ORGANIZATIONAL AMBIDEXTERITY AND CORPORATE ENTREPRENEURSHIP: THE DIFFERENTIAL EFFECTS ON VENTURING, INNOVATION AND RENEWAL PROCESSES

Henri Burgers
Queensland University of Technology, Australia and RSM Erasmus University, Netherlands, henri.burgers@qut.edu.au

Justin J.P. Jansen
RSM Erasmus University, Netherlands

Recommended Citation
Available at: http://digitalknowledge.babson.edu/fer/vol28/iss19/2
ORGANIZATIONAL AMBIDEXTERITY AND CORPORATE ENTREPRENEURSHIP: THE DIFFERENTIAL EFFECTS ON VENTURING, INNOVATION AND RENEWAL PROCESSES

Henri Burgers, Queensland University of Technology, Australia
and RSM Erasmus University, Netherlands
Justin J.P. Jansen, RSM Erasmus University, Netherlands

ABSTRACT

Most corporate entrepreneurship studies have focused on either innovation, venturing or strategic renewal making comparison between the antecedents of all three aspects of corporate entrepreneurship difficult. Moreover, studies on corporate entrepreneurship hardly address organizational antecedents, while simultaneously managing and organizing CE and mainstream activities has been seen as a major challenge for incumbent firms. Our findings show that organizational ambidexterity has strong and differential effects on venturing, innovation and renewal. We find, for example, that innovation is affected by horizontal integration, while strategic renewal is significantly influenced by integration on top management team level.

INTRODUCTION

Corporate entrepreneurship is important for long-term organizational survival, as it delivers growth and higher firm performance (Zahra, 1993; Zahra and Covin, 1995). Corporate entrepreneurship consists of a company’s innovation aimed at business creation, venturing and renewal activities (Guth and Ginsberg, 1990; Sharma and Chrisman, 1999; Simsek et al., 2007; Zahra, 1996). Despite the importance of corporate entrepreneurship for firms, there are important gaps in the current body of research. While innovation, venturing, and renewal are different activities, there has been very little comparative research that simultaneously investigates antecedents and outcomes of these three activities. Moreover, those studies that did compare these dimensions of corporate entrepreneurship tended to focus on the competitive environment (Zahra, 1993; Zahra and Garvis, 2000) and TMT demographics (Srivastava and Lee, 2005; Zahra, 1996; Zahra et al., 2000) as antecedents. Some more recent studies have addressed other variables such as capabilities and network ties (Yiu et al., 2007), social and political capital (Yiu and Lau, 2008) and organizational slack (Simsek et al., 2007). Yet, this fails to address the major assumption in corporate entrepreneurship research, namely that corporate entrepreneurship and ongoing businesses require fundamentally different organizational structures and modes of management (Birkinshaw, 1997; Burgelman, 1983; Kanter, 1985). To carefully balance the ongoing businesses and corporate entrepreneurial activities, managers should build ambidextrous organizations consisting of simultaneously differentiated and integrated units (Gilbert, 2006; Tushman and O’Reilly, 1996; Westerman et al., 2006). Differentiation provides units with the freedom to adapt their working methods to local demands, while integrative mechanisms ensure the coherence between the units (Lawrence and Lorsch, 1967; O’Reilly and Tushman, 2004).

In this paper we address these gaps in corporate entrepreneurship literature by investigating the differential effects of organizational ambidexterity on innovation, venturing and renewal. We will compare the effects on the individual dimensions of CE with each other and with an overall meta-construct of CE. By doing so, we make at least three contributions to the literature.
First, we investigate how a variety of differentiation and integration mechanisms jointly affect corporate entrepreneurship activities. Although there has been some fragmentary evidence how organizational ambidexterity affects innovation (Westerman et al., 2006) and venturing (Gilbert, 2006), there has not yet been research that incorporates all three dimensions of corporate entrepreneurship. Moreover, previous research on this topic is primarily case-based and investigating only one integration mechanism in combination with structural differentiation. Scholars have called for larger-scale studies that address multiple integration mechanisms (Westerman et al., 2006).

Second, we compare the effects of organizational antecedents of innovation, corporate venturing, and strategic renewal. We extend corporate entrepreneurship literature by investigating how differentiation and integration mechanisms have different effects on innovation, venturing and renewal processes. Previous research tended to focus on one of the dimension of CE or on CE as a meta-construct, making comparisons of results difficult (cf. Gilbert, 2006; Westerman et al., 2006; Zahra and Covin, 1995).

Third, we make a contribution to ambidexterity literature by showing how organizational ambidexterity affects corporate entrepreneurship activities. Previous research on ambidextrous organizations tends to focus on the outcomes of the firm as whole (He and Wong, 2004; O’Reilly and Tushman, 2004). Yet, as entrepreneurial and mainstream units require different modes of management (Kanter, 1985), it is questionable as whether what is good for mainstream units will also have beneficial outcomes for more entrepreneurial units. The paper proceeds with a literature review and hypotheses followed by a discussion of our research methods. Subsequently, we present our results and end with a discussion of our findings and implications for theory and practice.

**LITERATURE REVIEW**

Corporate entrepreneurship consists of innovation, venturing and renewal activities (Guth and Ginsberg, 1990; Simsek et al., 2007; Yiu and Lau, 2008; Zahra, 1993). Innovation refers to the development and introduction of new products, services and production processes (Zahra, 1996). Opportunities for innovation are most easily spotted by frontline management, who has the best knowledge of the market and products (Burgelman, 1983). Venturing is the creation of new businesses within existing organizations (Block and MacMillan, 1993), which can take place in new or existing markets (Zahra et al., 2000). The role of top management is, however, more significant than in innovation, because of the potential risk and size of the investment that ventures carry (Day, 1994). Strategic renewal involves the reconfiguration of the organization’s resource patterns, changing its strategy, competitive approach or product-market domain (Guth and Ginsberg, 1990; Stopford and Baden-Fuller, 1994). Strategic renewal is more a top-down process of redefining existing competence bases. It can follow from the creation of new competences of more bottom-up processes such as innovation or venturing (Burgelman, 1983; Floyd and Lane, 2000). Despite these differences between innovation, venturing and renewal, there is surprisingly little research on corporate entrepreneurship that compares the antecedents and outcomes of the three dimensions of CE. Most corporate entrepreneurship studies focused on one of these dimensions, like innovation (Hitt et al., 1999; Westerman et al., 2006), venturing (Burgelman, 1985; Hill and Birk inshaw, 2007) or strategic renewal (Huff et al., 1992; Simons, 1994).

Corporate entrepreneurship involves both the creation of new and the reuse of existing knowledge (Covin and Miles, 2007; Katila and Ahuja, 2002), which leads to the development of new competencies or the redefinition of existing competencies (Floyd and Wooldridge, 1999).
This implies that competing sets of capabilities must coexist on the organization for some time, as it is not that one capability suddenly vanishes when another begins (Gilbert, 2006). Fiol (1995) argued that such colliding thought worlds lead to creative breakthroughs. Creating new knowledge and capabilities is best facilitated in autonomous (Burgelman, 1985; Hill and Rothaermel, 2003), loosely coupled (Orton and Weick, 1990) or structurally differentiated (Gilbert, 2006; Lawrence and Lorsch, 1967; O’Reilly and Tushman, 2004) units. Providing autonomy to entrepreneurial units increases their flexibility to adapt to local demands and adopt working methods that suit their explorative activities. Despite the benefits of separating corporate entrepreneurial and mainstream activities in different units, scholars pointed also at the importance of integrating these differentiated units. However, it is still ill-understood how formal and informal integration mechanisms relate to each other in a differentiated context (Westerman et al., 2006). Moreover, the question is also whether organizational ambidexterity would differentially impact innovation, venturing, and renewal, as the former are concerned with developing products and business based on new competencies, while renewal is associated with the redefinition of existing competence bases.

Organizational Ambidexterity

A central question in management literature has been how to organize corporate entrepreneurship activities in established firms that are focused on its mainstream businesses. Existing activities are exploitative in nature and associated with efficiency, refinement, formalization, and routinization, while corporate entrepreneurship activities are more explorative and linked with experimentation, flexibility, and decentralization (Benner and Tushman, 2003; March, 1991). Scholars have referred to organizations that are able to simultaneously achieve exploration and exploitation as being ambidextrous organizations (Gibson and Birkinshaw, 2004; He and Wong, 2004; Jansen et al., 2006). Others have pointed at the structure of ambidextrous firms in terms of creating units that are differentiated and integrated at the same time (Gilbert, 2006; O’Reilly and Tushman, 2004; Tushman and O’Reilly, 1996).

Creating organizational ambidexterity provides a number of benefits for autonomous units. From a knowledge perspective, integration mechanisms such as cross-functional interfaces to facilitate knowledge transfer between differentiated units (Gupta and Govindarajan, 2000). Autonomous units create pragmatic boundaries between units (Carlile, 2004). Although these boundaries facilitate exploration within units, it makes reciprocal knowledge and resource transfer across these boundaries more difficult (Floyd and Wooldridge, 1999; Scarbrough et al., 2004). Fiol (1995) pointed out that integration is necessary to manage the processes by which the different thought worlds interrelate. From an organizational perspective, connecting the differentiated units is necessary to create strategic coherence (O’Reilly and Tushman, 2004), to allocate resources, and to achieve reintegration of the entrepreneurial units in the mainstream of the organization (Gilbert, 2006). From a behavioral perspective, integrative mechanisms might reduce conflicts between competing interests of the differentiated units (Orton and Weick, 1990). Lawrence and Lorsch (1967:42) stated “the differentiated subsystems often have quite different interests and objectives, so that the resolution of conflict between them may well be the most important function of integrative devices.” Organizational integrative devices can reduce conflict by creating understanding of each other’s work methods and activities (Ashforth and Mael, 1989). Integration on top management team level could emphasize organizational rather than individual performance in reward systems (Collins and Clark, 2003).

This organizational ambidexterity can be created in a variety of ways. Structurally differentiated units can be integrated by means of integrative devices such as a shared vision
(Tushman and O’Reilly, 1996) or a socially integrated TMT (O’Reilly and Tushman, 2004; Smith and Tushman, 2005; Gilbert, 2006). Yet, there are also other ways of integrating these differentiated units. Galbraith (1973) pointed to the role of formal cross-functional interfaces as a means of integrating units. Brown and Eisenhardt (1997) argued that a limited structure should be combined with frequent informal interactions to connect people in different units. At top management team level, scholars have pointed at the potential benefits of group rewards (Smith and Tushman, 2005; Collins and Smith, 2006). To investigate the effects of organizational ambidexterity, we distinguish between formal and informal integration mechanisms and between organizational and top management team integration mechanisms to create four configurations of organizational ambidexterity. Based on prior research, we investigate the effects of cross-functional interfaces as a formal organizational integration mechanism (Gupta and Govindarajan, 2000) and connectedness as an informal organizational integration mechanism (Jaworski and Kohli, 1993; Jansen et al., 2006). Regarding top management team integration, we distinguish between TMT group contingency rewards as a formal integration mechanism (Collins and Clark, 2003) and TMT behavioral integration as an informal integration mechanism (Smith et al., 1994; O’Reilly et al., 1989).

Structural differentiation is the extent to which activities are structurally separated in different units in the organization. Structurally differentiating units allows competing frames to coexist within organizations (Gilbert, 2006) and to adjust working methods and control systems to the specific needs of a unit. The increased freedom enhances creativity and knowledge creation. The pragmatic boundaries erected between differentiated units protect both the entrepreneurial and mainstream units from intruding effects they might have on each other (Block and MacMillan, 1993). As a result, many studies on innovation have argued in favor of separating innovative from mainstream activities (cf. Hill and Rothaermel, 2003; Wheelwright and Clark, 1992). In a similar vein have corporate ventures also been suggested to operate in autonomous venture divisions (Block and MacMillan, 1993; Burgelman, 1985; Hill and Birkinshaw, 2007). Separating units also facilitates renewal processes, as renewal processes could be confined to a single autonomous unit instead of having a spillover to the entire organization (Volberda et al., 2001).

HI: Structural differentiation has a positive effect on all three dimensions of corporate entrepreneurship.

Moderating Role of Integration Mechanisms

Although the positive effects of structural differentiation are rather well-established in corporate entrepreneurship literature, little is known about integration mechanisms. Integration on itself might be an unwanted situation for corporate entrepreneurship activities, as tightly integrated units lose their distinctiveness (Orton and Weick, 1990) and too much business pressure (Burgelman and Valikangas, 2005). Taken together with structural differentiation, however, integration mechanisms might lead to simultaneous loose-tight coupled systems that are a distinctive characteristic of many excellent organizations (Peters and Waterman, 1982). In the following sections we address the moderating role of four such integration mechanisms, and assess their effects on corporate entrepreneurship. Cross-functional interfaces and connectedness as formal and informal organizational integration mechanisms, and TMT group contingency rewards and TMT social integration as formal and informal top management team integration mechanisms.

Cross-functional interfaces provide formal channels of communication and information processing mechanisms through cross-functional teams, task forces, and liaison positions (Gupta
and Govindarajan, 2000). They enhance knowledge transfer between highly interdependent units (Daft and Lengel, 1986; Gupta and Govindarajan, 1991). However, cross-functional interfaces are complex integration mechanisms that can be costly to implement, making them less suitable to connect differentiated units that are more unrelated to each other (Daft and Lengel, 1986; Tushman and Nadler, 1978). Moreover, the rigidity of such formal organizational integration mechanisms results in more local search, which hinders the firm to venture into new territories (Benner and Tushman, 2002; Burgelman, 2002). Cross-functional interfaces can overwhelm differentiated entrepreneurial units with the forces of business-as-usual, diminishing their innovative output (O’Reilly and Tushman, 2004). The complexity and formality of cross-functional interfaces makes it more difficult to strategically renew the firm (Volberda et al., 2001). Because the differentiated units are integrated through formal structures, renewing one unit has consequences for the system as a whole, as interwoven structures might have to be disentangled in case of restructuring. Such transformational renewal is hard to achieve and unlikely to occur frequently (Volberda et al., 2001).

H2: The extent to which a firm uses cross-functional interfaces has a negative effect on the relation between structural differentiation and all three dimensions of corporate entrepreneurship.

Connectedness refers to the extent that employees from different departments connect to each other in a more voluntary, informal mode (Jansen et al., 2006; Jaworski and Kohli, 1993). Such weak ties may help in recognizing opportunities and may function as bridging relations for differentiated units (Floyd and Wooldridge, 1999). It may help differentiated units to combine knowledge from different sources to create more exploratory innovations (Jansen et al., 2006). Such informal communication may help offset the limited structure of differentiated organizations. Brown and Eisenhardt (1997) argued this created an extremely prosperous environment for continuously launching new innovations. Connectedness may also help to establish legitimacy and support for differentiated ventures (Subramaniam and Youndt, 2005; Floyd and Wooldridge, 1999). Such informal intraorganizational networks may also speed up the renewal process by communicating a sense of urgency. These configurations make renewal easier, as the informally connected units are highly adaptable because of the limited formal structure.

H3: The extent to which employees of different units are connected to each other has a positive effect on the relation between structural differentiation and all three dimensions of corporate entrepreneurship.

TMT group contingency rewards create outcome interdependency across TMT members by rewarding for group rather than individual outcomes (Collins and Clark, 2003). By rewarding group outcomes, TMT group contingency rewards foster collaboration and create commitment to organizational goals (Bloom, 1999). They have been shown to increase communication, knowledge sharing and cooperation across TMT members, by motivating them to transcend their unit’s direct interests (Collins and Smith, 2006). Whereas members of differentiated units may have difficulties seeing opportunities for knowledge sharing, top management is in a better position to oversee possibilities for achieving synergistic value (Smith and Tushman, 2005; Gilbert, 2006). This may aide innovation and venturing units in acquiring support and resources for their development. Moreover, the group rewards may help overcome potential conflicts between mainstream and more innovative units. Top managers that are rewarded for firm outcomes may exert pressure towards fellow top management team members that are responsible for underperforming units to reorganize or divest their respective units, as it is also affecting the variable pay of other top managers (Smith and Tushman, 2005). This may in particular be the case...
in differentiated organizations, where top managers often have clearly demarcated responsibilities for certain units.

**H4:** The extent to which a firm uses group contingency rewards for TMT members has a positive effect on the relation between structural differentiation and all three dimensions of corporate entrepreneurship.

**TMT social integration** establishes informal intrinsic values among top management team members to discuss and to motivate cooperation across differentiated units. It increases negotiation, compromise, and collaboration between organizational units (Michel and Hambrick, 1992). However, social integration may result into groupthink within top management teams, which leads to selective perception of opportunities for knowledge and resource integration across differentiated units (Janis, 1982). Burgelman (2002) showed that innovative venturing activities were not accepted by top management’s dominant logic, which led to an increasing inert and focused organization. Even if such an autonomous venture is accepted, the narrow dominant logic of manager due to groupthink prevents them from initiating necessary renewal processes (Tripsas and Gavetti, 2000).

**H5:** The extent to which a firm has a socially integrated TMT has a negative effect on the relation between structural differentiation and all three dimensions of corporate entrepreneurship.

**METHODS**

Sample and Data Collection

We randomly selected a sample of 4,000 firms in the Netherlands from the Reach database. Reach provides basic company and financial information for all companies registered at the Dutch Chamber of Commerce, making it the most comprehensive company database in the Netherlands. We administered a questionnaire to the executive directors of each of the 4,000 firms in order to measure our study variables. Executive directors from 452 firms returned their questionnaire, representing a response rate of 11.3 percent. The next year, we administered a second survey to the same 452 executive directors to assess their firm’s corporate entrepreneurship activities. We received 240 completed surveys, representing an effective response rate of 53.1 percent. Compared to the original sample, our final response rate was 6 percent, not uncommon in contemporary survey studies targeting executives (cf. Koch and McGrath, 1996; Ozgen and Baron, 2007). The average size of the firms was 495.39 (s.d. = 3098.15) full-time employees and the average firm age was 40.56 years (s.d. = 34.97). The firms were operating in a broad range of industries covering manufacturing (52%), construction (17%), trade (6%), transportation (5%), financial services (7%), and professional services (12%). The respondents of these 240 firms had an average company tenure of 13.57 years (s.d. = 10.17).

**Variables**

The independent and dependent variables were based on multi-item constructs derived from prior literature. Scale items are available from authors.

Corporate entrepreneurship was measured with 14 items based on Zahra’s (1996) scale. Factor analysis showed corporate entrepreneurship consisted of thee dimensions: innovation, corporate venturing and strategic renewal. The corporate entrepreneurship scale was the composite measure
of these three dimensions. **Innovation** (5 items, $\alpha = .91$) taps into the number of new product introductions and process improvements initiated by the firm. **Corporate venturing** (5 items, $\alpha = .82$) gauges the extent of new business creation. **Strategic renewal** (4 items, $\alpha = .86$) assesses the extent to which the firm has renewed its existing businesses.

**Structural differentiation** was measured with a six-item scale ($\alpha = .79$) based on Worren, Moore and Cordona (2002). The items captured the extent to which organizations separate innovation and efficiency activities in different autonomous organizational units. Based on Gupta and Govindarajan (2000), six items were used to measure **cross-functional interfaces** ($\alpha = .73$). We included multiple items that measured the extent to which firms use cross-functional teams, temporary work groups and liaison personnel. **Connectedness** ($\alpha = .78$) was measured with 4 items based on Jaworski and Kohli (1993). **TMT group contingency rewards** ($\alpha = .80$) refers to the extent to which top management team incentives, such as bonuses and profit sharing, were tied to overall firm performance. We constructed a four-item measure for TMT group contingency rewards based on Collins and Clark (2003). **TMT social integration** ($\alpha = .85$) was measured by five items adapted from Smith et al. (1994). The items reflected the attraction to the top management team, satisfaction with other top management team members, and the social interaction among team members (O’Reilly et al. 1989).

**Control variables.** We controlled for the usual suspects that might influence corporate entrepreneurship activities, such as firm size and age, past performance, environmental dynamism and type of industry (cf. Zahra and Hayton, 2008). **Firm size** was measured by the log of the number of employees. **Firm age** was measured by the log of the number of years since the firm’s founding. **Past performance**, as indicator for the presence of organizational slack, was measured on a Likert scale that compared firm performance over the past three years relative to competitors in the industry on ROI, sales growth, profit growth, attracting new customers and market share growth ($\alpha = .82$). **Environmental dynamism** taps into the rate of change of the competitive environment and was captured by a four-item measure ($\alpha = .80$) from Jansen et al. (2006). To control for additional **industry** effects, we included seven dummies: manufacturing, construction, trade, transportation, financial services, professional services, and other industries.

**Reliability and validity of questionnaire**

We applied several methods during the questionnaire design and execution to increase the reliability and validity of our findings. First, by collecting data for the independent and dependent variables at two different points in time, we reduced the likelihood of common method bias (Podsakoff et al., 2003). Second, we reduced the possibility of social desirability bias by ensuring confidentiality (Podsakoff et al., 2003). We agreed not to reveal the name of the executive director and asked for the questionnaire to be returned directly to the research team. Third, the respondents had an average company tenure of 13.57 years, indicating that the selected respondents were experienced and knowledgeable about the firm, increasing the confidence in the validity of our data (Li et al., 2007). Fourth, to assess the validity of the major assumption that the responses of a single senior executive are valid representations of the organizational phenomena under investigation (Venkatraman and Grant, 1986), we surveyed one additional top management team member in each responding company for both surveys. The first survey resulted in 36 responses from the 240 firms in our final sample, and the follow-up survey received 57 responses from additional top management team members. To statistically demonstrate how consensual raters are within a single organizational context, we calculated the average $r_{wg}$ for each organization (Kozlowski and Hults, 1987). The $r_{wg}$ for organizations ranged from 0.72 to 0.99 with a median of 0.92 (mean 0.92) for the independent variables survey, and ranged from 0.78 to 0.99 with a
median of 0.96 (mean of 0.95) for the dependent variables survey. Following the procedure of James et al. (1984) we also calculated the average $r_{wg}$ per variable for differentiation (.89), cross-functional integration (.91), connectedness (.95), TMT social integration (.94), TMT group contingency rewards (.86), innovation (.95), venturing (.94), and renewal (.94). Overall, the $r_{wg}$ values indicate sufficient agreement within organizations for both the independent and dependent variables.

Results

Table 1 presents an overview of the means, standard deviations and correlations of all our main variables. To test our hypotheses we regressed our hypothesized variables and controls on corporate entrepreneurship, innovation, corporate venturing and strategic renewal (see Table 2). Models 1a-4a are our base models with the control variables, models 1b-4b added structural differentiation as our independent variable (hypothesis 1). Models 1c-4c included the interaction terms that gauged organizational ambidexterity (hypotheses 2-5). Prior to creating the interaction terms, we mean centered the variables. Variance inflation factors (VIF) stayed well below the suggested cut-off of 10 (Neter et al., 1990), indicating that multicollinearity was not of concern in our analyses. The models showed significant increases in explanatory power. Interesting to observe in Table 2 is that the effects of all the main variables are similar in direction across all dimensions of corporate entrepreneurship. They do, however, differ in significance levels.

Regarding the control variables we can observe that past performance has a strong positive effect on all dimensions of corporate entrepreneurship except strategic renewal. Environmental dynamism only seems to positively affect corporate venturing.

Models 1b-4b showed significant increases in explanatory power compared to the base models with the control variables. Structural differentiation had the expected positive sign regarding corporate entrepreneurship ($\beta = 0.186$, $p<0.001$) and its sub-dimensions of innovation ($\beta = 0.259$, $p<0.001$), venturing ($\beta = 0.153$, $p<0.05$), and strategic renewal ($\beta = 0.146$, $p<0.05$). The effects remained when including the interaction terms, thereby providing support for hypothesis 1. The increase in R2 when adding the interaction terms were significant for all models (1c-4c).

We find support for hypothesis 2 that cross-functional interfaces has a negative moderating effect on the relation between structural differentiation and corporate entrepreneurship ($\beta = -0.120$, $p<0.01$), innovation ($\beta = -0.122$, $p<0.05$), venturing ($\beta = -0.115$, $p<0.05$) and strategic renewal ($\beta = -0.125$, $p<0.05$). The interaction term of connectedness on the relation between structural differentiation and corporate entrepreneurship activities were significantly positive for corporate entrepreneurship ($\beta = 0.217$, $p<0.001$), innovation ($\beta = 0.289$, $p<0.001$), and venturing ($\beta = 0.238$, $p<0.01$). This supports hypothesis 3 for all dimensions except strategic renewal. The moderating effect of TMT group contingency rewards was only significantly positive for the relation between structural differentiation and strategic renewal ($\beta = 0.102$, $p<0.05$), thereby providing marginal support for hypothesis 4. Hypothesis 5 predicted a negative moderating effect of TMT social integration on structural differentiation and corporate entrepreneurship activities. It was strongly supported for corporate entrepreneurship ($\beta = -0.152$, $p<0.01$), corporate venturing, ($\beta = -0.167$, $p<0.05$), and strategic renewal ($\beta = -0.187$, $p<0.05$).

DISCUSSION

With this research we set out to investigate the effects of organizational ambidexterity on corporate entrepreneurship activities. We aimed to investigate whether these organizational configurations had differential effects on innovation, venturing and strategic renewal as
dimensions of corporate entrepreneurship. Our findings indicated the directions of the effects were similar across all dimensions of corporate entrepreneurship, but that the importance of organizational antecedents is significantly different for innovation, venturing and renewal. The results showed that structural differentiation had a positive effect on all dimensions of corporate entrepreneurship. Although previous studies suggested such beneficial effects for innovation and venturing, it had not been investigated for strategic renewal. Separating units makes it easier to successfully renew, as changes can be confined to the individual unit instead of having effects for the whole organization. However, the positive effect of structural differentiation is significantly moderated by integration mechanisms for all corporate entrepreneurship activities.

Cross-functional interfaces as a formal organizational integration mechanism has a strongly negative effect on the relation between structural differentiation and corporate entrepreneurship. Previous studies focused primarily on the positive direct effects of cross-functional interfaces (e.g. Gupta and Govindarajan, 2000). Our findings suggest that such an effect may be found when investigating cross-functional interfaces in the absence of structural differentiation (see model 2a in Table 2). However, when investigated in conjunction with structural differentiation, the direct effect completely disappears and the moderating effect is significantly negative for structural differentiation and corporate entrepreneurship activities. Cross-functional interfaces might be a too complex, costly and rigid integration mechanism that has detrimental outcomes for innovation, corporate venturing, and strategic renewal in a structurally differentiated organization. The complexity and rigidity of such mechanisms makes it more difficult to strategically renew, while the reciprocality of information flows makes venturing and innovation units susceptible to business pressures (Burgelman and Valikangas, 2005; O’Reilly and Tushman, 2004).

Connectedness only affected the relation between structural differentiation and innovation and venturing activities. The possibility to connect informally seems to overcome the pragmatic boundaries of structurally differentiated units. This allows innovation and venture units to secure the necessary resources and support and transfer available knowledge. Moreover, connecting the isolated pockets of knowledge in the organizations unleashes the creative potential of organizations, leading to increased venturing and innovation (Fiol, 1995). The non-significant effect on strategic renewal could be explained by the notion of facilitated renewal (Volberda et al., 2001). They suggested that in organizations comprised of differentiated, autonomous units, the renewal processes would be confined to the individual unit. Because connectedness tries to connect units together, this does not seem to aide strategic renewal processes in such organizations.

TMT group contingency rewards do not seem to act as a bridging mechanism to enhance knowledge and resources sharing in differentiated organizations that may help innovation and venturing activities. It could be that the outcome interdependencies created by TMT group contingency rewards focus too much on short-term performance, while venturing and innovation have a longer-term and more uncertain pay-off. TMT group contingency rewards did, however, positively moderate the relation between structural differentiation and strategic renewal. By rewarding for group outcomes, the responsible top manager may be more willing to divest or renew his/her underperforming unit, as the TMT is more likely to exert group pressure to achieve favourable group outcomes.

TMT social integration had a negative moderating effect on the relation between structural differentiation with corporate venturing and strategic renewal. A potential downside of social integration is that it leads to a narrower mindset, which does not understand nor embrace potential deviating behaviour through venturing and renewal. Our findings are in sharp contrast with
ambidexterity literatures, which predicted that TMT social integration should be the dominant integration mechanism in differentiated organizations to achieve favourable organizational outcomes (Gilbert, 2006; O’Reilly and Tushman, 2004; Westerman et al., 2006). Our study is the first attempt to test these configurations on a larger scale. More research is necessary to understand the effects of these configurations in practice. It could be that our findings are specific for the Dutch context, although we have no a priori reasons to believe so. Moreover, it could be that organizational ambidexterity affects organizational performance, balances between exploration and exploitation and corporate entrepreneurial activities in different ways. We also stress the importance of investigating the effects of these configurations on the longer term.

Interestingly, the results in Table 2 show that innovation is only affected by configurations of structural differentiation and organizational level integration mechanisms, while strategic renewal is primarily influenced by structural differentiation and top management team integration mechanisms. Corporate venturing seems to be in the middle, with primarily being affected by organizational mechanisms, yet also experiencing effects of top management team behavioural integration. This is in line with previous research that suggested innovation is more a bottom-up process, while strategic renewal is more a top-down process (Floyd and Lane, 2000). Burgelman (1983) suggested that venturing is driven by frontline and middle management but ultimately needs to be ratified by top management. The results suggest that future corporate entrepreneurship research should distinguish between innovation, venturing and renewal when investigating antecedents and outcomes of corporate entrepreneurship.

CONTACT: Henri Burgers; henri.burgers@qut.edu.au; (T): +61 7 3138 1163; School of Management, Queensland University of Technology, GPO Box 2434, Brisbane QLD 4001, Australia.

REFERENCES


Table 1: Means, standard deviations, and correlations

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Corporate entrepreneurship</td>
<td>4.34</td>
<td>0.94</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Innovation</td>
<td>4.30</td>
<td>1.27</td>
<td>.81</td>
<td>(.91)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Corporate venturing</td>
<td>3.72</td>
<td>1.23</td>
<td>.79</td>
<td>(.82)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Strategic renewal</td>
<td>5.00</td>
<td>1.19</td>
<td>.69</td>
<td>(.86)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Structural differentiation</td>
<td>4.17</td>
<td>1.24</td>
<td>.37</td>
<td>(.79)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Cross-functional interfaces</td>
<td>4.26</td>
<td>1.15</td>
<td>.32</td>
<td>(.73)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Connectedness</td>
<td>5.50</td>
<td>0.88</td>
<td>.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. TMT group contingency rewards</td>
<td>4.34</td>
<td>1.56</td>
<td>.27</td>
<td>(.80)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. TMT social integration</td>
<td>5.36</td>
<td>0.91</td>
<td>.14</td>
<td>(.85)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Dynamism</td>
<td>4.37</td>
<td>1.26</td>
<td>.20</td>
<td>(.80)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Firm sizeb</td>
<td>4.47</td>
<td>1.25</td>
<td>.14</td>
<td>(.82)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Firm agec</td>
<td>3.35</td>
<td>0.93</td>
<td>.03</td>
<td>(.80)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Past performance</td>
<td>4.62</td>
<td>0.93</td>
<td>.34</td>
<td>(.82)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Construction</td>
<td>0.18</td>
<td>0.38</td>
<td>-.25</td>
<td>(.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Trade</td>
<td>0.06</td>
<td>0.24</td>
<td>.06</td>
<td>(.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Transportation</td>
<td>0.05</td>
<td>0.21</td>
<td>-.23</td>
<td>(.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Financial services</td>
<td>0.08</td>
<td>0.26</td>
<td>.13</td>
<td>(.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Professional services</td>
<td>0.11</td>
<td>0.31</td>
<td>.13</td>
<td>(.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Manufacturing</td>
<td>0.53</td>
<td>0.50</td>
<td>.11</td>
<td>(.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Other industries</td>
<td>0.00</td>
<td>0.06</td>
<td>.02</td>
<td>(.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

*Correlation is significant at the 0.05 level (2-tailed).*

a. N=240. Numbers in parentheses on the diagonal are Cronbach alphas of the composite scales.

b. Log number of full-time employees

c. Log of years since founding
Table 2: Moderated regression results for corporate entrepreneurship and its dimensions

<table>
<thead>
<tr>
<th></th>
<th>Corporate entrepreneurship</th>
<th>Innovation</th>
<th>Corporate venturing</th>
<th>Strategic renewal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1a</td>
<td>Model 1b</td>
<td>Model 1c</td>
<td>Model 2a</td>
</tr>
<tr>
<td>Controls</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industry dummies*b</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Construction</td>
<td>-.397*</td>
<td>-.409**</td>
<td>-.322*</td>
<td>-.407</td>
</tr>
<tr>
<td>- Trade</td>
<td>.253</td>
<td>.229</td>
<td>.258</td>
<td>.163</td>
</tr>
<tr>
<td>- Transportation</td>
<td>-.812**</td>
<td>-.810**</td>
<td>-.739**</td>
<td>-.1030**</td>
</tr>
<tr>
<td>- Financial services</td>
<td>.316</td>
<td>.241</td>
<td>.278</td>
<td>.319</td>
</tr>
<tr>
<td>- Professional services</td>
<td>.301</td>
<td>.272</td>
<td>.338</td>
<td>.163</td>
</tr>
<tr>
<td>- Other industries</td>
<td>.788</td>
<td>.603</td>
<td>.425</td>
<td>1.173</td>
</tr>
<tr>
<td>Environmental dynamism</td>
<td>.065</td>
<td>.059</td>
<td>.076</td>
<td>.100</td>
</tr>
<tr>
<td>Log organizational size</td>
<td>.036</td>
<td>.022</td>
<td>.013</td>
<td>.042</td>
</tr>
<tr>
<td>Log organizational age</td>
<td>.047</td>
<td>.046</td>
<td>.073</td>
<td>-.006</td>
</tr>
<tr>
<td>Past performance</td>
<td>.255***</td>
<td>.263***</td>
<td>.299***</td>
<td>.400***</td>
</tr>
<tr>
<td>Cross-functional interfaces</td>
<td>.150**</td>
<td>.089</td>
<td>.041</td>
<td>.221**</td>
</tr>
<tr>
<td>Shared organizational vision</td>
<td>.037</td>
<td>.042</td>
<td>.054</td>
<td>.067</td>
</tr>
<tr>
<td>TMT group contingency rewards</td>
<td>.042</td>
<td>.003</td>
<td>.012</td>
<td>.018</td>
</tr>
<tr>
<td>TMT social integration</td>
<td>-.004</td>
<td>-.016</td>
<td>-.012</td>
<td>.019</td>
</tr>
<tr>
<td>Main effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural differentiation</td>
<td>.186***</td>
<td>.199***</td>
<td>.259***</td>
<td>.257***</td>
</tr>
<tr>
<td>Moderating effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural differentiation*</td>
<td>-.120**</td>
<td>-.122*</td>
<td>-.115*</td>
<td>-.115*</td>
</tr>
<tr>
<td>Connectedness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural differentiation*</td>
<td>.217***</td>
<td>.289***</td>
<td>.238**</td>
<td>.125</td>
</tr>
<tr>
<td>TMT group contingency rewards</td>
<td>.033</td>
<td></td>
<td>.022</td>
<td>.020</td>
</tr>
<tr>
<td>Structural differentiation*</td>
<td>-.152**</td>
<td>-.104</td>
<td>-.167*</td>
<td>-.187*</td>
</tr>
<tr>
<td>TMT social integration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(R^2)</td>
<td>.298</td>
<td>.343</td>
<td>.415</td>
<td>.284</td>
</tr>
<tr>
<td>F-value for change in (R^2)</td>
<td>15.4***</td>
<td>6.74***</td>
<td>16.1***</td>
<td>5.13***</td>
</tr>
</tbody>
</table>

* \(N = 240\); unstandardized coefficients are reported; \* \(p < .05\); ** \(p < .01\); *** \(p < .001\)

b Manufacturing served as reference group in regression analyses