culture. To assign a dominant culture type to the organization of each respondent, we use congruence or strength of agreement of answers across the six organization aspects outlined above. This exercise provided us with five organizational culture categories where, in addition to the four groupings defined by the operating framework, the fifth category reflects firms where no cultural dominance could be observed based on congruence of responses across the six aspects.

This approach represents a modification of the original ipsative scoring used in the OCAI which relies on averaging of a number of responses from employees of the same organization. As this survey makes use of only one representative per organization[1], we chose to assess organizational culture based on congruence across answers. This is estimated by the formula:

$$Congruence = \frac{individual\ response\ mode\ count\ (from\ 6\ questions)}{6} * 100$$

When the organizational culture types are coded from one to five (clan, adhocracy, market hierarchy and no dominance), the mode for each response represents the most dominant culture. For congruence values higher than 50 (mode count $>$ 3), the dominant culture assessment is straightforward based on the code of the response mode. Responses with congruence values lower than 50 (mode count $<$ 3) are all assigned to the no dominance category. For congruence values of 50 (mode count = 3), there are two possible outcomes;

when two modes exist the no dominance category is assigned and when there is only one mode organizational culture is based on the code of the response mode, similar to culture assessment for congruence values higher than 50. Assessment of organizational culture by a single employee calls for care in treating the results and further focus from corporations in carrying out a more comprehensive assessment of their own organizational culture.

Specific peculiarities and/or limitations of this study are, namely, the introduction of the "No Dominance" category and the potential bias associated with cultural assessment by one employee type in the organization hierarchy. In the first case, previous related studies do not report this category as the ipsative score of many responses from one firm generally falls in the four quadrant space. We consider this "new" category as a direct outcome of the methodology used in this study, and as will be later shown, an appropriate benchmark in assessing strategy employment preferences by the CVF-defined culture types (Section 4.1). In the second case, previous studies have indicated that top management has a tendency to think their organization has a clan culture, while, in fact, it is generally perceived as hierarchy (mainly by employees who sit further down the firm's executive line) (Cameron and Quinn, 2006). We believe that the use of CRE executives, who represent the mid-tier management in an organization, reduces the above bias.

With regard to the valid number of responses across all 13 questions for the 231 relevant entries, we report full numbers apart from question 13 where we observe a very small number of empty cells. The breakdown of valid answers for each CRE strategy in question 13 is given in Table I. The subsequent analysis of CRE strategies uses ranking based on the geometrical mean scores for each strategy. This is done based on the characteristics of the central tendency measurements of score-based variables, to ensure continuity and enable comparison with the 2010 survey as its outcomes were analyzed based on this statistical measure (Gibler and Lindholm, 2012). Two additional steps in the empirical part include investigation of correlations among the used strategies (also in comparison with the 2010 survey) and a factor analysis to identify any possible grouping of strategies based on their perception by the industry.

4. Empirical results

4.1 Corporate real estate strategies across different organizational cultures

The survey analysis showed some clear differences in the importance of CRE strategies across the organizational culture groupings. These differences are intrinsically linked to the underlying competing values among the cultures. Particularly, the effectiveness criteria emphasizing flexibility and discretion as opposed to those that focus on stability and control (the vertical axis defining the four quadrants), provide a clear dividing line in strategy preference (Figure 3).

Strategy code	N
Satisfaction (enhancing employee well-being and satisfaction)	230
Creativity (encouraging and supporting employee innovation and creativity)	231
Productivity (increasing employee efficiency and productivity)	231
Flexibility (enabling flexibility)	227
Sustainability (supporting environmental sustainability)	231
Marketing (promoting marketing, sales and organizational brand)	230
RE costs (reducing real estate-related costs)	229
RE value (increasing the value of the organization's real estate assets)	231
Valid responses list-wise	223

Table I. Valid responses in assessment of the importance of CRE strategies

CLAN

CREM Strategy	GM value	Rank
Increasing employee efficiency and productivity	2.20	1
Enhancing employee well-being and satisfaction	2.26	2
Encouraging and supporting employee innovation and creativity	2.35	3
Enabling flexibility	2.40	4
Supporting environmental sustainability	2.70	5
Promoting marketing, sales and organizational brand	2.70	6
Reducing real estate related costs	2.93	7
Increasing the value of the organization's real estate assets	3.62	8

ADHOCRACY

CREM Strategy	GM value	Rank
Encouraging and supporting employee innovation and creativity	1.66	1
Enabling flexibility	1.87	2
Enhancing employee well-being and satisfaction	1.89	3
Increasing employee efficiency and productivity	2.04	4
Promoting marketing, sales and organizational brand	2.25	5
Reducing real estate related costs	2.66	6
Supporting environmental sustainability	3.09	7
Increasing the value of the organization's real estate assets	3.55	8

HIERARCHY

CREM Strategy	GM value	Rank
Reducing real estate related costs	2.23	1
Increasing employee efficiency and productivity	3.16	2
Enabling flexibility	3.33	3
Supporting environmental sustainability	3.42	4
Enhancing employee well-being and satisfaction	3.75	5
Promoting marketing, sales and organizational brand	3.92	6
Increasing the value of the organization's real estate assets	4.21	7
Encouraging and supporting employee innovation and creativity	4.25	8

MARKET

CREM Strategy	GM value	Rank
Reducing real estate related costs	2.01	1
Increasing employee efficiency and productivity	2.58	2
Promoting marketing, sales and organizational brand	2.68	3
Enabling flexibility	2.89	4
Enhancing employee well-being and satisfaction	2.96	5
Encouraging and supporting employee innovation and creativity	3.06	6
Supporting environmental sustainability	3.57	7
Increasing the value of the organization's real estate assets	3.90	8

NO DOMINANCE

CREM Strategy	GM value	Rank
Enabling flexibility	2.41	1
Reducing real estate related costs	2.50	2
Enhancing employee well-being and satisfaction	2.56	3
Increasing employee efficiency and productivity	2.62	4
Encouraging and supporting employee innovation and	3.12	5
Supporting environmental sustainability	3.16	6
Increasing the value of the organization's real estate assets	3.54	7
Promoting marketing, sales and organizational brand	3.57	8

Figure 3.
CRE strategy ranking across different organizational cultures

Strategies that have employees as their core target rank consistently high and with relatively low mean differences among the clan and adhocracy cultures (showing a difference between first- and second-ranked strategies of 3 per cent and 13 per cent, respectively). Generally, these employee-centric organizational cultures show relatively low consideration for real estate related strategies and strategies that focus on supporting environmental sustainability and promoting organizational brand (consistently ranked bottom half from both groupings).

Reducing real estate costs appears to be the single most influential real estate strategy in corporations grouped under the hierarchy and market cultures. It is ranked first in both culture groupings with high difference in mean values from the second ranked strategy (42 per cent and 28 per cent, respectively). There is a clear lack of consideration for the strategy reducing real estate costs among the clan and adhocracy cultural groupings (ranked seventh and sixth, respectively). The no (cultural) dominance grouping appears to provide good benchmarking for the widely acknowledged organizational cultures. No particular trend is observable based on the cultural values described earlier, and differences in mean values appear to be relatively low compared to the other groupings (overall 48 per cent mean value increase from the first to the last ranked strategy).

Organizational culture seems to inform the type of real estate strategies adopted by corporations. This is clearly evident when attributes of each cultural grouping are considered in combination with the focus of the strategies, particularly for the cultures with competing values (Figure 2). The diagonally contrasting quadrants in the framework comprise the competing pairs of adhocracy–hierarchy for power relations and efficiency-driven strategies and clan–market for employee focus and results-based approaches. The most striking finding is the difference in ranking of the pair adhocracy–hierarchy for strategies reducing the real estate cost (five ranks) and encouraging and supporting employee innovation and creativity (seven ranks). The fact that the latter strategy is ranked lower by respondents in the hierarchy culture than the overall least preferred one (increasing the value of the organization's real estate assets) indicates the clear focus of this culture type in centralizing power, governing and controlling employee behavior. On the other hand, respondents in the adhocracy culture clearly show preference for strategies that support innovation, creativity and flexibility (very low relative mean values) which are attributes widely associated with this type of organizational culture.

By and large, the survey results indicate clear differences in the importance that CRE managers associating themselves with different organizational cultures give to CRE strategies in supporting the core business. The most important difference is between cultures that favor discretion and flexibility and prioritize strategies that can be categorized as employee-centric; and cultures that favor stability and control and prefer strategies focusing on cost reduction, efficiency and productivity. The CVF appears to be well suited for explaining differences between multinationals for prioritizing among various CRE strategies that support the core business. This can be attributed to the clear differences in the focus of these strategies that are appropriately explained by the framework.

4.2 Organizational culture variations across industry sectors, firm size and CRE department size

The survey analyzes organizational culture variations across other influential factors, namely, industry sector in which their organizations operate, organization size and CRE department size. Overall, the division of respondents in cultural groupings was clan 19.5 per cent, adhocracy 12 per cent, market 31 per cent, hierarchy 17 per cent and no dominance 20.5 per cent.

The key sectors coming from the respondents are, namely, banking and finance, business consulting, manufacturing, construction (including real estate development), technology media and telecommunications and energy and utilities. The sectors for which there were too few responses and were also answered as "Other" were all grouped under this category. The composition (per cent of total) of survey respondents by industry sector is given in Figure 4.

The survey revealed clear patterns of association between organizational culture and industry sector in which multinationals operate. The most prominent outcome relates to a clear dominance of the market and hierarchy cultures in the "Banking and Finance" and "Business consulting" sectors. One-third of the respondents operating in these two sectors identified themselves with the market and another 23 per cent with the hierarchy cultures. Only 2.5 per cent of the respondents operating in the "Manufacturing" and "Construction" (including real estate development) sectors identified their organizational culture as hierarchy. The rest of the respondents was divided equally among the four remaining groupings: clan 25 per cent, adhocracy 22.5 per cent, market 25 per cent and no dominance 25 per cent. Corporations with manufacturing as core business identify themselves mainly with the clan and market cultures with very little representation in the adhocracy culture and no representation at all in the hierarchy grouping (Figure 5).

The low representation of the hierarchy culture is additionally evident in the "Technology media and telecommunications" sector where only 8.5 per cent of the respondents operating in this sector identified their corporation's culture with this grouping. Another 8.5 per cent showed no (cultural) dominance, while 34 per cent classified as market, 26 per cent as adhocracy and 23 per cent as clan-type of organizational culture. From the respondents operating in the "Energy and Utilities" sector, additional evidence on the competing values among adhocracy and hierarchy culture groupings is provided. Within this sector, over 57 per cent of respondents identified their organization's culture as hierarchy, while there were no respondents in the adhocracy grouping. The remaining respondents were equally divided (14.3 per cent) into the other three groupings. In addition to the above information on organizational culture representation in each industry sector, Table II details the relative percentages of industry sectors in each organizational culture group. These figures reinforce the above findings particularly with regard to the adhocracy–hierarchy pair and their association with specific industry sectors.

With regard to organizational size, five categories are investigated ranging from small organizations (less than 1,000 employees) to very large multinationals (more than 100,000 employees). Additionally, a "Do not know" option was provided (Figure 6). Relatively large

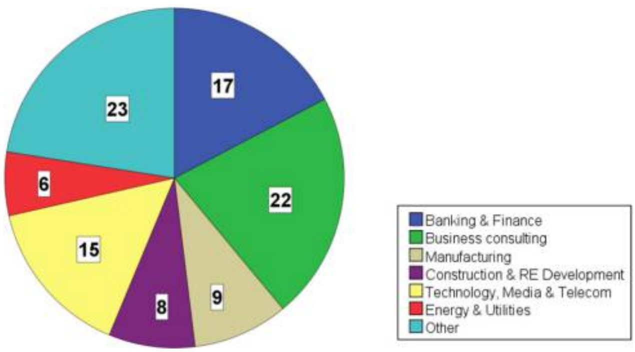

Figure 4.
Division of survey respondents by industry sector

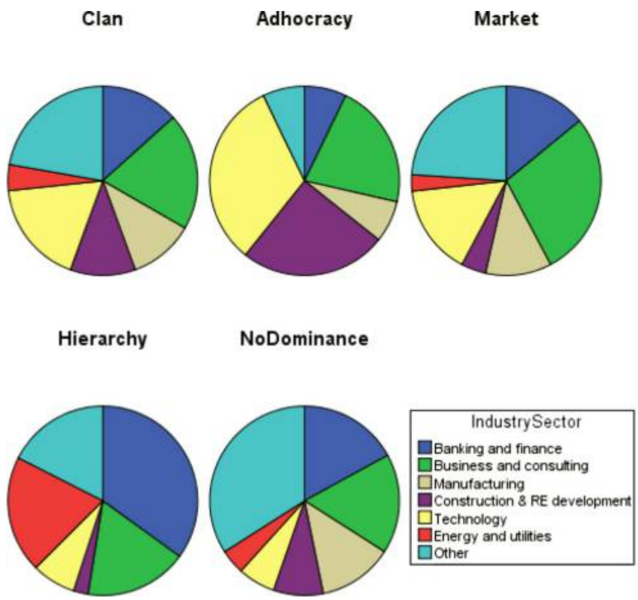

Figure 5. Industry sector of multinationals within each cultural grouping

Table II. Relative percentage composition of each cultural group by industry sector

	Banking and Finance (%)	Business consulting (%)	Manufacturing (%)	Construction and RE development (%)	Technology, media and telecom (%)	Energy and utilities (%)	Others (%)
Clan	13.3	20.0	11.1	11.1	17.8	4.4	22.2
Adhocracy	7.1	21.4	7.1	25.0	32.1	0.0	7.1
Market	14.1	28.2	11.3	2.8	16.9	2.8	23.9
Hierarchy	35.0	17.5	0.0	2.5	7.5	20.0	17.5
No dominance	17.0	17.0	12.8	8.5	6.4	4.3	34.0

organizations seem to be associated with market and hierarchy cultures. Of the respondents reporting organization size of more than 10,000 employees, 32 per cent associated with the former and 24.5 per cent with the latter organizational culture grouping. In contrast, only 5 per cent associated with adhocracy and another 14.5 per cent with clan cultures.

Relatively small organizations (considered here as those reporting less than 10,000 employees) seem to be associated with the clan culture (25 per cent) in addition to the market one (29 per cent). Of these respondents, 19 per cent associated with the adhocracy culture compared to only 9 per cent who associated with the hierarchy grouping. Additionally, only 3 per cent of companies with more than 50,000 employees are associated with the adhocracy culture, probably reinforcing the claim made earlier (Figure 2) that "sometimes (this culture) exist in large organizations that have dominant culture of a different type".

Size of the CRE department was particularly included in the survey to investigate whether differences across cultures were seen between small (and probably centralized) CRE departments and large (and probably decentralized) ones. Generally, respondents reported

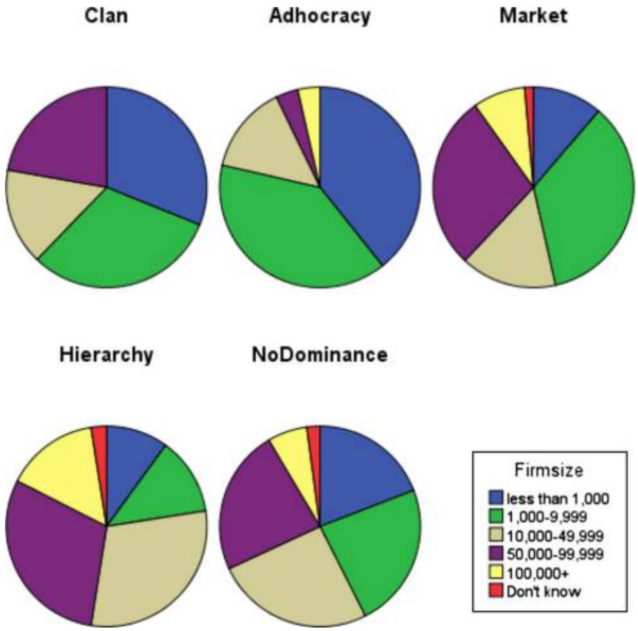

Figure 6. Company size variations across organizational culture groupings

relatively small CRE departments in their organizations; 65 per cent consisted of 30 or less employees (Table III and Figure 7).

Large CRE departments associate themselves with the hierarchy (35 per cent) and market (38 per cent) cultures. Only 3 per cent of the respondents in this category associated with the clan grouping, while there were no respondents associated with the Adhocracy culture. For small departments organizational culture variations followed similar patterns to the overall division of respondents reported above. An interesting outcome is the fact that while only 1 per cent of the respondents did not know the size of their organization 12 per cent were unsure about the size of their CRE department. Considering that all responses from students and academics were *a priori* removed from the analysis this is a surprising statistic.

Based on the national culture, the survey responses were initially divided into "USA" and "non-USA" due to the large dominance of US-based participating organizations which constituted 68 per cent of the whole. No particular differences in organizational culture

Table III. Database composition according to the CRE department size

Size of the CRE department	(%)[a]
0-10	42
11-30	23
31-50	03
51-70	04
71+	16
Unsure	12

Notes: [a]With 231 respondents

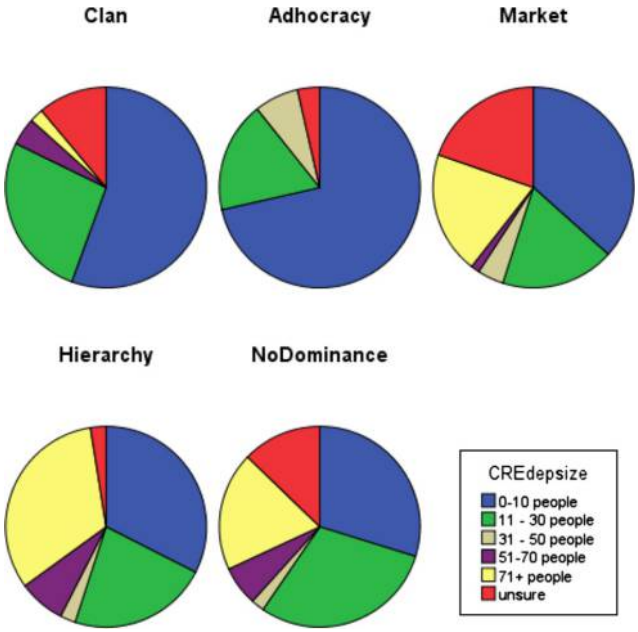

Figure 7.
CRE department size variations across organizational culture groupings

variations were observed in these two groupings. Additionally, only 11 per cent of the respondents reported differences between the country of origin of the firm and the location of their headquarters. This variable was treated as a proxy for organizations that at some point in time have faced national culture differences. Considering the small portion of this grouping within the whole, no conclusive results could be drawn at this stage.

4.3 Development of CRE strategic priorities among CRE executives over time

A comparison is made between the results of this survey and the one administered in 2010 from the same membership pool of respondents with regard to strategy rankings based on order of importance in supporting the core business. For the purpose, we use figures reported in Gibler and Linhdolm (2012). It can be concluded that very little has changed in the past six-seven years regarding consideration about the importance of CRE strategies. The top three and the least important strategies remain unchanged while there is very little change in the ranking of the other four strategies (Table IV). The most important strategy is still considered "Reducing real estate related costs" while "Increasing the value of the organization's real estate assets" receives least consideration.

In addition to the ranking changes across time, we investigate also the development of strategic behavior through the strength of the correlation among the CRE strategies. The Kendall's τ coefficients reported in Table V show that the overall, CRE executives use strategies in combination with each other (no negative signs reported). Additionally, the values of these coefficients are indicative of important patterns of association in CRE strategy implementation. More explicitly, the strongest evidence is for "Productivity" and "Creativity' being used in combination with each other ($\tau = 0.64$, $p < 0.01$) and "Creativity" not used in combination with any of the two real estate-focused strategies ($p > 0.05$). Real estate costs is the strategy "farthest apart" form the other strategies in the fact that its

Table IV.
Importance of CRE strategies in supporting the core business across two CRE executive surveys

CRE strategy	2016 survey GMvalue[a]	2016 survey Rank	N^b	2010 survey[c] GMvalue	2010 survey[c] Rank	N	Rank Change
Reducing real estate-related costs	2.38	1	229	2.22	1	213	=
Increasing employee efficiency and productivity	2.52	2	231	2.98	2	191	=
Enabling flexibility	2.61	3	227	3.30	3	194	=
Enhancing employee well-being and satisfaction	2.69	4	230	3.86	5	185	**+1**
Encouraging and supporting employee innovation and creativity	2.87	5	231	3.80	4	179	**–1**
Promoting marketing, sales and organizational brand	2.98	6	230	4.41	7	201	**+1**
Supporting environmental sustainability	3.22	7	231	4.02	6	203	**–1**
Increasing the value of the organization's real estate assets	3.77	8	231	4.51	8	179	=

Notes: [a]GM: Geometric mean of individual respondent scores; [b]*N*: Number of respondents; [c]Figures from Table V in Gibler and Lindholm (2012, p. 43)

Table V. Correlation strength among the eight CRE strategies[a,b]

	Satisfaction	Sustainability	RE value	RE costs	Flexibility	Marketing	Creativity	Productivity
Satisfaction	1 (230)							
Sustainability	0.413** (230)	1 (231)						
RE value	0.171** (230)	0.194** (231)	1 (231)					
RE costs	0.042 (228)	0.074 (229)	0.327** (229)	1 (229)				
Flexibility	0.426** (226)	0.245** (227)	0.178** (227)	0.284** (225)	1 (227)			
Marketing	0.277** (229)	0.242** (230)	0.136** (230)	0.033 (228)	0.267** (226)	1 (230)		
Creativity	0.589** (230)	0.362** (231)	0.091 (231)	0.009 (229)	0.483** (227)	0.426** (230)	1 (231)	
Productivity	0.440** (230)	0.290** (231)	0.174** (231)	0.103* (229)	0.435** (227)	0.368** (230)	0.639** (231)	1 (231)

Notes: [a]Kendall's τ statistics are reported; [b]Number of responses in parentheses; **indicates significance at the 0.01 level; *indicates significance at the 0.05 level

Kendall's τ coefficients are statistically significant only for four strategies (see also Figure 8 below). The weak evidence of this strategy's implementation in combination with flexibility ($\tau = 0.28$, $p < 0.01$) and productivity ($\tau = 0.10$, $p < 0.05$) is to some extent indicative of the existence of the "Profitability growth" CRE strategy grouping (Figure 1). However, the relatively high correlation between RE costs and RE value strategies ($\tau = 0.33$, $p < 0.01$) points toward the existence of other (stronger) considerations of strategy interrelationships among CRE executives.

These findings represent a stark contrast with the ones reported by the 2010 survey where the focus was more on "exclusiveness" or which strategies are not implemented in combination with other ones as indicated by a dominance of negative signs across the correlation table (Gibler and Lindholm, 2012, pp. 34-35). Additionally, all Kendall's τ values are comparatively low with only 0.05 significance levels reported. We attribute this to the exclusionary/restrictive nature of rank ordering compared to the Likert scoring used in this paper. Our interpretation is that, when given the opportunity, CRE managers will indicate that they generally have a holistic approach to strategic CRE management as indicated by the overall use of strategies in combination. This behavior has given rise to particular patterns of association in the CRE strategy implementation which we investigate in more detail in the next section.

4.4 Corporate real estate strategy categorization

Following the clear patterns of strategy importance and implementation across different organizational cultures, a statistical analysis is undertaken to empirically investigate how

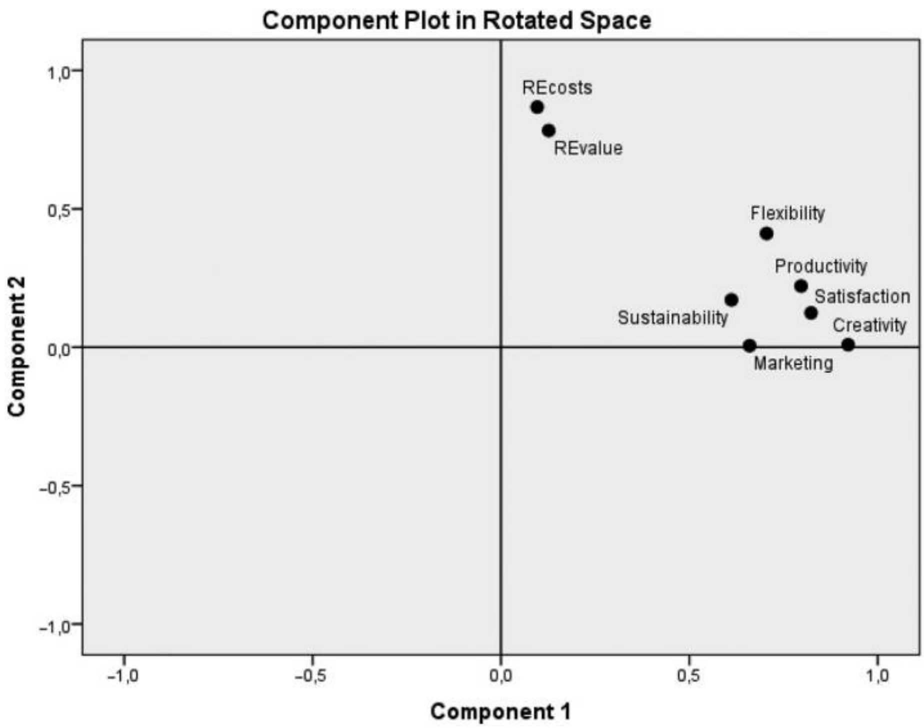

Figure 8.
Scope-based grouping of CRE strategies

these strategies categorize. This analysis is exclusively based on statistical measures and aims to quantitatively test any patterns related to how the eight strategies under investigation are used by CRE executives. The strong correlation coefficients reported earlier indicate that the surveyed organizations use multiple CRE strategies in combination. To identify these combinations, we use principal component analysis (PCA) that groups variables (in this case CRE strategies) based only on the strength of correlation without any *a priori* assumption of inter-relationships.

The analysis was undertaken for the list-wise valid responses ($N = 223$), and the initial tests indicate good internal validity/consistency of responses across the eight strategies under investigation as represented by the Cronbach α value of 0.8277. The Kaiser-Meyer-Olkin (KMO) measure of 0.816 indicates very good sampling adequacy for the number of variables being used reinforcing our opinion on a satisfactory sample size obtained from the survey. The Bartlett's test for sphericity has a χ^2 value of 763.647 and with 28 degrees of freedom is statistically significant at the 0.001 level which indicates the existence of relationships between the variables being analyzed. This is further evidence to the appropriateness of the PCA for grouping of CRE strategies based on their importance score.

The PCA provided two distinct components, whereby in one grouping, the strategies that have real estate as their target cluster together, while all other strategies cluster in the other grouping (Table VI). Component loadings of the individual variables are all very high; in most cases, above the 0.7 level and only for two strategies related to corporate image and branding (marketing and sustainability) were at the 0.66 and 0.61 levels, respectively. These two variables loaded on Component 1m and we accepted (did not delete) their loading based on common practice in mainstream applied statistics.

The first grouping comprises of the strategies promoting marketing, sales and organizational brand (marketing), encouraging and supporting employee innovation and creativity (creativity), supporting environmental sustainability (sustainability), enhancing employee well-being and satisfaction (satisfaction), increasing employee efficiency and productivity (productivity) and enabling flexibility (flexibility) in one component. The other grouping consists of the strategies increasing the value of an organization's real estate assets (RE value) and reducing real estate-related costs (RE costs). This is a clear scope-based categorization whereby the second grouping is the "Real estate related strategies" and the first one consists of "all other" strategies which are defined based on the object of the strategy as "Employee-centric and Corporate image". A component plot in rotated space where this division can be clearly observed is given in Figure 8.

CRE strategy	Component 1	Component 2
Encouraging and supporting employee innovation and creativity (creativity)	0.921	0.009
Enhancing employee well-being and satisfaction (satisfaction)	0.823	0.124
Increasing employee efficiency and productivity (productivity)	0.797	0.221
Enabling flexibility (flexibility)	0.705	0.411
Promoting marketing, sales and organizational brand (marketing)	0.660	0.005
Supporting environmental sustainability (sustainability)	0.611	0.171
Reducing real-estate related costs (RE costs)	0.096	0.868
Increasing the value of the organization's real estate assets (RE value)	0.126	0.783

Notes: [a]Extraction method: PCA; [b]Rotation method: varimax with Kaiser normalization; [c]Rotation converged in three iterations

Table VI. Grouping of the eight CRE strategies in two components[a,b,c]

5. Conclusions

The importance of culture for corporations has been summarized by the trademark quote "Culture eats strategy for breakfast" often attributed to Peter Drucker and made famous by Mark Field, president at Ford. Extensive research has been undertaken on organizational culture and general management of corporations; however, no substantial work has been done on the relationships between culture and CRE management. This study provides the first empirical evidence to date on the inter-relationships between CRE strategies and organizational culture. The results suggest clear patterns of association between preferred strategies and organizational culture types based on the attributes of each culture. Organizational culture effectiveness criteria emphasizing flexibility and discretion as opposed to those that focus on stability and control provide a clear dividing line in strategy preference of survey respondents. Strategies that have employees as their core focus are prioritized by the clan and adhocracy cultures while "Reducing real estate costs" was the main concern among respondents identifying with market and hierarchy cultures.

The diagonally competing quadrants in organizational culture show clearly different priorities in CRE strategies. The adhocracy–hierarchy pair is diametrically different in their strategy focus. The former prioritizes creativity, flexibility and other employee-related strategies and tends to overlook real estate costs. The latter is highly driven by efficiency as indicated by a priority for reducing real estate costs and a lack of consideration for increasing employee creativity. Overall, "Increasing the value of real estate assets" was the least preferred strategy, consistently ranking bottom across the four culture groupings. There were very little changes in the importance that managers place to CRE strategies in supporting core business over time. However, a stark contrast exists in the strategic behavior of CRE executives as reported by the two surveys in 2010 and 2016 which we attribute mostly to methodological differences. This strong evidence on strategic behavior was used to categorize CRE strategies in two main groupings, namely, "Real estate-related" and "Employee-centric and corporate image focused" according to the strategy scope.

Organizational culture variations exist also across different industries, firms of various sizes and CRE departments of different sizes. Among the corporations operating in the "Banking and Finance" and "Business consulting" sectors, there is a clear dominance of the market and hierarchy cultures. The corporations operating in the "Manufacturing" and "Construction" and "Technology media and telecommunications" sectors do not identify with the hierarchy culture, whereas no association with the adhocracy culture was reported from the respondents operating in the "Energy and Utilities". Relatively large organizations are associated with market and hierarchy cultures. Additionally, companies with relatively large CRE departments associate themselves almost exclusively with the hierarchy and market cultures. This indicates that large multinationals favor stability and control criteria to promote efficiency and competitive advantage.

There are certain limitations to the generalizability of the study stemming from the method of organizational culture assessment and the reported response rate. However, response numbers are consistently higher than the previous survey with the same pool, and we attribute the initially reported low response rate to the difference between registered and active members within the surveyed international association. Regarding the former limitation, organizations should focus on undertaking a comprehensive assessment of their own organizational culture, including identification of the actual and preferred culture types. This evidence will unveil potential traits in the way organizational culture drives strategic CRE management and help firms tackle potential culture strategy mismatches when moving toward the preferred cultural type. It will additionally remove the potential bias associated with cultural assessment by only one employee type on the company hierarchy. The results of this study can be used by CRE executives and industry at large to improve their understanding of the link between the CRE strategy and organizational culture. This, in turn, will enable corporations to deploy business supporting property strategies more effectively. Key to the success of this approach is a more in-depth assessment of multinationals' own organizational culture. Future research building upon the findings of this paper should focus on investigating the impact of different cultural dimensions, namely, national, organizational, and a combination of both on the strategic management of CRE.

Note

1. As the call for participation is distributed to all registered CoreNet Global members, there might be the chance that multiple respondents per organization complete the survey. A thorough scan of the responses for the general company characteristics (questions 1-6) indicated that approximately 30 per cent of the entries show similarities (in pairs or groups of 3-5 entries). For confidentiality reasons, we were not provided with company names and had the survey administrators check these entries. After this check, there are only two responses that have a potential for being from the same organization. We can, therefore, claim to have one respondent per firm relying on the fact that the remaining 70% per cent of the respondents have an accurate knowledge of their companies' characteristics such as size, industry sector, etc.

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Appendix: CRE strategy and organizational culture survey

Questions 1-6 and 13 (not shown here) are from the 2010 CRE strategy survey, with question 13 being adapted as explained in the main text.

Questions 7-12 are from the OCAI framework. In each question, answer options 1 through 4 relate, in order, to the clan, adhocracy, market and hierarchy cultures. The fifth option enables the respondent to provide a different answer from these specifications. The coding of the answers follows this order and organizational culture is assigned as explained in Section 3.

(7) Which one of these statements best describes the “social atmosphere” of your organization?

- Personal, a bit like a family. People seem to share a lot among themselves.
- Dynamic and entrepreneurial. People are willing to stick their necks out and take risks.
- Results-oriented. A major concern is with getting the job done. People are very competitive and achievement-oriented.
- Controlled and generally structured. Formal procedures generally govern what people do.
- Other (please specify).

(8) Which one of these statements best describes the “leadership style” in your organization?

- Mentoring, facilitating or nurturing.
- Entrepreneurship, innovating or risk-taking.
- No-nonsense, aggressive, results-oriented focus.
- Coordinating, organizing or smooth-running efficiency.
- Other (please specify).

(9) Which of these statements best describes the “management style” of the organization?

- Teamwork, consensus, and participation.
- Individual risk-taking, innovation, freedom, and uniqueness.
- Hard-driving competitiveness, high demands, and achievement.
- Security of employment, conformity, predictability, and stability in relationships.
- Other (please specify).

(10) Which one of these statements best describes the “strategic emphasis” of the organization?

- Human development. High trust, openness, and participation persist.
- Acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued.
- Competitive action and achievement. Hitting stretch targets and winning in the marketplace are dominant.
- Permanence and stability. Efficiency, control, and smooth operations are important.
- Other (please specify).

(11) Which one of these statements best describes the “glue” that holds the organization together?

- Loyalty and mutual trust. Commitment to this organization runs high.
- Commitment to innovation and development. There is an emphasis on being on the cutting edge.
- Emphasis on achievement and goal accomplishment. Aggressiveness and wining are common themes.
- Formal rules and policies. Maintaining a smooth-running organization is important.
- Other (please specify).

(12) Which one of these statements best defines "success" in the organization?

- Development of human resources, teamwork, employee commitment, and concern for people.
- Unique or newest products. It is a product leader and innovator.
- Winning in the marketplace and outpacing the competition. Competitive market leadership is key.
- Efficiency. Dependable delivery, smooth scheduling, and low-cost production are critical.
- Other (please specify).

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