



Organizational capacity for change, change experience, and change project performance



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ABSTRACT

Building on the literature on organizational capacity for change, this study addresses two questions. First, why are some organizations more capable of change than others? Second, are organizations that are better at changing also more successful with their change projects? An analysis of data from a questionnaire given to top management in 134 firms in Germany found that an organization's capacity for change associates positively with the performance of its change projects. Higher levels of technological turbulence do not strengthen this relationship but weaken it. This study also shows that higher levels of technological turbulence as well as perceived positive previous change experiences are positively associated with an organization's capacity for change, but higher levels of competitive intensity and the amount of previous change experience are not.

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1. Introduction

The capacity of an organization to institutionalize and manage change on an ongoing basis is receiving increasing attention from both management research and practice. Change is by no means anything new to organizations. Both researchers and practitioners paid increasing attention to the management of organizational change, and to date, the number of articles on this topic has grown dramatically (Buchanan, Claydon, & Doyle, 1999; Lawler & Worley, 2006; Schreyögg & Noss, 2000). However, a wide range of contradictory and confusing approaches and theories occur in the change management literature (e.g., Burnes, 2004; Cummings & Worley, 2009; Thames & Webster, 2009). Guimaraes and Armstrong (1998) argue that there is also a lack of empirical evidence and consisting mainly of superficial analyses and personal opinions. Doyle (2002) suggests that existing practice and theory rests on unchallenged assumptions about the nature of organizational change.

Although a lack of consensus exists regarding a commonly accepted framework for the management and the implementation of change in organizations, substantial agreement on three important issues does exist. First, the concept of change itself has changed over the past few years: "Change is changing" (Miller, 2004, p. 9). Today organizations face increases in the pace, complexity, and unpredictability of change

(Burnes, 2004; Kerber & Buono, 2005; Kotter, 1996; Miller, 2004). Second, whether triggered by external or internal factors, change has become much more diverse as it comes in all shapes, forms, and sizes (Balugon & Hope Hailey, 2004; Burnes, 2004; Kotter, 1996; Luecke, 2003), and as a result, companies from all industries are interested in change. Third, the successful management of organizational change is a critical factor for all organizations in order to survive and succeed in today's highly competitive and turbulent business environment (Balugon & Hope Hailey, 2004; Lawler & Worley, 2006; Luecke, 2003).

Regarding the last point in particular, poor success rates of change initiatives appear on a regular basis. Beer and Nohria (2000), Balugon and Hope Hailey (2004), and Pelletiere (2006) point out that a failure rate of 70% of all change initiated programs occurs. Hence, change is risky but the paradox is that organizations have no choice and must change in order to stay competitive (Klärner, Probst, & Soparnot, 2008). In addition, the high failure rate may also suggest that a valid framework for organizations on how to implement and manage change successfully is lacking. One of the causes of this high failure rate may be that traditional approaches of change management are based on equilibrium assumptions (Lawler & Worley, 2006; Schreyögg & Noss, 2000). Lewin's (1947) well-known three-step process of unfreezing–moving–refreezing as well as the punctuated equilibrium approach (Miller & Friesen, 1982; Tushman & Romanelli, 1985) implies that organizations exist in some form of equilibrium before a disruption occurs. The organization then goes through a relatively short period of dramatic shifts and transition, followed by a new period of stability. So both models rest on the two basic assumptions that organizational change

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is a clear-cut and distinctive process and that it is relatively rare in organizational life (Schreyögg & Noss, 2000).

Organizational capacity for change (OCC) is receiving increasing attention (Soparnot, 2011). Judge and Douglas (2009, p. 645) call this capability “the new and increasingly strategic imperative of the 21st century.” However, despite its often-claimed importance and the emerging literature, the understanding of OCC is still in its infancy. So far, very little research exists about possible antecedents, consequences, or relationships with other constructs (Klarner et al., 2008; Meyer & Stensaker, 2006; Shipton, Budhwar, & Crawshaw, 2012). Most change management studies are theoretical and conceptual, dealing mainly with the construct itself and its single dimensions while providing recommendations on how to develop an organization's capacity for change (Lawler & Worley, 2006; Meyer & Stensaker, 2006; Thames & Webster, 2009). Judge and colleagues (Judge & Douglas, 2009; Judge & Elenkov, 2005; Judge, Naumova, & Douglas, 2009) conducted three empirical studies, while others include Bennebroek Gravenhorst, Werkman, and Boonstra (2003), Horz, Heeg, and Caglar (2010), Arnulf (2012), and Kok and Driessen (2012).

This study builds on this previous research and aims to extend theory in two further directions. Judge and colleagues found a positive relationship between an organization's capacity for change and its environmental performance (Judge & Elenkov, 2005), and also between OCC and firm performance (Judge & Douglas, 2009; Judge et al., 2009). Higher versus lower levels of perceived environmental uncertainty have a positive effect on the extent to which OCC occurs in an organization (Judge & Douglas, 2009). Environmental uncertainty strengthens the relationship between OCC and firm performance (Judge et al., 2009). According to Judge and Douglas (2009), organizational adaptability associates positively with OCC whereas organizational alignment does not. This study draws on the contingency approach as it distinctively theorizes the relationship between the organization's internal and external situation (i.e., the context factors), its structure, the behavior of its members, and the organizational efficiency (Jacobs, van Witteloostuijn, & Christe-Zeyse, 2013). This allows the exploration of why some organizations are more capable of change in relation to structural as well as behavioral aspects. An organization's capacity for change is positively related to the performance of its change projects, i.e., the organization's capability to successfully lead and manage “a cascading series of inter-related change initiatives” (McGuinness & Morgan, 2005 p. 1312), as well as to previous change experiences, i.e., experiences from earlier change events that were further developed through constant learning processes. In summary, this article addresses two important research questions: Why are some organizations more capable of change? Are organizations that are better at change also more successful in the performance of their change projects?

This study uses data from a survey of 134 large German companies from the manufacturing and processing industries to analyze change management projects using multiple regression analysis. The results of this study indicate that more change-capable organizations are more successful with regard to their change projects' performance and that some factors have a positive influence on this construct while others do not. The findings of this research not only reveal further important relationships with the OCC construct but also extend the research on the continuous approach to change as well as on the dynamic capabilities approach (Teece, Pisano, & Shuen, 1997). The article proceeds with a short review of the relevant literature, followed by the development of the research hypotheses. The next section provides a description of the data, sample, and variables and a report on the regression analyses. In the final sections provide results, conclusions, and suggestions for future research.

2. Literature review

The issue of how organizations can best cope with evolving, volatile, rapidly changing, and unpredictable business environments is a topic of

increasing interest among managers and researchers. Managers of large companies worldwide are concerned about how to remain competitive and succeed under such conditions: “Experiments to increase the capacity to adapt and learn are carried out in large companies all over the world” (Achtenhagen, Melin, & Müllern, 2003). Among researchers, there seems to be wide consensus that organizations need to develop capacity for rapid adaptation, innovation, and flexibility (Kok & Driessen, 2012; Levinthal & March, 1993; Pettigrew & Whittington, 2003; Van den Bosch, Volberda, & de Boer, 1999). Within the broad stream of research on this topic, the capacity of an organization for change emerged as a promising new construct (Bennebroek Gravenhorst et al., 2003; Judge & Elenkov, 2005; Judge et al., 2009; Klarner et al., 2008; Meyer & Stensaker, 2006; Shipton et al., 2012). However, there is no commonly accepted definition of this concept. Table 1 shows key definitions of OCC from different authors.

Despite the disagreement reflected in the range of definitions, certain characteristics of the OCC construct emerge. First, the essence of

Table 1
Definitions of organizational change capacity (OCC).

Source	Definition
Pagliarella (2000)	[...] the concept of capacity to change , which we define as an organization's ability to initiate and successfully achieve change on an ongoing basis.
Auster et al. (2005)	Change capable : the ability to adapt and evolve successfully again and again, even though specific change initiatives may vary dramatically in terms of scope, depth, and complexity.
Judge and Elenkov (2005)	Organizational capacity for change (OCC) is defined as a broad and dynamic organizational capability that allows the enterprise to adapt old capabilities to new threats and opportunities as well as create new capabilities.
McGuinness and Morgan (2005)	Organizational change capability (OCC) is a multi-component formative construct [...] that represents an organization's capability of implementing incessant change [...], its essence being a capability for leading and managing a cascading series of inter-related change initiatives.
Meyer and Stensaker (2006)	We define [capacity for change] as the allocation and development of change and operational capabilities that sustains long term performance. Making change happen without destroying well-functioning aspects in an organization and harming subsequent changes requires both capabilities to change in the short and long term and capabilities to maintain daily operations. ... Our understanding of change capacity is that organizations are capable of implementing large-scale changes without compromising daily operations or subsequent change processes.
Klarner et al. (2007)	Organizational change capacity is the organization's ability to develop and implement appropriate organizational changes to constantly adapt to environmental evolutions (external context) and/or organizational evolutions (internal context) in either a reactive way (adaptation) or by initiating it (pro-action).
Klarner et al. (2008)	Organizational change capacity can be defined as an organization's ability to develop and implement appropriate organizational changes to constantly adapt to its environment. This implies a focus on multiple changes over time, which is contrary to the literature's predominant view of change as isolated events. Change capacity is thus a dynamic capability. However, change capacity not only describes a dynamic process of continuous learning and adjustment that enables the organization to cope with unknown future circumstances, but also describes the ability to implement those changes.
Judge and Douglas (2009)	[...] organizational capacity for change (OCC) , which is defined as a combination of managerial and organizational capabilities that allows an enterprise to adapt more quickly and effectively than its competition to changing situations.
Buono and Kerber (2010)	[...] change capacity —the ability of an organization to change not just once, but as a normal response to changes in its environment.
Judge (2011)	OCC is a dynamic, multidimensional capability that enables an organization to upgrade or revise existing organizational competencies, while cultivating new competencies that enable the organization to survive and prosper.

this construct lies in the capability of an organization to change successfully on an ongoing basis. This means that although OCC builds basically on the notion of continuous change, OCC also comprises the successful management of episodic change processes and focuses on multiple changes that are implemented in parallel or sequentially over time (Auster, Wylie, & Valente, 2005; Klarner et al., 2008; McGuinness & Morgan, 2005). Thus, OCC represents an integrative approach to change and contradicts the literature's predominant "either-or-consideration" of change (Judge et al., 2015; Pettigrew, Woodman, & Cameron, 2001; Soparnot, 2011). Second, OCC is a comprehensive construct that refers to all different forms, sizes, and types of change that appear in organizations (Auster et al., 2005). This research suggests that OCC has both a reactive component as well as an anticipatory character concerning changes within an organization and its environment (Klarner, Probst, & Soparnot, 2007). Third, OCC is a dynamic capability that allows an organization to continually reconfigure and adapt its old capabilities to changing situations as well as to create new capabilities (Judge, 2011; Klarner et al., 2008; Soparnot, 2011). Fourth, drawing on the dynamic capability view, OCC is of special importance in dynamic and fast-paced environments in which quick and effective organizational changes are decisive for a company's future survival and success (Arend & Bromiley, 2009; Barney, Wright, & Ketchen, 2001; Lawler & Worley, 2006; Pagliarella, 2000). Fifth, OCC addresses the conflicts between change and stability in organizations (Leana & Barry, 2000) as well as between exploration and exploitation (Gibson & Birkinshaw, 2004; Tushman & O'Reilly, 1996) in that it implies making change happen and successfully maintaining daily operations at the same time (Meyer & Stensaker, 2006).

OCC is defined in this study as a broad dynamic, multidimensional capability that enables an organization to initiate and successfully achieve changes of different types, sizes, and forms on an ongoing basis. OCC is multidimensional comprising different aspects of leadership, culture, employee behavior, and an organizational infrastructure supporting organizational change. (Judge & Elenkov, 2005; Judge et al., 2009; Klarner et al., 2008; Lawler & Worley, 2006; Thames & Webster, 2009).

OCC relates to other organizational change constructs but can also be clearly distinguished from them as a distinctive capability. First, OCC is similar to the adaptability construct, which "refers to the capacity to reconfigure activities in the business unit quickly to meet changing demands in the task environment" (Gibson & Birkinshaw, 2004, p. 209). Adaptability and adaptation refer to organizational changes in a mainly reactive way (Staber & Sydow, 2002), whereas OCC comprises both reactive and anticipatory change. Second, OCC is closely related to organizational flexibility that Palanisamy and Sushil (2003, p. 84) define as "the capacity to respond to environmental shifts." This definition is not only rather broad but, like adaptability, also stresses reactions to change. Organizational flexibility is a unidimensional construct with four items, whereas OCC is a multidimensional concept. Third, OCC is similar to organizational readiness for change (Armenakis, Harris, & Mossholder, 1993; Cunningham et al., 2002). However, while the former focuses mainly on employee attitudes towards change, OCC also includes leadership capabilities as well as a change-supporting organizational culture and infrastructure (Judge et al., 2009).

OCC is broader and more encompassing than other constructs mentioned above. OCC positions an organization not only to react to different changes but also to proactively take opportunities to adapt, learn, and innovate (Judge & Elenkov, 2005). Thus, OCC is best understood as a "meta-capability" that enables an organization to stay competitive in volatile and unpredictable business environments (Judge et al., 2009; Kok & Driessen, 2012).

3. Development of hypotheses

3.1. External context factors and OCC

According to Dess and Beard (1984), environmental dynamism includes both the rate of change as well as the degree of instability in

the environment. Typical characteristics of turbulent environments are rapid change, short product life cycles, obsolescence of current products and services, and requirement for the development of new competences. In management research, there seems to be a wide consensus that OCC is of special importance for a company's competitiveness in fast changing and dynamic business environments: "competitive advantage can exist in dynamic markets only because of the ability of firms to continuously change" (Barney et al., 2001, p. 630; see also Cummings & Worley, 2009; Lawler & Worley, 2006; Pagliarella, 2000; Rindova & Kotha, 2001; Shipton et al., 2012). In the same vein, Pirker (2007) states that very dynamic environments foster change-capable organizations and vice versa. Following this assumption, organizations must react efficiently and quickly to changing business environments and foresee such changes as soon as possible in order to survive.

Judge and Douglas (2009) found that there is a significant positive relationship between perceived environmental uncertainty and OCC. Furthermore, Wu (2010) found that the explanatory power of the dynamic capability view exceeds that of the resource-based view in volatile environments. Such findings suggest the following hypothesis. H1a: High levels of technological turbulence have a positive impact on an organization's capacity for change.

As with technological turbulence, high levels of competitive intensity result in stress, risk, and uncertainty for organizations. Almost 40 years ago, Khandwalla stated, "The organization needs to be highly adaptive to be able to cope with the shifting arenas of battle, be they in pricing, in distribution, in product quality, or in service to the customer" (Khandwalla, 1973, p. 285f). This finding is of particular importance in highly competitive industries where competitive advantages erode quickly due to imitation. "In these situations, standard sources of competitive advantage – strategy, organization design, and core competencies – erode quickly and provide only temporary advantage. What is needed are dynamic capabilities built into the organization that enable it to renew forms of competitive advantage constantly to adapt to a rapidly shifting environment" (Cummings & Worley, 2009, p. 535; see also Rindova & Kotha, 2001; Shipton et al., 2012). Following this literature and research, the second hypothesis is as follows. H1b: High levels of competitive intensity have a positive impact on an organization's capacity for change.

3.2. Previous change experience and OCC

Drawing on experience curve effects, studies in different contexts (e.g., M&A, manufacturing, entering, and managing alliances) show that organizational processes develop through experience and organizational learning (Bingham & Eisenhardt, 2006). These findings also hold true in the organizational change context. Thus, organizations can only develop capabilities to initiate and implement change by undergoing change, by gaining experience from change, and by constantly learning from these experiences: "In short, organizations learn to change by changing" (Amburgey, Kelly, & Barnett, 1993, p. 54). Meyer and Stensaker (2006) talk of "routinizing change," which means to develop or use structures, processes, and procedures for different types of change and in multiple change contexts. Organizational routines help to achieve a balance between change and stability as routines serve as connections between employees (Feldman & Rafaeli, 2002). As it is particularly important to develop a common understanding of a change initiative, these connections transfer information, create social support, and establish a shared notion for the change (Bechky, 2003; Gioia & Chittipeddi, 1991). Furthermore, established routines reduce the number of new things employees have to relate to and foster the trust between employees and the management in organizational change processes (Meyer & Stensaker, 2006).

The underlying argument is that organizations can learn to handle change by developing and relying on institutionalized routines for initiating, managing, and implementing organizational changes. Organizations only become better at coping with any type of change and thus

developing only OCC by gaining experience in these routines (Worley & Lawler, 2009). Therefore, the quantitative amount of change experiences is of special importance for developing OCC, suggesting the following relationship. H2a: The quantity of previous change experiences has a positive impact on an organization's capacity for change.

Not only the quantity but also the quality of change experiences is crucial for developing OCC. Following Cyert and March (1963), the more often a routine is applied, the more that routine is associated with success. In contrast, routines leading to failure are more likely to disappear over time. Thus, routines for handling change develop and become established, especially when such a routine is perceived as being successful and is associated with a positive change outcome. Werkman (2009) showed that organizations with a positive orientation towards change had more successful change initiatives. In contrast, organizations that have mainly experienced organizational change as negative, risky, and likely to fail will have a lower level of OCC (Meyer & Heimerl-Wagner, 2000). This research leads to the following relationship. H2b: The quality of previous change experiences has a positive impact on an organization's capacity for change.

3.3. OCC and change project performance

The value of OCC for organizations lies in the potential to cope with continuously shifting business environments and unforeseen changes on an ongoing basis. However, for continuous change to take place in organizations, continuous change itself must be decomposed into single change initiatives (Lawrence, Dyck, Maitlis, & Mauws, 2006). The relationship between OCC and change project performance becomes obvious. Following the definition of OCC, it represents exactly this capability of an organization to lead and manage "a cascading series of inter-related change initiatives" (McGuinness & Morgan, 2005, p. 1312) and "to develop and implement appropriate organizational changes" (Klarner et al., 2008, p. 58). The advantage of OCC is that an organization does not have to start from scratch each time it confronts organizational change as employees and the organization is always at a certain level of a change-ready state. Organizations that have developed at least a certain level of OCC are able to reduce the time and the efforts needed for initiating and implementing a change project (Pagliarella, 2000). These organizations reach their change objectives faster and more efficiently and are able to take advantage of market opportunities faster or react to external or internal changes (Lawler & Worley, 2006; Pagliarella, 2000). Horz et al. (2010) showed a positive relation between an organization's capacity for change and the average success rate of its change projects. By differentiating and comparing the two groups of "very change-capable" and "less change-capable" organizations, they also find that organizations with a high level of OCC have a 10% higher success rate than the organizations from the comparison group (Horz et al., 2010). This theory and research suggests that organizations with a higher capacity for change are more successful in their change projects' performance. H3: An organization's capacity for change positively affects the performance of its change projects.

4. Methods

4.1. Sample and data collection

This study focuses on large companies in the manufacturing industries in Germany. The management board, executives, and upper-level decision makers in the divisions of change management, organizational development, and human resources were surveyed since they are usually involved in change programs and also oversee general matters related to OCC for their organizations (e.g., culture, communication, structure). Arnulf (2012) clearly demonstrates the importance of their traits for OCC. The survey was restricted to large German companies with a minimum of 500 employees and at least 50 million Euros of

sales. Only companies from manufacturing industries were included because of dissimilarities between manufacturing, service, and trade firms.

Using the above selection criteria, 1,897 firms were selected from the Hoppenstedt German company database that contains data on all companies in Germany with more than 200 employees and uses the industry classification of the German Federal Statistical Office (WZ codes) and the European Union (NACE codes). The sample consists of companies with starting WZ 2008 codes from 10 to 32.

From the 1,897 companies, 20 companies with starting WZ 2008 codes 12, 15, and 19 were excluded as these were disproportionately underrepresented in terms of numbers compared to the firms in the other industries. From the remaining 1,877 companies, 1,000 firms were randomly selected. After extensive pretesting, a questionnaire was distributed by mail in April 2011. After a follow-up via e-mail, only 73 questionnaires were returned (7.3%). To increase the sample size, a further 541 firms were randomly selected out of the remaining 877 companies. The second mail survey took place in June 2011. Of these, 67 questionnaires (12.4%) were sent back after an e-mail follow-up. In total, 140 questionnaires were returned. Six of them were unusable, so the final number of valid responses was 134, representing an overall return rate of 8.7%. This response rate is consistent with previous surveys conducted with similar samples and recipients (Waldersee, Griffiths, & Lai, 2003).

The range of the responding companies covered all the industries contacted, with a slightly higher percentage of firms coming from mechanical engineering as well as metal production and engineering. Since the German economy traditionally has a strong sector in both industries, this is not surprising. The company size varied widely between 500 and 100,000 employees, with an average of 4,080 employees and a median value of 1,300 employees. Almost all organizations had gone through one or more change programs (e.g., strategic reorientation, restructuring program, M&A) during the last 3 years. A total of 98% of the firms had initiated at least one change project, 60% had started three or more change projects, and 24% had initiated six or more change projects between 2008 and 2010; 74% of the respondents were CEOs or managing directors, while the other 26% held positions as directors in different functional areas (e.g., human resources, strategy, or organizational development). The average organizational tenure of the respondents was 12.5 years.

A test for non-response bias was conducted by checking for differences between early and late respondents. Following Armstrong and Overton (1977), differences between respondents and non-respondents resemble the differences between early and late returns. Therefore, the respondents were divided into terciles according to the date of return, and the first to the last terciles were compared. *T*-tests did not reveal any significant differences, at the 0.01 level, in the mean responses on each variable included in the study. *T*-tests were also performed to check for differences between responses from the first and second mailed survey, but no significant differences were found regarding each variable.

As self-reported data and a single key respondent for the predictor and criterion variables with no temporal separation were used, Harman's one factor test was conducted to determine whether common method bias may have been an issue (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). The factor analysis extracted three factors with eigenvalues greater than 1.0; the variance explained by the first, second, and third factor was 30%, 16%, and 15%, respectively. Hence, the results indicate that neither non-response bias nor common method bias were serious threats to the results of this study.

4.2. Variables and measures

Building on previous research, this study mainly uses existing validated items and questions from previous studies. Since these were in English, they were translated and adapted to German language usage,

and the translations were checked during the questionnaire pretest phase with seven industry experts and academic scholars.

All items in the questionnaire, except for the variables number of changes and organizational size, were measured along a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Thus, this study uses perceptual data. This approach was adopted as the measurement of behavioral practices (Delaney & Huselid, 1996), organizational change processes (Holt, Armenakis, Feild, & Harris, 2007), and organizational results (Ketokivi & Schroeder, 2004) using perceptual data is a frequent method in the research literature. Weick and Roberts (1993) argue that instead of behaving in accordance with objective data, people behave first of all according to their perceptions and, thus, subjective perceptions about organizational events are crucial.

Each item was tested with regard to item difficulty and discriminatory power, and the alpha coefficient was evaluated as well as the exploratory factor analysis for the multi-item constructs to control for internal consistency and unidimensionality. If quality standards were not met, single items were removed prior to the regression analysis.

4.2.1. Dependent variables

Since change project performance is not related to a specific type of change in this study, it is important that the measure fits different change contexts and is generally applicable. Waldersee and colleagues (Waldersee & Griffiths, 2004; Waldersee et al., 2003) measured change project performance with a single item by asking the respondents to which extent the change has achieved its initial goals. Raineri (2011) used two items, namely, the degree of attainment of the change program objectives and deadlines. In project management literature, three success criteria constituting the so-called Iron Triangle have been established to assess the success of a project: quality, time, and cost (Atkinson, 1999). This generally applicable approach was adopted for the study, and the respondents were asked to judge to which extent their change projects have reached their initial goals and met time as well as cost objectives on a corresponding seven-point Likert scale. Additionally, change management experts who pretested the questionnaire argued that change success also means achieving positive results, benefits, and improvements, even though these do not necessarily comply with the initial goals. Therefore, a fourth item was added to the scale by asking if the change projects attained positive results, benefits, and advancements. With these four items, the alpha coefficient for change project performance was 0.76.

OCC serves both as a dependent variable (H1a/b, H2a/b) and as an independent variable (H3) in this study. To measure OCC, Judge and his colleagues (Judge, 2011; Judge & Douglas, 2009; Judge & Elenkov, 2005) developed a 32-item scale that they derived from extensive research of the change management literature. Thereby, the OCC construct consists of eight dimensions, and each dimension consists of four items. Since previous research on this construct has proven its reliability and validity (Judge & Douglas, 2009; Judge & Elenkov, 2005; Judge et al., 2009), this measure was adopted for the study together with a seven-point Likert scale. The alpha coefficient for the OCC measure was 0.87.

4.2.2. Independent variables

Both measures for technological turbulence and competitive intensity from Jaworski and Kohli (1993) were adopted since other studies have proven the reliability and validity of these constructs (e.g., Auh & Menguc, 2005; Lichtenthaler, 2009; Sethi & Iqbal, 2008). Again, the five items for technological turbulence and the six items for competitive intensity were measured in combination with a seven-point Likert scale. Exploratory factor analysis showed the unidimensionality of both constructs. However, due to low discriminatory power, one item was removed from the technological turbulence measure (“It is very difficult to forecast where the technology in our industry will be in the next five years”). Similarly, one item was excluded (“Our competitors are relatively weak”) from the competitive intensity scale due to low factor

loading. The alpha coefficients for technological turbulence and competitive intensity were 0.79 and 0.71, respectively.

In previous studies, the number (i.e., the quantity) of changes experienced was often measured in specific contexts, such as M&A experience (Bruton, Oviatt, & White, 1994; Haleblan & Finkelstein, 1999). Change experiences of a specific type are not used in this study but instead are referred to general terms. Therefore, a more general measure was applied by asking the respondents how many change projects (e.g., reorganization, strategic reorientation, M&A) they had initiated within the last 3 years (2008–2010). To measure the extent to which previous change experiences were viewed as positive and beneficial (i.e., the quality of previous change experiences), the respondents were asked to assess the following item on a seven-point Likert scale (1 = strongly disagree; 7 = strongly agree): “Our company has solely made positive experiences with organizational change during the last 3 years (2008–2010).”

4.2.3. Control variable

Nadler (1998) suggests that the management of change processes may be more demanding in large organizations than in smaller firms. Following Burns and Stalker (1961) and Hannan and Freeman (1984), larger firms may be less change-capable due to an increased formalization of routines, a higher level of mechanistic structures, and organizational inertia. Therefore, organizational size was included as a control variable in this study. In line with previous research in this field (Judge & Douglas, 2009; Judge et al., 2009), organizational size was measured in terms of the number of employees in 2010 and the natural log was used (Wooldridge, 2000).

5. Results

Table 2 reports the means, standard deviations, correlation, and alpha coefficients for all variables included in this study. The alpha coefficients exceed the recommended 0.70 reliability threshold (Nunnally, 1978), indicating the high internal consistency of the multi-item constructs. The correlations in Table 2 and the Variance Inflation Factors (VIF) associated with each model underwent review to check for potential problems of multicollinearity. According to both the correlations and the VIF values, multicollinearity is not an issue with this data.

First, the direct effects of technological turbulence (H1a), competitive intensity (H1b), and the quantity and quality of change experiences (H2a and H2b) on OCC were explored. As can be seen from Model 2 of Table 3, both technological turbulence and positivity of previous change experiences have a positive impact on OCC ($B = 0.190$; $p < 0.5$ and $B = 0.344$; $p < 0.001$). In contrast, neither competitive intensity nor the number of previous change experiences has any significant relationship with OCC. Consequently, the results support H1a and H2b whereas H1b and H2a do not receive support.

Finally, to test Hypothesis 3, OCC was regressed against change project performance while controlling for organizational size. As Model 1 of Table 3 shows, OCC is significantly and positively related to change project performance ($B = 0.449$; $p < 0.001$). Therefore, Hypothesis 3 is supported by the data. The variance explained by the dependent variable is 0.276. Considering the fact that change project performance is also determined by a variety of other factors (e.g., project planning, project controlling, top management support), this level is acceptable.

6. Discussion and conclusions

First, the positive and significant relationship between OCC and performance of change project supports the fundamental idea that OCC helps organizations to manage inter-related change initiatives sequentially or in parallel (Klarner et al., 2008; McGuiness & Morgan, 2005; Paggiarella, 2000). This finding supports not only the research of Horz et al. (2010) but also existing results on its effectiveness (Judge & Douglas, 2009; Judge & Elenkov, 2005; Judge et al., 2009). Second, the

Table 2
Descriptive statistics, correlations, and reliability statistics ($n = 134$).

No.	Variable	Mean	SD	1	2	3	4	5	6	7	Alpha coefficient
1	OCC	5.04	0.64	1.00							0.87
2	Change project performance	5.23	0.91	0.55**	1.00						0.76
3	Technological turbulence	4.76	1.26	0.22*	0.12	1.00					0.79
4	Competitive intensity	4.16	1.04	-0.04	-0.07	0.06	1.00				0.71
5	Number of change experiences	3.47	0.98	0.04	0.09	0.00	-0.03	1.00			/
6	Positivity of change experiences	4.61	1.44	0.40**	0.47**	0.12	-0.06	-0.00	1.00		/
7	Organizational size	6.89	0.46	-.29**	-.26*	-.09	.11	-.05	-.19	1.00	/

* $p < .05$.

** $p < .01$.

finding that OCC is positively associated with higher levels of technological turbulence but not associated with higher levels of competitive intensity reveals insights into why some organizations are more capable of change. One explanation as to why H1b is not supported by the data may be the fact that while the companies in the sample need to be able to change and to quickly take advantage of upcoming market opportunities, their business environments seem to be particularly affected by an intensive price competition. Under such conditions, OCC may be less decisive for firm performance compared to, for example, cost cutting or operational efficiency. Finally, the results for the effect of previously experienced changes on OCC were mixed and therefore provided no clear answer to the question of why some organizations are more capable of change. Whereas the quantity of previously experienced changes is not associated with OCC, a significant and positive impact of the quality of perception of previously experienced changes on OCC is evident. The more organizational changes resemble each other and are the same in terms of scope, content, and so forth, the more routines for initiating, managing, and implementing change can better develop (Baum & Shipilov, 2006). The experience gained through previous changes is transferred to future change projects. However, organizations have diverse changes (e.g., strategic, technological, reactive, anticipative, quantum, incremental) in their environments, so that change routines are difficult to develop. It is even more interesting that OCC is significantly and positively associated with the perceived positive experience of previous changes. This result supports the early work of Cyert and March (1963) in that routines for managing change become established, particularly when a routine is associated with success and a positive change outcome.

The findings also provide some clear practical implications. Given the obviously positive impact of OCC on change projects, companies should carefully develop and invest in their change management

capacities. This recommendation applies to all kinds of companies, independent of their size, age, or industry. Different measures of human resource management, such as a change-friendly personnel development, the use of change experiences as a key criterion for employee recruitment and selection, or the introduction of respective incentive systems to promote change (see also Shipton et al., 2012) gain in importance. Regarding the reasons for differences in OCC among companies, the findings particularly point to the importance of positive change experiences. This finding suggests that top management should help all members of the company to gain some benefits from change projects and from perceiving change as generally positive and desirable.

This study also has several limitations. First, data were only collected from large companies in the manufacturing and processing industry in Germany. Additional studies should include service firms and small- and medium-sized companies. Research in different cultural settings would also be important. So far, studies exist on Bulgaria (Judge & Elenkov, 2005), Russia (Judge et al., 2009), the US (Judge & Douglas, 2009) and now Germany, but no knowledge of research on OCC is available, for example, in the Asian context. Second, the questionnaires went exclusively to top executives. This procedure constitutes a single-respondent bias. A social-desirability bias may also exist since a high level of OCC is highly attractive to top management. Future studies might explore, for instance, the perceptions of previous change experiences among the workforce and the consequences that may result from the differences eventually occurring here. Third, the date of the survey in the Spring of 2011 can be critically discussed. This kind of research only provides a snapshot in time possibly influenced by some external events (e.g., global financial crisis with its tremendous changes). In conclusion, this study offers new insights into the effectiveness of OCC and provided further empirical evidence to addressing the important question of why some organizations are more capable of change than others.

Table 3
Results of multiple and moderated regression analysis ($n = 134$).

Variables	Model 1		Model 2		Model 3		Model 4	
	Change project performance		OCC		Change project performance		Change project performance	
Independent variable	Std. beta	t value	Std. beta	t value	Std. beta	t value	Std. beta	t value
Organizational size	-.109	-1.166			-.085	-.931	-.100	-1.049
OCC	.449	5.359***			.511	5.533***	.498	5.278***
Technological turbulence			.190	2.080*	-.072	-.798		
Competitive intensity			-.011	-.125			-.060	-.648
Number of change experiences			.009	.103				
Positivity of change experiences			.344	3.769***				
OCC × technological turbulence interaction					-.339	-3.685***		
OCC × competitive intensity interaction							-.036	-3.80
R ²	.292		.181		.347		.303	
Adjusted R ²	.276		.149		.318		.271	
F value	18.372***		5.679***		11.715***		9.344***	

** $p < .01$.

* $p < .05$.

*** $p < .001$.

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