

# Organizational capacity for change and environmental performance: an empirical assessment of Bulgarian firms

William Q. Judge<sup>a,\*</sup>, Detelin Elenkov<sup>b,1</sup>

<sup>a</sup>College of Business Administration, University of Tennessee, 411 Stokely Management Center, Knoxville, TN 37996-0545, USA

<sup>b</sup>College of Business Administration, University of Tennessee, 405 Stokely Management Center, Knoxville, TN 37996-0545, USA

Received 7 February 2003; accepted 14 January 2004

## Abstract

Using the resource-based perspective and the organizational change literature, we conceptually describe and empirically test a new and important organizational capability known as organizational capacity for change (OCC). The purpose of this paper is to empirically explore the relationship between an organization's capacity for change and its environmental performance within Bulgaria, a uniquely appropriate transition economy trying to grow economically without major new degradation to its highly diverse natural environment.

We found a strong positive association between OCC and environmental performance after controlling for industry sector, organizational size, and organizational profitability. In addition, we found that the greater the differences in OCC from the perspective of top management, midmanagement, and frontline workers, the worse the firm's environmental performance. However, this relationship was most pronounced when there were differences in the perceptions of top managers and frontline workers.

© 2004 Elsevier Inc. All rights reserved.

*Keywords:* Resource-based perspective; Organization change; Environmental performance; Bulgaria; Organizational capability; Developing economy

## 1. Introduction

In October 1999, the earth's population surpassed six billion people, and there are also signs that the global biosphere is not only reaching its limits, but exceeding them (Anonymous, 2002). For example, the World Health organization signaled the seriousness of the human population explosion by documenting that more than three billion people, half the world's population, are malnourished (Pimental and Pimental, 2000). In addition, around half of the world's rivers are seriously depleted and polluted, and one third of the world's population is dependent on groundwater, whose levels are falling (Vass, 2002). Furthermore, the combustion of the world's carbon-based fuels resulted in the emission of 6.2 billion metric tons of carbon in the atmosphere, which led to unclean air and potentially to global warming (Natural Resources Defense Council, 1999).

Despite this dramatic economic growth and its associated global pollution over the past 50 years, there are signs that it is about to accelerate (Shrivastava, 1995). Population experts predict that the earth will double from its current 6 to 12 billion within the next 50 years if historical growth rates prevail (Pimental and Pimental, 2000). Most of this population growth will occur in developing and transition economies, where increasing numbers of people will require increasing economic goods and services, that this will further tax the earth's biosphere. For example, the World Bank estimates that developed economies consume approximately four times as much energy per capita than do the underdeveloped economies (Foster, 2001). However, all the "developing" economies want to become "developed", and some will undoubtedly succeed, while others will not (Elkington, 2001). In sum, many wonder whether too many humans are already consuming, or will soon be consuming, too much of the earth's natural resources, such that the quality and quantity of human life will be seriously threatened (Weber, 2003).

In response to this global environmental degradation, some corporations desire to be proactive in their attempts to protect and preserve the natural environment, while other

\* Corresponding author. Tel.: +1-865-974-1668; fax: +1-865-974-3163.

E-mail addresses: [judge@utk.edu](mailto:judge@utk.edu) (W.Q. Judge), [elenkov@utk.edu](mailto:elenkov@utk.edu) (D. Elenkov).

<sup>1</sup> Tel.: +1-865-974-1679; fax: +1-865-974-3163.

firms are reactive (Aragon-Correa and Sharma, 2003). For practical and theoretical reasons, organizational scholars would like to determine what drives this response.

One possible way of conceptualizing how organizations can more effectively address their environmental challenges is by looking at the threats and opportunities posed by the natural environment as a series of change opportunities (Sharma, 2000). Within this perspective, the leader's task is to enhance an organization's capacity for change—not only for economic, but also environmental reasons (Clarke and Clegg, 2000). Thus, this paper has two modest, but worthy, objectives: (1) to empirically explore the relationship between an organization's capacity for change and its associated environmental performance and (2) to conduct this exploration in Bulgaria, a transition economy that is struggling to enter the global marketplace without destroying its natural environment in the process. In so doing, we hope to make contributions to the environmental management, organizational change, and international business literatures.

## 2. A resource-based view of environmental performance

### 2.1. Organizational capabilities and firm performance

The resource-based view (RBV) provides the theoretical framework for this study. The RBV argues that internal firm resources can be bundled together in such a way as to produce one or several firm capabilities to yield superior performance (Penrose, 1959; Wernerfelt, 1984). Furthermore, the RBV argues that the central task of organizational leaders is to obtain resources and assemble them into productive capabilities so that the firm has a sustainable competitive advantage in the marketplace (Barney, 1997).

Recent RBV research has shown that some of the most valuable and rare organizational capabilities are known as “dynamic capabilities”. Unlike static organizational capabilities, dynamic capabilities adapt to the threats and opportunities posed by the organization's environment. Dynamic capabilities consist of a set of specific and identifiable processes that, although idiosyncratic to firms in their details and path dependent in their emergence, allow the organization to generate new, value-creating strategies (Eisenhardt and Martin, 2000).

Several RVS studies support the potency of dynamic capabilities. For example, Miller and Shamsie (1996) found that certain types of contracting capabilities in the Hollywood film industry were predictive of financial performance outcomes. More recently, Carpenter et al. (2001) found that multinational firms with valuable and rare international capabilities were able to achieve superior financial performance. And Hitt et al. (2001) found that law firms with unique bundles of human capital could attain financial performance levels that exceeded industry standards.

More pertinent to this study, there is new RBV research showing relationships between organizational capabilities and environmental performance (Hart, 1995; Russo and Fouts, 1997). For example, Judge and Douglas (1998) found that the more that firms integrated natural environmental concerns into their strategic planning process, the better the firms' financial as well as environmental performance. Similarly, Christmann (2000) reported a relationship between environmental best practices and cost advantages, a significant factor in determining financial performance. Furthermore, Klassen and Whybark (1999) found that a firm's “environmental technology portfolio” was associated with superior environmental performance. In sum, RBV-based research increasingly shows that valuable and rare organizational capabilities can be key to understanding the firm's environmental performance.

### 2.2. Organizational capacity for change as a dynamic organizational capability

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. Dynamic capabilities are increasingly important as the pace of change outside of the firm increases, which puts pressures on changes to unfold faster and more completely within the organization or organizational unit (Floyd and Wooldridge, 1996; Grant, 1995; Oxtoby et al., 2002). Thus, OCC is an attempt to characterize the overarching nature of the RBV's notion of dynamic capabilities for a specific organization or organizational unit.

OCC is similar with other organizational change constructs, but it is also unique. It is similar with the “readiness for change” construct, but it attempts to describe the organization's collective, not the individual's, readiness for change (Cunningham et al., 2002). It is also similar with “organizational becoming” (Haridimos and Chia, 2002), but it attempts to capture not only the intangible human proclivities towards change, but also the organizational infrastructure that can support or hinder change initiatives. Finally, it is also related to an organization's ability to learn and innovate (e.g., Verona and Ravasi, 2003), but these are the theorized outcomes associated with OCC.

After reviewing much of the expansive, but fragmented, organizational change literature, we conceptually distilled the OCC construct into eight distinct dimensions. Those eight dimensions are as follows:

1. Trustworthy leadership: The ability of senior executives to earn the trust of the rest of the organization and to show the members of the organization the way to meet its collective goals (Bass, 1990; Kotter, 1996).
2. Trusting followers: The ability of the rest of the organization to constructively dissent and/or enthusias-

tically follow a new path advocated by its leaders (Bass, 1990; Kelley, 1992).

3. Capable champions: The ability of an organization to attract, retain, and empower change leaders to evolve and emerge (Huy, 2003; Kantor, 1983).
4. Involved midmanagement: The ability of middle managers to effectively link senior management with the rest of the organization (Floyd and Wooldridge, 1996; Oshry, 1996).
5. Innovative culture: The ability of the organization to establish norms of innovation and encourage innovative activity (Kotter and Heskett, 1992; Hamel, 2000).
6. Accountable culture: The ability of the organization to carefully steward resources and successfully meet predetermined deadlines (Pfeffer and Sutton, 2000; Ulrich et al., 1999).
7. Systems communications: The ability of the organization to communicate vertically, horizontally, and with customers (Oshry, 1996; Senge, 1990).
8. Systems thinking: The ability of the organization to focus on root causes and recognize the interdependencies within and outside the organizational boundaries (Senge, 1990; Kilmann, 1991).

According to our reading of the organizational change literature (which is primarily focused on firms within developed economies), any organization that optimizes along these eight dimensions should be well positioned to react to threatening changes and/or proactively seize opportunities to adapt, learn, and/or innovate. Given the growing homogenization of our global economy, it is likely that OCC has international relevance, not just relevance to organizations in developed economies, where much of the change literature has focused previously. Thus, OCC is a theoretical construct that should be internationally relevant. Whether the firm is operating in a mature, developed economy or a rapidly developing economy, it is theorized that this capability is paramount for dealing with any changing strategic context.

### 2.3. OCC and environmental performance

Environmental performance is the ecological results of an organization-wide commitment (or noncommitment) to preserve and protect the natural environment (Stead and Stead, 1992). Due to the multidimensional nature of the natural environment (e.g., quality of air, land, and water), this construct must also be multidimensional (Lober, 1996). While there is no universally accepted way to measure environmental performance, increasing numbers of observers argue that the biosphere is being degraded, and firms need to consider not only their financial performance, but also their impact on the natural environment (Hart, 1995).

While the OCC construct is relatively new, there are some parallel organizational capabilities that have already been shown to be related to environmental performance. For

example, Judge and Douglas (1998) found that firms possessing relatively robust strategic planning systems also tended to achieve superior financial, as well as environmental, performance. Similarly, Judge et al. (1996) found that relatively innovative and adaptive firms achieved higher levels of environmental performance than other firms did. Klassen and Whybark (1999) found that a more varied and versatile environmental technology portfolio was associated with higher levels of environmental performance in manufacturing firms. Ramus (2001) demonstrated the key role that middle managers can have in helping or hindering a firm's ability to improve their environmental performance. Most pertinent to this study, Sharma and Vredenburg (1999) found a positive relationship between generic organizational capabilities and environmental performance.

This research and logic indicate that the higher the organization's capacity of change, the more likely that the firm's environmental performance will also be high. The reason for this association is that the pursuit of multiple goals, such as financial and environmental performance, requires the organizations to demonstrate a special adaptability and innovativeness to balance goal conflicts (Collins and Porras, 1994). This suggests the following hypothesis:

**Hypothesis 1:** An organization's capacity for change is positively associated with its environmental performance.

Clearly, perceptions vary within organizations. Because OCC is a perceptual construct, it is likely to vary by organizational members. In a seminal work on organizational development and change, Oshry (1996) emphasizes that perceptions within an organizational system vary, and that this variation has important implications for the organization.

Specifically, he argues that the general perception of people at the top of the organizational system is that they generally see themselves to be burdened by the "overwhelming complexity and responsibility" that they shoulder (Oshry, 1996, p. 14). For simplicity sake, he labels these people as "tops". At the other end of the organizational system are the frontline workers. Oshry (1996) argues that these "bottoms" generally perceive themselves to be living in a world of "invisibility (they are often not seen by higher ups) and vulnerability (higher ups can influence their lives in major and minor ways)" (Oshry, 1996, pp. 14–15). In between these two groups are the middle managers, whom Oshry, 1996 appropriately calls "middles". He asserts that most middles perceive themselves to be "living in tearing world (they are pulled between you and others)" (Oshry, 1996, p. 15).

Oshry (1996) argues that when these three groups of persons within an organizational system see themselves as part of a larger system, and each group understands the needs and perceptions of other groups within that system, the entire organizational system will tend to perform at a

higher level. In other words, when the various groups within a system tend to agree on their perception of the overall system, the system performs better.

This suggests that big differences in perceptions about the overall OCC amongst the three groups will be predictive of organizational dysfunction. In contrast, small differences in perceptions are likely to be associated with higher levels of organizational performance because everyone is largely in agreement as to what the system's OCC is. Indeed, the recent research of Werther (2003) supports this notion, arguing that perceptions of leaders and followers affect organizational change and that the alignment of those perceptions facilitates successful change.

Because perception precedes behavior, getting various groups' perceptions aligned within an organizational system is a very important task for organizational adaptation and survival. This suggests the following three hypotheses related to perception gaps in the organization's capacity for change:

**Hypothesis 2a:** The larger the difference between top and middle managers' perceptions of their OCC, the lower the environmental performance.

**Hypothesis 2b:** The larger the difference between top manager's and frontline worker's perceptions of their OCC, the lower the environmental performance.

**Hypothesis 2c:** The larger the difference between middle manager's and frontline worker's perceptions of their OCC, the lower the environmental performance.

### 3. Methods

#### 3.1. Research context: Bulgaria

In this study, we limited our focus to manufacturing organizations in Bulgaria. There were several reasons for this focus. First, we wanted to investigate environmental performance within a developing economy. Bulgaria is an economy transitioning from communist rule to a political democracy and market economy (Manolova and Yan, 2002). We studied manufacturing organizations because it is commonly accepted that these organizations produce more air, land, and water pollution than service organizations do (Stead and Stead, 1992).

Because environmental regulations are so new to former Soviet block countries and because the environmental degradation that occurred during communist rule was so extensive, we believe that this population of organizations offers a unique opportunity to see more variation in environmental performance than relatively developed Western economies do. Indeed, Dasgupta et al. (2001) found that firms in developing economies have incentives to protect the environment, despite the insufficient environmental controls, so that they can gain access to capital or not lose

access. Thus, market signals about environmental performance can have a big, if not bigger, impact on environmental performance than in developed economies.

Furthermore, Anderson (2002) recently reported that as Eastern European nations have modernized their economies over the past 10 years, they have simultaneously subverted their ecological environment at an accelerated pace. Consequently, Bulgaria represents a relatively small, but important, experiment unfolding in a section of the world that is changing rather quickly and producing important economic and ecological results.

A second reason why this population is theoretically interesting is because Bulgaria's population has some of the highest overall concern for the natural environment within all the countries of Eastern Europe (Hill, 2003). In other words, something different is going on in this country, and it would be interesting to explore it more deeply. Notably, in his field study of 45 Bulgarian executives, Dadak (1995) observed that most of the problems experienced by these executives were created by governmental inefficiency, bureaucratic obstruction, high taxes, and outdated and inconsistent legislation. As such, enlightened Bulgarian government does not appear to be the reason for Bulgaria's better-than-average environmental concern (Manolova and Yan, 2002).

A third reason why we focused our analysis on Bulgaria is that we expect considerable variance in OCC. With a little more than 10 years of experience in a market economy and limited education and training in management disciplines, we suspect that the capacity for change will vary considerably, given the uneven managerial expertise and vast institutional variability within Bulgaria (Manolova and Yan, 2002).

A fourth and final reason why we selected Bulgaria is that it possesses one of the most biologically diverse ecosystems in Europe. Although Bulgaria is relatively small in size (110,912 km<sup>2</sup>), it is rich in biological diversity due to its highly varied climate, geologic, topographic, and hydrologic conditions. This country tends to possess all the plant and animal species of all of Europe, as well as some unique species that are endemic to the country (World Wildlife Fund, 1994). In summary, Bulgaria appears to be a unique and suitable context for this study across a number of important theoretical dimensions.

#### 3.2. Variables and measures

##### 3.2.1. Dependent variables

In this study, our dependent variable was environmental performance relative to the industry average. To measure environmental performance, a composite measure was developed on the basis of archival data obtained from the Bulgarian Ministry of the Environment. Our scale consisted of four items that are rated for each manufacturing firm in Bulgaria annually by a panel of industry experts at the Ministry of Environment: (1) degree of maintenance, con-

Exhibit 1

OCC survey items

- 
- Do business unit leaders:
1. protect the core values while encouraging change?
  2. consistently articulate an inspiring vision of the future?
  3. show courage in their support of change initiatives?
  4. demonstrate humility while fiercely pursuing the vision?
- Do middle managers in this business unit:
5. effectively link top executives with frontline employees?
  6. show commitment to the organization's well-being?
  7. balance change initiatives while getting work done?
  8. voice dissent constructively?
- Do we have change champion(s) who:
9. command the respect of the rest of the business unit?
  10. possess good interpersonal skills?
  11. are willing and able to challenge the status quo?
  12. have the will and creativity to bring about change?
- Do we have an organizational culture that:
13. values innovation and change?
  14. attracts and retains creative people?
  15. provides resources to experiment with new ideas?
  16. allows people to take risks and occasionally fail?
- Do frontline employees:
17. open themselves to consider change proposals?
  18. have opportunities to voice their concerns about change?
  19. generally know how change will help the business unit?
  20. generally view top management as trustworthy?
- Do change champions recognize the:
21. interdependent systems implications of change?
  22. importance of institutionalizing change?
  23. need to realign incentives with desired changes?
  24. value of addressing causes rather than symptoms?
- Do employees throughout the business unit:
25. experience consequences for outcomes of their actions?
  26. meet deadlines and honor resource commitments?
  27. accept responsibility for getting work done?
  28. have clear roles for who has to do what?
- Does information flow effectively:
29. from executives to workers?
  30. in a timely fashion?
  31. across organizational units?
  32. from customers to the business unit?
- 

servation, and expansion of environmental resources; (2) degree of maintenance of the vitality of ecosystems; (3) degree of maintenance and increase in the production functions of the ecosystems; and (4) degree of maintenance and improvement of the socioeconomic functions and conditions. The expert ratings used for this study were collected in 2002 and summed across these four items to yield a composite index of environmental performance for each firm.

To control for industry, each firm's environmental performance scores were compared with the average environmental performance score for each of the 18 industry sectors examined in this study. Specifically, the average industry environmental performance score was subtracted from each firm's environmental performance score to yield a relative environmental performance score. Thus, positive scores indicate that the firm outperformed and negative scores indicate that the firm underperformed the industry average. As both expert ratings and industry environmental perfor-

mance scores were based on independent scientific measurements collected by workers for the Bulgarian Ministry of the Environment, our performance measure is expected to show high predictive and construct validity.

3.2.2. Independent variables

There were four independent variables in this study and all relate to the construct OCC. Based on our reading of the organizational change literature, there are eight dimensions of OCC, and each dimension is defined by four survey items. The exact wording of the 32 items are listed in Exhibit 1.

Based on previous unpublished research of 81 organizations assessed by over 1600 executives and employees, we have refined the current instrument into a survey that is concise with acceptable reliability statistics. Exhibit 2 lists the coefficient alpha statistics for the survey used in this study based on previous research. After a number of iterations in previous research, we believe that we have created not only a reliable, but also valid, instrument for measuring a business unit's OCC.

For this study, our survey was first translated into Bulgarian and then back translated for an accuracy check by separate individuals. After correcting for some minor translation problems, the Bulgarian version of this instrument was ready for distribution. Next, we sent a solicitation letter to 40 Bulgarian CEOs requesting their participation in our study. Those 40 companies comprised the entire population of Bulgarian manufacturing companies who had been regularly sending complete reports to the Ministry of the Environment. Fortunately, 31 agreed to participate, yielding a very good 77% response rate. We then provided the survey to each CEO who agreed to participate and s/he filled out one survey and distributed another survey to a middle manager and the third survey to a frontline worker within her/his firm. Finally, we collected these three completed surveys from the CEO two weeks later. In this way, we were

Exhibit 2  
Reliability statistics for the eight dimensions of OCC

	Multi-industry I	Healthcare I	Multi-industry II
Survey version	1.0	2.0	2.0
Business unit sample size	40	16	31
Respondents sample size	418	245	1012
Date collected	October 2001	August 2002	October 2002
Dimensions			
1. Trustworthy leadership	.91*	.92	.93
2. Innovative culture	.89	.91	.92
3. System communication	.81	.95	.95
4. Involved midmanagement	.92	.91	.89
5. Trusting workers	.87	.85	.87
6. Accountable culture	.85	.91	.92
7. Systems thinking	.89	.93	.90
8. Capable champions	.92	.94	.92

\* Coefficient alpha statistics for each of the eight dimensions.

## Exhibit 3

## Descriptive statistics (N=31)

No.	Variable	Mean	S.D.	1	2	3	4	5	6
1	Relative environmental performance	0.002	0.30	1.00					
2	Organizational size (category)	1.81	0.65	-0.13	1.00				
3	Organizational profitability (percent)	17.04	7.74	0.09	0.14	1.00			
4	Organizational capacity for change (OCC): average	6.74	1.72	0.71**	-0.27	0.27	1.00		
5	OCC: Differences between Tops and Middles	0.91	1.10	-0.37*	-0.10	-0.36*	-0.71**	1.00	
6	OCC: Differences between Tops and Bottoms	0.77	1.11	-0.68**	0.20	-0.29	-0.88**	0.70**	1.00
7	OCC: Differences between Middles and Bottoms	-0.14	0.86	-0.40*	0.38*	0.09	-0.23	-0.38*	0.40*

\*  $P < .05$ .\*\*  $P < .01$ .

able to obtain perspectives on the OCC from three very different perspectives for each of the 31 Bulgarian firms.

We computed OCC by simply calculating the average response supplied by the three organizational members across the 32 items and then summing that average across the three individuals. To arrive at the variation of responses within the organization, we next calculated three difference scores. One difference score was the difference between the top and the middle managers' perceptions of the organization's capacity for change. The second difference score was the difference between the top manager's and the frontline worker's perceptions of the organization's capacity for change. The third and final difference score was the difference between the middle manager's and the frontline worker's perceptions of the organization's capacity for change. With this approach, we were able to comprehensively gauge the central tendency and variation in perceptions of the organization's capacity for change.

### 3.2.3. Control variables

There were two control variables in this study—organizational size and organizational profitability. Previous research has shown that organizational size is consistently associated with environmental performance due to such things as slack resources, public exposure to environmental pressures, and management sophistication (Schminke, 2001; Waddock and Graves, 1997). Normally, organizational size is operationalized using a continuous measure such as numbers of employees or organizational revenues. However, research in the transition economies has shown that public and private records of this information are often inaccurate because these data are considered “sensitive” information that can affect an organization's tax liability (Petkov, 2001). Therefore, to obtain accurate data, we resorted to a categorical description of the organization's size, similar with Ralston et al. (1999).

Specifically, organizational size was defined in this study as a scalar measure ranging from 1 to 3. Organizations with less than 100 employees were listed as “small” organizations and were awarded a “1”. Organizations with more than 100 employees, but less than 1000 employees, were identified as “medium-”sized organizations and were coded as a “2”. Logically, organizations with more than 1000 employees were identified as “large” organizations and

were coded as a “3”. In this study, there were 10 small, 17 medium, and 4 large organizations. All of these data were current as of 2002 and was supplied by the Bulgarian Ministry of the Environment.

The second control measure was organizational profitability. Previous research has shown that there is a relatively strong and positive relationship between organizational profitability and environmental performance (Russo and Fouts, 1997; Waddock et al., 2002). Specifically, organizational profitability was computed as return on sales in 2002. These data were obtained by using the archival records of the Bulgarian Chamber for Commerce and Industry and National Statistical Institute. The means, standard deviations, and intercorrelations for these measures across these 31 Bulgarian firms are listed in Exhibit 3.

## 4. Results

To empirically explore Hypothesis 1, we first regressed the firm's OCC against its environmental performance. As can be seen in Model 1 of Exhibit 4, OCC was significantly related to environmental performance ( $t=+10.56$ ,  $P<.001$ ). As hypothesized, this relationship was positive, Hypothesis 1 was empirically supported by our data.

Next, we explored the impact of variation in perceptions of OCC and environmental performance. Because these difference scores were highly intercorrelated with each other, we ran three separate regressions after controlling for organizational size and profitability in each. As can be seen in Model 2 of Exhibit 4, this regression was marginally significant ( $F=1.83$ ,  $P<.10$ ). As predicted, however, the differences in perceptions between the top managers and their middle managers were negatively related to environmental performance ( $t=-2.10$ ,  $P<.05$ ). Next, in Model 3 of Exhibit 4, we find a relatively robust regression results ( $F=8.12$ ,  $P<.001$ ). Thus, differences in perceptions between the top managers and their frontline workers were highly predictive of environmental performance ( $t=-4.78$ ,  $P<.001$ ). Finally, in Model 4 of Exhibit 4, we see that this regression is also marginally significant ( $F=1.87$ ,  $P<.10$ ). In this case, differences in perceptions between middle managers and frontline workers were also negatively related to environmental performance ( $t=-2.13$ ,  $P<.05$ ). In sum, all

## Exhibit 4

Regression analyses on relative environmental performance ( $N=31$ )

Predictor	Model 1		Model 2		Model 3		Model 4	
	Std. beta	<i>t</i> Value						
Organizational size	0.12	0.82	−0.17	−0.93	0.05	0.32	−0.11	−0.06
Organizational profitability	−0.16	−1.09	00.01	−0.05	−0.14	−0.89	0.13	0.69
OCC: overall average	0.79	5.31***						
OCC: top–middle differences			−0.40	−2.10*				
OCC: top–bottom differences					−0.73	−4.78***		
OCC: mid–bottom differences							−0.40	−2.13*
$R^2$	0.526		0.169		0.476		0.415	
Adjusted $R^2$	0.474		0.077		0.418		0.172	
<i>F</i> value	10.01***		1.83†		8.12***		1.87†	

†  $P < .10$ .\*  $P < .05$ .\*\*\*  $P < .001$ .

four hypotheses are supported by our data, but the strength of the relationship varies considerably within the levels of the organization.

## 5. Conclusions

After controlling for organizational size and profitability, as well as industry sector, within Bulgarian manufacturing firms, we found that an organization's capacity for change is positively correlated with its environmental performance. In addition, we found that variations in this assessment of the organization's capacity for change were negatively related to the firm's environmental performance, especially the variation between top managers and frontline workers.

Given the limited nature of our data, it is unknown if these findings are unique to Bulgaria, just transition economies, all developing economies, or generalizable to both developed and developing economies. Clearly, further research is required and recommended to refine and extend our understanding of this relationship.

Nonetheless, the findings are provocative—not only to academics but also to practitioners. Theoretically, OCC is a promising construct that attempts to capture the generalized dynamic capability described by the RBV. Previous RBV research has attempted to capture partial aspects of this generalized condition (Eisenhardt and Martin, 2000). This research is somewhat more ambitious in attempting to characterize a more generalized state of dynamic capabilities by measuring the organizational member's perceptions of the unit's overall capacity for change. If leadership, culture, infrastructure, and systems, in the form of the organization's capacity for change, are truly tacit resource bundles that are valuable, rare, and hard to copy, this research offers the RBV stream not only a theoretical construct to consider for the future studies of competitive advantage, but also a reliable and valid way to empirically explore that construct.

OCC is also an important construct for the organizational change literature. Currently, the organizational change liter-

ature is highly fragmented and not converging (Armenakis, 1999). The OCC construct provides a potential stream to aggregate results and test assumptions in a rigorous fashion. As a mesoconstruct, it attempts to encapsulate many different concepts and substreams within the organizational change and development literature. Clearly, it does not distill this rather large and complex literature into one construct. However, it does capture a significant portion of a growing and increasingly disparate stream of research that deals with preparing for the change process. Future research on OCC and change context and change content would be fascinating.

OCC and its relationship to performance outcomes is also important to practicing managers. If our hypothesized relationships prove to be robust in other settings and for other performance variables, our results suggest that managers should work tirelessly to enhance the organization's capacity for change by focusing on the eight dimensions identified in this study. Furthermore, our results suggest that efforts to bridge differences in perceptions between top management, middle management, and frontline workers will reap considerable rewards, at least with respect to environmental performance. Additional research is clearly needed to verify if these results apply to other organizational performance outcomes such as financial performance, product and process innovation, and organizational survival.

These results also have several important implications for the environmental management literature. First, our findings suggest that environmental performance is associated with an organization's generalized capacity for change. Coupled with the strategic and sometimes operational benefits of higher levels of environmental stewardship (Hart, 1995; Judge and Douglas, 1998; Stead and Stead, 1992), this is a useful finding for managers concerned with their organization's environmental performance and an interesting finding for academics.

Relatedly, our theory and research suggest that OCC may not only help organizations in developing economies to adjust to its changing economic environment, but also

address the need to grow in an environmentally sensitive fashion. This is particularly noteworthy given the fact that previous organizational research in transition economies has shown that managers believe that it is not their responsibility, but the government's responsibility to protect and preserve the natural environment (Rojsek, 2001). Thus, our findings have important implications for public policy makers and those concerned about the future of mother earth.

In sum, this research is a modest first step in exploring ways to manage growth in a competitive and environmentally sustainable fashion within a developing economy. We encourage other researchers to refine and extend our findings into other developing and developed economies using the promising and practical construct known as OCC. By looking at environmental challenges as an opportunity to innovate and change, rather than a constraint or hindrance on "normal" organizational operations, perhaps the earth's biosphere will be better protected, and the material needs of the world's population will be met.

### Acknowledgements

We are indebted to the generous and professional assistance provided by the Bulgarian Ministry of the Environment and the Bulgarian Chamber of Commerce for their support and cooperation in this research.

### References

- Anderson MS. Ecological modernization or subversion. *Am Behav Sci* 2002;45(9):1394–416.
- Anonymous. Development may damage most of the earth's surface. *Jakarta Post* 2002 (May 24)2.
- Aragon-Correa JA, Sharma S. A contingent resource-based view of proactive corporate environmental strategy. *Acad Manage Rev* 2003;28(1):71–88.
- Armenakis AA. Organizational change: a review of theory and research in the 1990s. *J Manage* 1999;1–26.
- Barney JB. *Gaining and sustaining competitive advantage*. Reading (MA): Addison-Wesley; 1997.
- Bass B. *Bass and Stogdill's handbook of leadership*. 3rd ed. New York: Free Press; 1990.
- Carpenter M, Sanders W, Gregersen H. Bundling human capital with organizational context: the impact of international assignment experience on multinational firm performance and CEO pay. *Acad Manage J* 2001;44(3):493–511.
- Christmann P. Effects of "best practices" of environmental management on cost advantage: the role of complementary assets. *Acad Manage J* 2000;43:663–80.
- Clarke T, Clegg S. *Changing paradigms*. London: Harper Collins; 2000.
- Collins J, Porras J. *Built to last*. New York: Harper Business; 1994.
- Cunningham C, Cristel A, Shannon H, McIntosh J, Lendrum B, Rosenbloom D, et al. Readiness for organizational change: a longitudinal study of workplace, psychological, and behavioral correlates. *J Occup Organ Psychol* 2002;75:377–92.
- Dadak K. Entrepreneurship in Eastern Europe: the difficulties of small business development in Bulgaria. *Rev Bus* 1995;16(3):9–18.
- Dasgupta S, Laplante B, Mamingi N. Pollution and capital markets in developing countries. *J Environ Econ Manage* 2001;42(3):310–35.
- Eisenhardt K, Martin J. Dynamic capabilities: what are they? *Strateg Manage J* 2000;21(10/11):1105–22.
- Elkington J. *The chrysalis economy*. Oxford (UK): Capstone Publishing; 2001.
- Floyd S, Wooldridge B. *The strategic middle manager*. San Francisco: Jossey-Bass; 1996.
- Foster JB. Ecology against capitalism. *Mon Rev* 2001;53(5):1–15.
- Grant RM. *Contemporary strategy analysis*. Oxford (UK): Blackwell; 1995.
- Hamel G. *Leading the revolution*. Boston: Harvard Business School Press; 2000.
- Haridimos T, Chia R. On organizational becoming: rethinking organizational change. *Organ Sci* 2002;13(5):567–83.
- Hart S. A natural resource-based view of the firm. *Acad Manage Rev* 1995;20(4):986–1014.
- Hill CW. *International business: competing in the global marketplace*. 4th ed. New York: Irwin/McGraw-Hill; 2003.
- Hitt M, Bierman L, Shmizu K, Kochhar R. Direct and moderating effects of human capital on strategy and performance in professional service firms: a resource-based perspective. *Acad Manage J* 2001;44(1):13–28.
- Huy Q. In praise of middle managers. *Harvard Bus Rev* 2001;79(8):73–9.
- Judge W, Douglas T. Performance implications of incorporating natural environmental issues into the strategic planning process: an empirical assessment. *J Manage Stud* 1998;35(2):241–62.
- Judge W, Dean T, Fowler D. Organizational responses to strategic issues posed by the natural environment: an application of Miles and Snow's strategic types. *Ind Environ Q* 1996;9(4):419–47.
- Kantor RM. *The change masters*. New York: Touchstone; 1983.
- Kelley R. *The power of followership*. New York: Currency Doubleday; 1992.
- Kilmann R. *Managing beyond the quick fix*. San Francisco: Jossey-Bass; 1991.
- Klassen R, Whybark D. The impact of environmental technologies on manufacturing performance. *Acad Manage J* 1999;42(6):599–615.
- Kotter J. *Leading change*. Boston: Harvard Business School Press; 1996.
- Kotter J, Heskett J. *Corporate culture and performance*. New York: Free Press; 1992.
- Lober D. Evaluating the environmental performance of corporations. *J Manag Issue* 1996;8:184–205.
- Manolova T, Yan A. Institutional constraints and entrepreneurial responses in a transforming economy: the case of Bulgaria. *Int Small Bus J* 2002;20(2):163–72.
- Miller D, Shamsie J. The resource-based view of the firm in two environments: the Hollywood film studios from 1936 to 1965. *Acad Manage J* 1996;39(3):519–32.
- Natural Resources Defense Council. *Carbon kingpins*. *Multinatl Monit* 1999;20(6):9–14.
- Oshry B. *Seeing systems*. San Francisco: Berrett-Koehler; 1996.
- Oxtoby B, McGuinness T, Morgan R. Developing organizational change capability. *Eur Manag J* 2002;20(3):310–20.
- Penrose ET. *The theory of the growth of the firm*. Oxford: Basil Blackwell; 1959.
- Petkov G. *Problems of post-socialist economic statistics in Bulgaria*. Sofia: Profizdat; 2001.
- Pfeffer J, Sutton R. *The knowing–doing gap*. Boston: Harvard Business School Press; 2000.
- Pimental D, Pimental M. Feeding the world's population. *Bioscience* 2000;50(5):387–8.
- Ralston DA, Egri CP, Stewart S, Terpstra RH, Yu KC. Doing business in the 21st century with the new generation of Chinese manager: a study of generational shifts in work values in China. *J Int Bus Stud* 1999;30:415–28.
- Ramus C. Organizational support for employees: encouraging creative ideas for environmental sustainability. *Calif Manage Rev* 2001;43(3):85–105.
- Rojsek I. From red to green: towards environmental management in the country in transition. *J Bus Ethics* 2001;33:37–50.

- Russo M, Fouts P. A resource-based perspective on corporate environmental performance and profitability. *Acad Manage J* 1997;40(3):534–59.
- Schminke M. Considering the business in business ethics: an exploratory study of the influence of organizational size and structure on individual ethical predispositions. *J Bus Ethics* 2001;30(4):375–90.
- Senge P. *The fifth discipline*. New York: Currency Doubleday; 1990.
- Sharma S. Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. *Acad Manage J* 2000;43(4):681–97.
- Sharma S, Vredenburg H. Proactive corporate environmental strategy and the development of competitively valuable organizational capability. *Strateg Manage J* 1999;19:729–53.
- Shrivastava P. The role of corporations in achieving ecological sustainability. *Acad Manage Rev* 1995;20(4):936–60.
- Stead WE, Stead J. *Management for a small planet*. Newbury Park (CA): Sage; 1992.
- Ulrich D, Zenger J, Smallwood N. *Results-based leadership*. Boston: Harvard Business School Press; 1999.
- Vass A. Over half the world will face water shortages by 2032. *Br Med J* 2002;324(7349):1293–4.
- Verona G, Ravasi D. Unbundling dynamic capabilities: an exploratory study of continuous product innovation. *Ind Corp Change* 2003; 12(3):577–607.
- Waddock SA, Graves SB. The corporate social performance–financial performance link. *Strateg Manage J* 1997;18(4):303–19.
- Waddock SA, Bodwell C, Graves S. Responsibility: the new business imperative. *Acad Manage Exec* 2002;16(2):132–49.
- Weber E. *Bringing society back. Grassroots Ecosystem Management, Accountability, and Sustainable Communities*. Cambridge (MA): MIT Press; 2003.
- Wernerfelt B. A resource-based view of the firm. *Strateg Manage J* 1984; 5:171–80.
- Werther WB. Strategic change and leader–follower alignment. *Organ Dyn* 2003;32(1):32–48.
- World Life Fund. *Conserving biological diversity in Bulgaria*. Washington (DC): Biodiversity Support Program; 1994.