ORGANIZATIONAL CULTURE, NATIONAL CULTURE, AND NEW PRODUCT PERFORMANCE: A META-ANALYSIS

ABSTRACT

The authors conduct a meta-analysis on the combined influence of organizational and national culture on new product performance. For this purpose, they refer to the effectiveness of value congruency and develop a conceptual model describing the fit between organizational culture types as suggested by the competing values framework and national culture as described by Hofstede's cultural dimensions. The meta-analysis is based on 489 effect sizes taken from 123 manuscripts. The findings show that organizations with a market culture show the highest new product performance, while hierarchy type organizations show the lowest performance. The influence of national culture variables support the effect of value-congruency and show that in individualistic cultures the impact of a clan culture decreases, the impact of an adhocracy culture type decreases with uncertainty avoidance, and the influence of hierarchy culture type increases with power distance. The superior effect of a market culture type can be matched by other organizational orientations, but in particular national cultures only. The combined findings underline the importance for firms that seek to improve the success rate of new products on international markets to consider the fit of a national culture with a firm's organizational culture.

Keywords: new product success; national culture; meta-analysis; organizational culture; competing values framework; new product performance

INTRODUCTION

Competitiveness in an international context is a function of industry drivers, organizational factors, and strategic levers that explain performance outcomes of multinational enterprises (Yip and Hult 2012). One such driver of international competitiveness is the extent that new products are successful on the market. Unfortunately, despite having received considerable attention from academic researchers and practitioners, the domestic success rates of new product ventures remains stubbornly low (e.g., Evanschitzky et al. 2012, Henard and Szymanski 2001, Montoya-Weiss and Calantone 1994). Adding to the already complex world of new product development, multinational enterprises are increasingly faced with the task of developing new products for global markets. Moreover, not only is the product development team's target market global but the makeup of the team can be global as well (Salomo et al. 2010).

This can be seen as an opportunity or as a challenge. A multinational team can benefit from complementary strengths from different regions of the global company. In fact, Salomo et al. (2010) find that effectively managing global new product development teams offers opportunities for leveraging a diverse but unique combination of talents and knowledge-based resources, thereby enhancing the firm's ability to achieve a sustained competitive advantage in international markets. On the other hand, a key challenge for these teams is a potential clash between the organizational culture of the global firm and the national cultures the organizational units are operating in (Lee et al. 2000, Sivasubramaniam et al. 2012, Wren et al. 2000). Hence, it is important for firms to consider the fit of a national culture and organizational culture in order to understand success rates of new products on international markets.

In order to better understand the impact of "fit" between national culture and organizational culture on new product success, this paper conducts a meta-analytic review of empirical studies

on that relationship. In doing so, we draw on empirical research dealing with effects of organizational culture on new product success that was conducted in different countries. As such, the meta-analysis by Evanschitzky et al. (2012) that includes 204 studies on new product success provides evidence for an increasing influence of organizational factors on product success and the cross-national variability of prior findings. The meta-analysis does not, however, investigate the effects of both factors in combination. As each empirical study was set in a particular organizational and national culture, combining studies from different combinations of these two elements of culture, we can draw meta-analytical insights that would not be possible by conducting primary research. In doing so we advance hypotheses that test the relationships between organizational and national culture.

Based on theoretical insights from value congruency and competing values frameworks (cf. Lee et al. 2000), we show in our meta-analysis, based on 489 effect sizes taken from 123 manuscripts, that the organizational cultural orientation of a market culture provides higher new product success than any other organizational type, while a hierarchy organization is least successful. We further show that national culture moderates the effects of these cultural orientations of organizations.

A thorough, quantitative review of empirical studies that provides robust and generalizable estimates of the influence of organizational culture on new product performance benefits research and practice alike. Beyond the purpose of providing robust empirical generalizations, this meta-analysis makes three specific contributions to the strategy literature in general and the international new product performance literature in particular. First, it contributes to the literature by analyzing the interplay between organizational culture and national culture as an important determinant of new product success. Second, it contributes to the research stream on value

congruency by using national culture as an indicator of the values of organization members and by investigating its fit with organizational culture as a determinant of performance. Third, the study provides theoretical and practical implications related to successful internationalization strategies, because it reveals how companies can develop an organizational culture that shows a fit with the national culture of organization members to enhance new product success.

THEORETICAL BACKGROUND

Competing Values Framework

The current study follows a pattern of important work describing how culture – both organizational culture and national culture – affects firm outcomes (Desphandé and Farley 2004, Leidner and Kayworth 2006, Wuyts and Geyskens 2005). In this study we utilize accepted frameworks from the organizational culture literature (Büschgens et al. 2013, Quinn and Rohrbaugh 1983) and the national culture literature (Hofstede 2001, Lee et al. 2000) to examine simultaneous effects on important outcomes. Regarding organizational culture, we apply the *competing values framework* of different types of organizational structure (Desphandé et al. 1993, Quinn and Rohrbaugh 1983).

The competing values framework suggests that organizations have multiple tasks and outcomes, many of which compete with one another (e.g., the need to maintain a flexible approach to market conditions vs. the need for stability; the need to maintain an external focus on markets and customers vs. the need to maintain an internal focus on employees). Considering these key competing organizational tasks and outcomes, four value dimensions have been recognized that affect new product success: clans, hierarchies, adhocracies, and markets (Büschgens et al. 2013).

Regarding how organizational culture "fits" with national culture we apply the *value congruency framework*. This framework (O'Reilly et al. 1991) suggests that employees in an organization have a set of values, or internalized normative beliefs, that, when combined with compatible organizational values, produce high performance outcomes. A lack of fit between organizational values and personal beliefs produces inferior outcomes.

Such internalized normative beliefs are captured in four dimensions of national culture (Hofstede 2001): an *individualism-collectivism* dimension that describes how people focus on either group or individual goals; a *power distance* dimension that describes how people deal with unequally distributed power; an *uncertainty avoidance* dimension that describes how people react to uncertainty in their external environment; and a *masculinity-femininity* dimension that addresses the natural level of assertiveness and aggression in a society.

Organizational Culture and New Product Success

Organizational culture is "the set of shared, taken-for-granted implicit assumptions that a group holds and that determines how it perceives, thinks about, and reacts to its various environments" (Schein 1996, p. 236). The competing values framework organizes and describes organizational culture along two dimensions (Cameron et al. 2006, Quinn and Rohrbaugh 1983): structure and focus.

The *structure* dimension captures whether an organization stresses flexibility and discretion or stability and control. The *focus* dimension captures whether an organization focuses inwards (within the organization) or outwards (e.g., towards customers, suppliers and the external environment). Based on these dimensions, the literature distinguishes between four types of organizational cultures (e.g., Desphandé and Farley 2004, Desphandé et al. 1993, Hartnell et al.

2011), market, adhocracy, clan, and hierarchy.

A *market* culture type has an external focus that is reinforced by an organizational structure that is steeped in control. It is characterized by goal-oriented leadership, task accomplishment and goal achievement, results orientation, competitiveness, production and market orientation (Desphandé and Farley 2004). New product development processes would be clear and success would be determined by whether market outcomes were satisfactorily met.

An *adhocracy* culture type has an external focus that is supported by a flexible organizational structure. In general, decentralized organizational structures have been positively related to innovative products (Evanschitzky et al. 2012). The adhocracy type is characterized by entrepreneurial dynamism and risk-taking leadership, innovation, creativity, adaptability, and problem solving; it is process oriented and emphasizes growth (Slater et al. 2011). These organizations would be innovative in their ideas, willing to take risks, and would be quickly responsive to market changes.

A *clan* culture type has a flexible organizational structure with an inward focus. It is characterized by mentor-style leadership, cohesion and morale, consensus, employee commitment, participation, teamwork, a personal atmosphere and a sense of family (Ouchi 1979). A clan culture would address a product development problem as a group, with success or failure judged by how the group adhered to shared norms and beliefs. Clans typically produce a strong positive work environment (Ouchi 1980), and positive work environments correlate with both commercial and technical success of new product introductions (Belassi et al. 2007). Further, clan-based structures foster cooperative behaviors such as information sharing, and development teams that have been linked to increasing process proficiencies (Thieme et al. 2003) and new product success (Sivadas and Dwyer 2000, Troy et al. 2008).

A *hierarchy* culture type has a stable structure with an internal focus. It is characterized by a coordinator-style leadership, formalization, presence of rules and policies, stability, uniformity, control, conformity, and predictability (Desphandé and Farley 2004). A new product development task in this culture would be directed from above and clear output and behavior goals would be established and checked. Such hierarchical leadership styles have led to new product success and high levels of customer satisfaction (Belassi et al. 2007, Lee et al. 2000).

Desphandé and Farley (2004) have summarized the results of several studies and suggested a market > adhocracy > clan > hierarchy ordering in impact on firm performance. This pattern reflects how market and adhocracies are driven by an external focus on outcomes, achievement and entrepreneurialism, allowing such organizational cultures to address needs of their customers and other external constituents. Although the superiority of a market culture has been largely supported across different performance criteria, the ordering of other culture types vary across performance measures (Hartnell et al. 2011).

As for new product performance, that is, either technological performance of a new product (e.g., superior product quality) or financial or market-based performance (as measured by, for instance, market share or ROI), we suggest that a market culture type leads to the strongest results. Externally-focused firms identify customer needs rapidly because of a strong marketplace orientation (Cooper 1984). Productivity and efficiency are outcomes that are associated with clear planning inputs, driving the effectiveness of new product development plans. This is in line with the effect that has been found for the relationship between market orientation and new product performance (Evanschitzky et al. 2012, Henard and Szymanski 2001). Further, because successful product innovations require flexibility and creativity (Ernst 2002), a hierarchy culture type, which focuses on stability, control, and rule following, is less

successful in contributing to new product success.

RESEARCH HYPOTHESES –

THE MODERATING ROLE OF NATIONAL CULTURE

Hofstede (2001) identifies four dimensions of national culture, which we suggest impact the relationship between organizational culture and new product success: individualism, power distance, uncertainty avoidance, and masculinity. Further, researchers (e.g., Calantone et al. 2010, Souder and Jenssen 1999, Troy et al. 2008) find that the factor "country" has a significant moderating effects on innovation and new product success.

We suggest that the better an organizational culture type fits the national cultural orientation, the higher the new product performance (see Büschgens et al. 2013). This is due to the value-congruency model, which suggests positive outcomes in case of congruency such as higher satisfaction of employees, less conflict, more efficient processes, higher commitment and higher outcome performance (Knoppen et al. 2006). We expect these positive outcomes because a shared set of common values leads to reduced uncertainty in the way employees think, feel, and work. Information is processed in a similar way and tasks are executed with a like mind (Schein 1985), leading to superior outcomes. Also, value congruency, because organizations are operating with a like mind, readily facilitates organizational change (Glazer and Beehr 2002).

We limit our exploration to those combinations where similar drivers exist between organizational and national culture's underlying dimensions. By similar drivers we mean motivators that drive or steer both attitudes and behaviors of individual employees and work interactions. These are explained below. Figure 1 describes the conceptual framework for our meta-analysis.

Figure1 here

We relate the individualism-collectivism dimension of national culture to the clan dimension of organizational culture because both types of culture show an underlying driver of *the good of the group*. The good of the group means that group norms and socialization guide transactions and cohesive and collaborative groups are sought in both daily and work environments (Büschgens et al. 2013).

Regarding the *individualism-collectivism* dimension of national culture, individualism pertains to the degree to which people in a country prefer to act as individuals striving to achieve personal goals rather than as members of a group. Collectivistic cultures, on the other hand, are conformity oriented and show a higher degree of group behavior and prioritize in-group goals over personal goals (Hofstede 1983). Such cooperative behaviors have been linked directly to new product success (Sivadas and Dwyer 2000).

In a clan-type organizational culture the good of the group manifests itself as an internal focus on building broad involvement, cohesion, morale, and teamwork (Desphandé and Farley 2004). This is optimal for developing and producing new and innovative products due to the importance of teams (Büschgens et al. 2013). In Ernst's (2002) review of the New Product Development literature he found that important success factors included teams that were given full responsibility for performance and that communicated well amongst members. Considering national culture, teams become less functional in an individualistic society as members are more

interested in pursuing and achieving individual goals (Song et al. 2010). Such non-participative behavior in groups damages new product success (Thieme et al. 2003). Thus, we hypothesize:

> Hypothesis 1: The positive relationship between a clan organizational culture and new product performance is strengthened by a national culture high in collectivism (and low in individualism).

We relate the uncertainty avoidance dimension of national culture to the adhocracy dimension of organizational culture because both types of culture share an underlying driver of *risk focus*. Risk focus refers to people in both private and organizational settings that knowingly manipulate risk and use risk reduction or enhancement as a strategy to learn and resolve problems (Calantone et al. 2002, Souder and Jenssen 1999). Uncertainty avoidance describes how societies deal with unknown aspects of the future. Cultures low in uncertainty avoidance have a more relaxed attitude towards risks in which practice counts more than principles (Hofstede 2001). Such attitude fits with the adhocracy organizational culture because the adhocracy culture is also unafraid of risks in that it has entrepreneurial spirits, and seeks growth, resource acquisition, and development to innovate (Denison et al. 1995). Such goals are in line with new and innovative products because innovation is a way to learn and achieve such goals (Quinn and McGrath 1985). Hence:

> Hypothesis 2: The positive relationship between an adhocracy organizational culture and new product performance is strengthened by a national culture low in uncertainty avoidance.

We relate the masculinity dimension of national culture to the market dimension of organizational culture because both types of culture share an underlying driver of *production*. Production drives both personal and organizational relationships by shared attitudes of completeness and competition. Here, it is important to tie down loose ends, finish tasks, and move forward (Hofstede 2001).

Masculinity refers to the degree to which a society is characterized by assertiveness as opposed to nurturance. Masculine societies emphasize toughness and purposefulness with less focus on alliance building. We theorize this dimension matches with the market organizational culture because both masculine societies and market organization cultures find competitiveness a key element to success (Slater et al. 2011).

Market organizational cultures achieve by a production-oriented, goal-achieving focus, and find masculine characteristics useful (Desphandé and Farley 2004, Steensma et al. 2000). Market organizational cultures work towards new product success by maintaining goals (such as continuous improvement; Büschgens et al. 2013) and systems while focusing on efficiencies (Quinn and Rohrbaugh 1983). It can therefore be anticipated that:

> Hypothesis 3: The positive relationship between a market organizational culture and new product performance is strengthened by a national culture high in masculinity.

We relate the power distance dimension of national culture to the hierarchy dimension of organizational culture because both types of culture share an underlying driver of *respect for power*. Respect for power suggests an understanding that authority and hierarchy are valued as

organizing structures and, further, are seen as appropriate.

The power distance dimension of national culture describes the extent to which people expect and accept that power is distributed unequally (Hofstede 2001, Zhang et al. 2010). An organizational culture that emphasizes a centralized structure and the retaining of power and authority among a chosen few characterizes this cultural dimension.

In a hierarchical organizational structure there is a focus on rules, procedures, leadership, and authority (Ouchi 1980, Quinn and Rohrbaugh 1983). Such formal leadership has been linked to new product success (Sivadas and Dwyer 2000). The ability to achieve new product success in such an organizational culture is likely in a national culture described as high in power distance. Product performance in countries described by the power distance dimension should lead to success because strong and responsible leaders and top management can quickly guide products through various challenges (Parry and Song 1994, Schmalen and Wiedemann 1999) which fits with bureaucratic and stable labor relations (Ouchi 1980). Organizations that operate in national cultures that promote understandings of power distance will be better able to successfully get products to market. Therefore:

> Hypothesis 4: The positive relationship between a hierarchy organizational culture and new product performance is strengthened by a national culture high in power distance.

METHODOLOGY

Data Collection and Coding

We perform a meta-analysis to test our research hypotheses. We start with selecting meta-analytic estimates on effects of organizational culture on new product success from the data set

of the most recent meta-analysis by Evanschitzky et al. (2012). Evanschitzky and colleagues performed a comprehensive meta-analysis of 33 antecedents of new product success that provided a total of 2,618 effect sizes, found in in 204 manuscripts with 233 independent samples. For their meta-analysis, they have retrieved all studies that provide effect size estimates of any of these determinants on new product success and that were published by 2011.

For our study, two coders independently screened all antecedents in this meta-analytic data set and selected those that describe aspects of corporate culture. They found effects size estimates in 101 manuscripts. In order to update the database, we searched for appropriate studies that have been published since 2011 and we found another 22 studies to be included in our meta-analysis. The final sample of our meta-analysis includes 489 effects size estimates of corporate culture effects on new product success that were reported in 123 manuscripts with 140 independent samples (see Appendix for an overview).

The antecedents were classified by the coders with the help of two variables to describe the four types of corporate culture: structure (stable vs. flexible) and focus (internal vs. external) (see Table 1 for details). The coding of corporate culture closely follows the scheme applied by Hartnell and colleagues (2011). In their meta-analysis, Hartnell and colleagues have assigned variables that measure aspects of organizational culture to the competing values framework's culture types. For instance, they assigned variables such as team orientation or cooperativeness as measures for the clan culture type (internal and flexible); they assigned member conformity or bureaucracy as measures for the hierarchy culture type (internal and stable). We applied their coding descriptions for the selection and classification of corporate culture variables and additionally were considering descriptions and measures of the application of corporate culture in marketing studies (e.g., Desphandé and Farley 2004, Desphandé et al. 1993, Slater et al.

2011).

For the coding of national cultural values, we follow the approach of previous meta-analyses in international business (e.g., Fischer and Mansell 2009) and apply Hofstede's index scores to each country the data in the primary studies were collected in. The 139 samples provided data from 22 countries.

As control variables, we refer to the taxonomy of moderators as provided and detailed by Evanschitzky et al. (2012) in their meta-analysis of new product success. Based on previous meta-analyses and their experiences during coding, the authors have applied seven moderator variables (multi-item vs. single-item performance measure, subjective vs. objective performance data, senior manager vs. project manager data, short-term vs. long-term performance data, services vs. goods, Asia vs. North-America/Europe, and high-technology vs. low-technology markets). We dropped the moderator for region (Asia vs. North-America/Europe) as it correlates strongly with the national cultural value variables. We add outcome measure as another moderator variable, because the studies in our meta-analysis differ on whether they have investigated technological performance or market-based and financial performance. The distinction between these types of outcome variables follows the coding of outcome measures in previous meta-analyses (e.g., Krasnikov and Jayachandran 2008).

Table 1 describes the coding and data details of all variables. Two coders independently coded all variables according to instructions in a coding sheet. Coding conformity was achieved in 95% of the variables. The few differences were resolved through discussion.

Table 1 here

Meta-Analytic Procedures

The effect size metric of the meta-analytic estimates is the correlation coefficient; higher values of the coefficient indicate a stronger effect of the existence and degree of any organizational culture on new product success. For instance, variables such as team orientation or cooperativeness were assigned to the clan culture type; a positive correlation indicates that the existence and/or the degree of a clan culture as measured by team orientation or cooperativeness increases new product performance. Another example is member conformity and bureaucracy that were assigned to the hierarchy culture type; a negative correlation for this relationship would indicate that the existence and/or degree of a hierarchy culture as measured by member conformity or bureaucracy reduces new product performance. For the analysis, we corrected all correlations for reliability and transformed them into Fisher *z*-transformed values following the common procedure in the literature (e.g., Krasnikov and Jayachandran 2008).

To test for the effects of the suggested moderator variables (see Table 1), we model the transformed coefficients as a linear function of the moderator variables. We ran four separate models for each type of organizational culture that are mutually exclusive. We apply a mixed-effects meta-regression procedure (method of moments) in Stata. This method is the most appropriate approach for our data set, because we have a small number of effect sizes in two of our models (n = 79) to test the influence of (up to) nine variables.

Table 2 provides the correlation matrices for each of the four models. While some of the national culture variables show high correlations, none of the variables that we entered in a single model reveal a correlation value higher than .7. This indicates that multicollinearity – a

common problem in meta-analytic regression – does not challenge our models in which we include only one cultural dimension. As an additional check, we regressed the transformed *z*-values on all moderators, revealing a VIF of less than 4 that is considered as acceptable (O'Brien 2007).

Table 2 here

Because the studies that were used for this meta-analysis are all published in journals and journals tend to be biased toward publishing significant results, we also test for a publication bias, that is, the possibility that the results are biased toward strong findings. For this purpose, we apply the trim and fill method to our meta-meta-analysis and we check whether some studies have to be added in order to meet the simple symmetry assumption of the funnel plot, that is, the graphical distribution of the effect sizes and their variances (Duval and Tweedie 2000). The trim and fill method indicates that no study is missing and that the estimated meta-analytic mean correlation of .33 remains unchanged.

RESULTS

The mean effect size of all 489 estimates is .328. The corresponding mean effect sizes for each type of organizational culture are .310 for clan, .232 for adhocracy, .463 for market, and .104 for hierarchy. Market leads to significantly stronger effects than any other

organizational culture type and hierarchy leads to weaker effect sizes than other organizational culture types except for adhocracy.

The relevant parameter estimates of the mixed-effects models with the *z*-transformed correlations as dependent variables are presented in Table 3. All models are significant. The findings in model 1 shows that individualism reduces the effect sizes, that is, a clan culture leads to higher performance findings in collectivistic countries compared to individualistic countries, in line with hypothesis 1. Model 2 indicates that with decreasing uncertainty avoidance, the effect sizes of an adhocracy culture become stronger, that is, the performance of an adhocracy culture increases. This is in line with hypothesis 2. We do not find an effect of masculinity in a market culture as suggested in hypothesis 3. We find a positive effect of power distance in model 4: a hierarchy culture leads to more performance when power distance increases. This is in line with hypothesis 4.

We found only few significant effects among the control variables. The relationship between culture and performance in an organization with a market orientation is weaker in high technology markets. The relationship is weaker in an adhocracy culture when project managers provide the data compared to senior managers; this effect reverses in a market organization type, where the effects are stronger when provided by project managers.

Table 3 here

The transformation of *r* to *z* can cause changes in the distribution of effect sizes. Indeed, we

found that skewness and kurtosis are acceptable for *r* (-.492 and .811), but kurtosis became very high for *z*-transformed correlations (.702 and 4.114). We therefore decided to run our models once more with *r* coefficients as dependent variables. The findings of the organizational culture variables remain consistent with the previous findings.

To check the robustness of our results, we test whether the findings hold after adding other cultural dimensions to models 1 to 4. We could not include all cultural dimensions in all models because of high multicollinearity. High multicollinearity is a common problem in meta-analysis that simultaneously include Hofstede's cultural dimensions as moderators, leading to the exclusion of one or more cultural dimensions with high VIF values from further analysis (e.g., Samaha et al. 2014). Table 4 provides the findings and indicates which cultural dimensions had to be excluded from each model. The findings support the results from the models presented in Table 3. Furthermore, some of the additional cultural dimensions reveal significant effects that correspond to the idea of underlying drivers that we suggested for our hypotheses. Uncertainty avoidance increases the performance effect of the clan culture, because a risk-reduction focus is supportive for clan cultures that emphasize group norms, conformity, cohesiveness, and collaboration. We find that both individualism and uncertainty avoidance reduce performance effects of the market culture: both cultural dimensions are opposing the idea of production, competitiveness, and toughness as suggested by the common driver for masculinity and market culture.

Table 4 here

We further investigate whether the main effects of organizational culture on new product performance can be replaced by certain combinations of other organizational cultures and national culture. Table 5 provides the findings that indicate significant and marginal significant differences between means. We find that the superior effect of a market culture does not differ from the effect of a clan culture in collectivistic countries, an adhocracy culture in low uncertainty cultures, and a hierarchy culture in high power distance countries. Furthermore, a clan culture has a performance effect that does not differ from an adhocracy culture in general, but the clan culture effect in collectivistic countries is superior to an adhocracy culture. The overall clan culture that is superior to a hierarchy culture leads to the same performance effect when compared with the hierarchy culture in high power distance countries. These findings provide further support for our hypotheses that suggest superior combinations of organizational and national culture. For instance, the combinations between organizational and national culture suggested in hypotheses 1, 2, and 4 lead to effect sizes in particular cultural contexts that even match the superior overall effect of the market culture on new product performance.

Table 5 here

DISCUSSION

This meta-analysis provides new evidence on the interplay between organizational culture

and national culture for new product success. It largely supports the idea that a fit between organizational and national culture supports the performance of new products.

Contributions to Theory

This study contributes to research by combining the frameworks of organizational culture and national culture. Until now the competing values framework, long-recognized in the managerial literature, has seen limited use in the marketing field (cf. Kumar et al. 1992). By considering organizational culture we specify how an organization's shared norms and behaviors affect new product performance. Organizational culture, more specifically the competing values framework, has been a useful tool for researchers because it organizes the structure, focus, means and ends of organizations into a nomologically relevant pattern.

Considering this focus in terms of the new product performance literature allows us to understand why different types of organizations have experienced different gradients of success in introducing new products. This is particularly important because both new product studies and organizational structure studies are concerned with similar issues: leadership, teamwork, goal-setting, monitoring, and performance outcomes.

By considering national culture we advance thought on the role of shared societal norms and behaviors. Although the national culture literature has been used quite extensively in marketing, its use in new product research has been less common (e.g., Evanschitzky et al. 2012). This literature is quite useful as it allows researchers to consider the context in which a study takes place or the context in which a new product is developed. This, in turn, increases our understanding of the factors that are required for successful introduction.

Considering both organizational and national culture together we directly address the notion

of value congruency. Value congruency (see Glazer and Beehr 2002) suggests that performance is enhanced when organizational values "fit" the national cultural context. This is clearly reflected in our study as we develop how certain characteristics of new product success are grounded in organizational and national culture. Both frameworks consider, among other things, uncertainty, flexibility and stability, the making and breaking of rules, and performance measurement. When important values such as these are congruent between organizational and national culture the administration of new product concepts becomes more efficient, leading to success. In summary, value congruency gives specific predictions when firms might expect to experience greater or lesser success in new product performance.

Managerial Implications

The main finding of this meta-analysis reveals that firms seeking to improve the success rate of new products on international markets should consider the fit between national and organizational culture.

While an organization with a market orientation is most successful in developing new products, a hierarchy type organization is least successful. Clan and adhocracy are in between these types of organizations. This ordering is largely in line with the suggested ordering in impact on firm performance provided in the literature (Desphandé and Farley 2004). It further supports the idea that an external focus is supportive in identifying customer needs more rapidly and that successful product innovations require flexibility and creativity. The obvious implication seems to follow a market orientation to improve product success. However, our unique analyses reveal that the main effects of organizational culture are contingent on national culture. We find that a clan culture in a collectivistic country leads to the same performance

outcomes as a market culture type, as does an adhocracy culture in low uncertainty cultures, and a hierarchy culture in high power distance countries.

Our findings show that managers interested in improving the success rate of new products on international markets should consider the fit of a national culture with the firms' organizational culture. Because managers cannot change the national culture of a country, they have two options: (1) adopt the organizational culture to cultural values in a country and/or (2) select markets that fit their organizational culture.

Working in varied cultures influences new product success via the fit with organizational culture. Our findings show how companies' internationalization strategies can improve new product success by adopting, supporting, and building an organizational culture that fits the national culture of the organization members. For instance, a clan culture type is more likely to improve new product success of companies that are settled in collectivistic countries such as China or in low power distance countries such as Scandinavian countries. An adhocracy type is more efficient for new product success in low uncertainty avoidance countries such as Singapore or Hong Kong or in countries low in masculinity. Because it is not easy to adopt an already established organizational structure, companies can select an internationalization strategy that enables organizational structures that can differ from the organizational structure of the company in the home country.

If a company is in the process of selecting international markets, the decision can be guided by the fit between the organizational culture in the home country and the national culture of the foreign market. For instance, an organization with a hierarchy culture would preferably select high power distance countries. Once countries are selected whose cultural values do not fit the organizational culture of the company, internationalization strategies can be chosen that enable

different organizational structures in the new market.

It is of course not advisable to change an organizational culture when entering a single new country. Neither would it be advisable not to enter an otherwise attractive country simply because of a misfit between cultural values of the host country and organizational culture. Clearly, many more motives drive the decision to internationalize than the fit between the organizational culture and host country's cultural values, for instance strategic considerations (Chen 2008). However, when faced with similarly attractive host countries and resource constraints that would only allow entering a limited number of countries, the idea of "fit" is a suitable additional decision criterion.

Limitations and Future Research Directions

Some limitations of this study refer to restrictions that are common for the use of meta-analytic data. For instance, we refrained from adding further moderator variables such as more detailed firm characteristics (e.g., firm size, particular industry), as the information is not readily available in all primary studies. Another limitation results from restricting the sample to studies published in English. While such language bias is broadly accepted in meta-analysis for practical and substantial reasons, the use of country as a moderator variable brings about the question whether our study sample is indeed representative for all countries in the world or whether it over-represents countries from the Western hemisphere, in particular, English-speaking countries. Although such bias does not necessarily negate our results, it might affect the power of test results.

A related problem refers to the assumed measurement invariance across countries, which is required in order to explain the observed differences in effect sizes as culture-dependent instead

of depending on the way measures perform across countries (Steenkamp and Baumgartner 1998). Meta-analytic effect sizes do not allow testing for measurement invariance due to the level of data aggregation in meta-analysis. This problem is so far ignored in meta-analyses that test for differences across countries (e.g., Fischer and Mansell 2009). Although some country samples in our meta-analysis are taken from a single study that has successfully tested for measurement invariance across countries (e.g., Song et al. 2010, Wren et al. 2000), we cannot provide a final test of measurement invariance for all countries and all measures used in our meta-analysis. Future meta-analytic studies should be aware of the problem when applying country moderator variables to explain the variance in effect sizes.

Another caveat for this meta-analysis is the reliance on Hofstede's cultural dimensions. Although this approach is still widely used in international marketing research, several critics have been raised regarding, in particular, the timeliness and robustness of the dimensions (Leung et al. 2005). A more recent data set is provided by the GLOBE project (House et al. 2004). Unfortunately, GLOBE data are available for only fifteen out of twenty-two countries in our data set, which makes a replication of the analysis based on GLOBE data unreliable. Nevertheless, the corresponding cultural values of the GLOBE data set were highly correlated with Hofstede's dimensions across the studies for which both cultural values were available (power distance: r = .44, uncertainty avoidance: r = .41, individualism and institutional collectivism r = -.39, individualism and in-group collectivism: r = -.45, masculinity and assertiveness: r = .65).

Generally, it should be noted that meta-analysis should not be considered a substitute for new primary research. Meta-analysis can help ensure that the next wave of primary research is directed in the most illuminating direction. In this spirit, we offer some implications for further research.

First, the competing values perspective offers a framework for understanding the tradeoffs between various organizational cultural characteristics and new product success. For instance, researchers should investigate how one dimension of organizational culture might conflict with another, such as how a product development process might maintain a flexible stance within a need to be authoritatively governed by rules and guidelines. Likewise, how can the process maintain an external focus (on markets and customers) while respecting internal standards and workers' harmony? Such conflicting perspectives may diminish the new product development process in a variety of ways. Likewise, different dimensions (for instance flexibility and an internal focus) might work together to enhance the experience.

Regarding national culture, our findings may help guide researchers toward understanding why certain national cultures seem adept at producing products that excel along certain dimensions (e.g., Italian design, Swiss craftsmanship, American innovation, German engineering). Are Italian firms more design-oriented? Certainly not in all cases, but applying a national culture perspective to new product innovation may be worthwhile. As globalization increases and products are designed and produced offshore it will be interesting to see if, for instance, Italian products designed and produced in, say, the US, would still share the same unique design characteristics.

Finally, there are many combinations of organizational culture, national culture, and new product performance that might be evaluated for success on a variety of performance platforms. In fact, work by Kumar et al. (1992) demonstrated that the competing values approach has a multi-faceted view of performance, and that performance is a function of a particular perspective. Being able to measure new product performance, whether it is from the perspective of flexibility or stability, or an internal or external orientation, seems worthwhile. Understanding

such different performance perspectives will help advance this literature. The main findings that a fit between organizational culture and national culture increases new product success should apply to a variety of organizational outcome variables, because value congruency has positive effects on organizational behavior and outcomes in general. New product success seems to be a good example outcome measure, because it is strongly related to other performance measures of a company that could replace new product success in our model. We went through the studies in our database and found 18 correlations for the relationship between new product success and overall organizational performance. The weighted mean correlation is .75, indicating a very strong relationship between new product performance and overall organizational performance.

Conclusion

In conclusion, this meta-analytic study has examined the fit between organizational cultural type and national culture. Relying on a unique value congruency framework and a competing value analysis we found that the combination of organizational culture type and national culture makes a difference when it comes to performance outcomes; in other words, cultural fit matters. The field's understanding of such issues will allow better planning and execution when it comes to designing new product development teams and locations. Finally, we hope that this study will act as a springboard for both researchers and managers as they come to grips with the challenges posed by cultural issues in organizations.

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Table 1

Variables Used in the Meta-Analysis

Variable acronym	*Variable description and operationalization*	*Coding, example studies, and data description*
CLAN	Organizational culture with an internal orientation that produces relationship-building behaviors and a flexible structure. It is characterized by a mentor-style leadership, cohesion and morale, consensus, employee commitment, participation, teamwork, a personal atmosphere and a sense of family.	148 estimates based on the following coding: Cohesion, mutual support (e.g., Dayan and Di Benedetto 2009), Collaboration (e.g., Gomes et al. 2003), Employee commitment (e.g., Dayan 2010), Empowerment, autonomy (e.g., Dayan and Basarir 2010, Sethi 2000), Harmony of relations (e.g., Fernández et al. 2010), Human focus (e.g., Enzing et al. 2011), Participation (e.g., Bonner et al. 2002), Positive work environment (e.g., Belassi et al. 2007), Sharing information freely, working closely (e.g., Atuahene-Gima 2003, Kahn 2001), Supportive climate, management style (e.g., Lievens and Moenaert 2000), Team rewards (e.g., Bonner et al. 2002), Teamwork, trust in others (e.g., Chien and Chen 2010, Garcia et al. 2008)
ADHOCRACY	Organizational culture with an external orientation that is supported by a flexible organizational structure. It is characterized by entrepreneurial dynamism and a risk-taking leadership, innovation, creativity, adaptability, and problem solving; it is process oriented and emphasizes growth.	79 estimates based on the following coding: Innovation orientation, innovative climate (e.g., Riel et al. 2004, Zhang and Duan 2010), Creating change, learning orientation (e.g., Atuahene-Gima et al. 2005, Baker and Sinkula 1999), Risk-taking leadership (e.g., Calantone et al. 2003), Creativity, openness, flexibility (e.g, Im and Nakata 2008), Process orientation (e.g., Enzing et al. 2011)
MARKET	Organizational culture with an external orientation that is reinforced by an organizational structure that is steeped in control mechanism. It is characterized by a goal-oriented leadership, task accomplishment and goal achievement, competitiveness, production and market orientation; it is results-oriented.	183 estimates based on the following coding: Goal oriented, goal clarity, stability (e.g., Lynn et al. 1999, Salomo et al. 2007), Market, customer, and competitor orientation (e.g., Atuahene-Gima 2005, Calantone et al. 2003, Paladino 2007), Pressure for performance (e.g., Rodríguez-Escudero et al. 2010), Results/output-oriented (e.g., Enzing et al. 2011)
HIERARCHY	Organizational culture with an internal orientation that is supported by a structure driven by control mechanism. It is characterized by a coordinator-style leadership, formalization, presence of rules and policies, stability, uniformity, conformity, and predictability.	79 estimates based on the following coding: Centralization/bureaucratic structure (e.g., Sarin and Mahajan 2001), Formalization (e.g., Chang and Cho 2008, Chen 2007), Management control, manager authority (e.g., Bonner et al. 2002), Presences of rules and formal procedures (e.g., Lee et al. 2000)

IND, UA, MASC, PD	National culture captures differences in cultural values of countries. Measured by Hofstede index scores of individualism, power distance, uncertainty avoidance, masculinity (Hofstede 2001).	Continuous variables, mean-centered for each cultural dimension; 22 countries; Individualism [Min: 14;Max: 91]; Power distance [22;104]; Uncertainty avoidance [8;94); Masculinity [14;95];
OUTCOME	Captures whether performance was measured as either technological performance (e.g., product quality) or as financial or market-based performance (e.g., market share/ROI).	0 = technological performance (147 estimates), 1 = financial/market-based performance (342 estimates)
SCALE	Captures whether performance was measured by either single item or multi-item scales (Henard and Szymanski 2001).	0 = single-item measure (123 estimates), 1 = multi-item measure (366 estimates)
TIMING	Captures whether performance was measured closer to when the product was introduced or after more time has elapsed since introduction (more or less than 36 months) (Henard and Szymanski 2001).	0 = short-term performance data (357 estimates), 1 = long-term performance data (132 estimates)
TECHNOLOGY	Captures whether products are traded on high-technology markets (e.g., electronics industry) or low-technology markets (e.g., food sector) (Henard and Szymanski 2001).	0 = low-technology market (147 estimates), 1 = high-technology market (318 estimates)
PRODUCT	Captures whether products are services (e.g., banking) or goods (e.g., food) (Henard and Szymanski 2001).	0 = services (75 estimates), 1 = goods (414 estimates)
PERFORMANCE	Captures whether performance was operationalized through objective data from company records (e.g., ROI, sales, profit) or through subjective data from manager' assessment (Henard and Szymanski 2001).	0 = objective performance data (7 estimates) 1 = subjective performance data (482 estimates)
SOURCE	Captures whether the data are gathered from project managers or from senior managers (Henard and Szymanski 2001).	0 = senior manager data (247 estimates), 1 = project manager data (242 estimates)

Table 2

Correlation Matrix 1 – Clan (n = 148)

#	Variable	1	2	3	4	5	6	7	8	9	10	11	12
1	Z (effect size)	1.000											
2	IND	-.431	1.000										
3	UA	.384	-.477	1.000									
4	MASC	*-.038*	*.146*	-.163	1.000								
5	PD	.371	-.784	.520	*.140*	1.000							
6	OUTCOME	*-.143*	*.123*	-.202	-.209	-.210	1.000						
7	SCALE	.243	-.431	.309	.342	.530	*-.161*	1.000					
8	TIMING	-.306	.537	-.451	.327	-.622	.219	-.680	1.000				
9	TECHNOLOGY	.314	-.453	*.146*	*.111*	.381	*-.018*	.420	-.369	1.000			
10	PRODUCT	*.137*	-.234	*-.127*	.414	*.114*	*-.144*	.310	-.235	.626	1.000		
11	PERFORMANCE	*.038*	*.124*	*.151*	*-.099*	*-.153*	*-.066*	*-.056*	*.051*	*-.076*	*-.048*	1.000	
12	SOURCE	*.137*	*-.109*	.254	-.253	*.115*	-.189	.255	-.291	*-.066*	-.273	*.127*	1.000

Figures in italics are not significant (p => .05).

Correlation Matrix 2 – Adhocracy (n = 79)

#	Variable	1	2	3	4	5	6	7	8	9	10	11	12
1	Z (effect size)	1.000											
2	IND	.479	1.000										
3	UA	-.493	-.476	1.000									
4	MASC	.365	*.114*	-.334	1.000								
5	PD	*-.156*	-.878	.284	*.062*	1.000							
6	OUTCOME	*.018*	*-.144*	*.029*	-.255	*.133*	1.000						
7	SCALE	*.060*	-.272	*.093*	.594	.295	-.260	1.000					
8	TIMING	*-.020*	.268	*-.026*	-.591	-.319	.272	-.638	1.000				
9	TECHNOLOGY	*-.060*	*-.144*	*.137*	.476	*.018*	-.256	.418	-.330	1.000			
10	PRODUCT	*.083*	-.286	*-.011*	.785	.300	-.250	.684	-.660	.652	1.000		
11	PERFORMANCE	-	-	-	-	-	-	-	-	-	-	1.000	
12	SOURCE	-.413	*-.059*	*.205*	-.542	*-.031*	.263	-.360	*.213*	-.434	-.498	-	1.000

The variable “performance” is a constant.

Figures in italics are not significant (p => .05).

Correlation Matrix 3 – Market (n = 183)

#	Variable	1	2	3	4	5	6	7	8	9	10	11	12
1	Z (effect size)	1.000											
2	IND	-.305	1.000										
3	UA	*-.052*	-.230	1.000									
4	MASC	*.123*	.160	-.280	1.000								
5	PD	.186	-.769	*-.038*	*-.030*	1.000							
6	OUTCOME	*-.088*	-.181	*.026*	*-.094*	*.141*	1.000						
7	SCALE	*.024*	-.271	*.003*	*.015*	.219	*-.072*	1.000					
8	TIMING	*-.132*	.176	*-.140*	-.245	*-.043*	*-.109*	-.280	1.000				
9	TECHNOLOGY	-.337	.148	*.008*	*.043*	*.003*	*.077*	.216	*-.134*	1.000			
10	PRODUCT	*.057*	*.019*	*-.100*	.148	*.053*	*-.121*	.311	-.153	.238	1.000		
11	PERFORMANCE	*.092*	.231	.257	*-.139*	-.368	*-.093*	*-.090*	*.122*	*-.065*	*-.044*	1.000	
12	SOURCE	.278	-.338	*.074*	*-.043*	.155	*.066*	*.105*	-.252	-.241	-.170	*.011*	1.000

Figures in italics are not significant (p => .05).

Correlation Matrix 4 – Hierarchy (n = 79)

#	Variable	1	2	3	4	5	6	7	8	9	10	11	12
1	Z (effect size)	1.000											
2	IND	-.406	1.000										
3	UA	.555	-.372	1.000									
4	MASC	-.460	.656	-.704	1.000								
5	PD	.506	-.712	.497	-.553	1.000							
6	OUTCOME	*.124*	*-.013*	*-.038*	*-.175*	*-.058*	1.000						
7	SCALE	*-.077*	*-.079*	*-.038*	*.094*	*.078*	-.394	1.000					
8	TIMING	*-.113*	*.136*	-.191	*.106*	*-.179*	*.057*	-.321	1.000				
9	TECHNOLOGY	*-.146*	*-.122*	-.431	*-.173*	*-.068*	*.181*	*-.106*	*.162*	1.000			
10	PRODUCT	-.237	*-.134*	-.366	*-.024*	*-.218*	*.048*	*.074*	*-.113*	.532	1.000		
11	PERFORMANCE	-	-	-	-	-	-	-	-	-	-	1.000	
12	SOURCE	.289	-.242	.225	*-.194*	.370	*.178*	-.297	*.096*	*-.064*	-.257	-	1.000

The variable “performance” is a constant.

Figures in italics are not significant (p => .05).

Table 3

Variance in the Organizational Culture – New Product Performance Relationship: Meta-Regression Estimates

Variable	Coding	Var. Function	Model 1: Clan	Model 2: Adhocracy	Model 3: Market	Model 4: Hierarchy
INTERCEPT			.215 (.389)	.819 (.163)***	.188 (.201)	-.338 (.190)$^{+}$
IND	Individualism (low to high)	H1	-.005 (.001)***			
UA	Uncertainty avoidance (low to high)	H2		-.008 (.002)***		
MASC	Masculinity(low to high)	H3			.002 (.002)	
PD	Power distance (low to high)	H4				.011 (.003)***
OUTCOME	Technological vs. financial/market performance	Control	-.066 (.066)	.063 (.063)	-.044 (.054)	.094 (.072)
SCALE	Single-item versus multi-item scale	Control	-.021 (.093)	.066 (.090)	.004 (.061)	-.060 (.090)
TIMING	Short-term vs. long-term performance data	Control	-.047 (.101)	-.009 (.085)	-.062 (.052)	-.048 (.095)
TECHNOLOGY	Low-technology vs. high-technology markets	Control	.168 (.087)	-.085 (.075)	-.220 (.048)***	-.071 (.099)
PRODUCT	Services versus goods	Control	-.060 (.098)$^{+}$	-.068 (.132)	.189 (.105)$^{+}$	-.069 (.106)
PERFORMANCE	Objective vs. subjective performance data	Control	.390 (.373)	-	.161 (.117)	-
SOURCE	Senior manager versus project manager data	Control	.061 (.077)	-.230 (.064)***	.133 (.048)**	.001 (.077)
Model fit						
N			148	79	183	79
F			5.14***	6.11***	6.12**	3.87**
Adj. R^2			15.76	29.23	23.05	30.46

The unstandardized regression coefficient with the standard error in brackets is given.

The variable "performance" is a constant in model 2 and model 4 and therefore excluded.

Adj. R^2 refers to the proportion of between-study variance explained.

$^{+}$ $p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$ (two-sided tests)

Table 4

Variance in the Organizational Culture – New Product Performance Relationship: Meta-Regression Estimates (Extended Models)

Variable	Coding	Var. Function	Model 1: Clan	Model 2: Adhocracy	Model 3: Market	Model 4: Hierarchy
INTERCEPT			-.012 (.541)	.878 (.167)***	.471 (.290)	.481 (.438)
IND	Individualism (low to high)	H1	-.005 (.002)*	-	-.004 (.001)**	-.001 (.002)
UA	Uncertainty avoidance (low to high)	H2	.005 (.002)*	-.007 (.002)***	-.003 (.001)*	-
MASC	Masculinity(low to high)	H3	.002 (.003)	-	.003 (.002)$^{+}$	-.009 (.005)$^{+}$
PD	Power distance (low to high)	H4	-.001 (.005)	-.003 (.002)	-.001 (.002)	.007 (.004)$^{+}$
OUTCOME	Technological vs. financial/market performance	Control	-.035 (.069)	.085 (.064)	-.084 (.052)	.067 (.070)
SCALE	Single-item versus multi-item scale	Control	-.043 (.097)	.072 (.089)	-.069 (.059)	-.046 (.087)
TIMING	Short-term vs. long-term performance data	Control	-.029 (.114)	-.025 (.085)	-.072 (.052)	-.035 (.092)
TECHNOLOGY	Low-technology vs. high-technology markets	Control	.163 (.090)$^{+}$	-.114 (.077)	-.170 (.048)***	-.110 (.097)
PRODUCT	Services versus goods	Control	-.015 (.115)	-.024 (.134)	.161 (.097)$^{+}$	-.073 (.112)
PERFORMANCE	Objective vs. subjective performance data	Control	.191 (.385)	-	.297 (.121)**	-
SOURCE	Senior manager versus project manager data	Control	.082 (.084)	-.216 (.063)***	.075 (.048)	.012 (.074)
Model fit						
N			148	79	183	79
F			4.30***	5.66***	6.77**	3.80**
Adj. R^2			15.31	29.38	25.84	37.49
Max. VIF (OLS regression)			4.49	3.87	3.35	3.17

The unstandardized regression coefficient with the standard error in brackets is given.

Due to high VIF values (> 5), the cultural dimensions of individualism and masculinity were excluded from model 2, the cultural dimension of uncertainty avoidance was excluded from model 4.

The variable "performance" is a constant in model 2 and model 4 and therefore excluded.

Adj. R^2 refers to the proportion of between-study variance explained.

$^{+}$ $p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$ (two-sided tests)

Table 5

Differences Between Effect Sizes

			ES differs from ES of…			
			Clan	Ahocracy	Market	Hierarchy
Organizational culture	**National culture**	**ES**	**.310**	**.232**	**.463**	**.104**
Clan	Overall	.310		=	<	>
	Low individualism	.470		>	=	>
	High individualism	.149		=	<	=
Adhocracy	Overall	.232	=		<	=
	Low uncertainty avoidance	.323	=		=	=
	High uncertainty avoidance	.122	=		<	=
Market	Overall	.463	>	>		>
	Low masculinity	.494	>	>		>
	High masculinity	.429	=	=		>
Hierarchy	Overall	.104	<	=	<	
	Low power distance	-.007	<	=	<	
	High power distance	.250	=	=	=	

The signs (=, <, >) indicate how the ES in the third column differs from the ES that indicates the main effect of each of the four organizational culture variables (indicated in the table headline). The differences are based on mean comparisons: "=" indicates that the difference is not significant (p => .10), ">" indicates that the ES is significantly larger and "<" indicates that the ES is significantly smaller than the main ES of the organizational culture variable.

Figure 1

Conceptual Framework for the Meta-Analysis