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AN EMPIRICAL INVESTIGATION OF THE COGNITIONS OF CORPORATE ENTREPRENEURS

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ABSTRACT

Studies that examine cognition imply that entrepreneurs think differently than other people: most often these studies have suggested that entrepreneurs think in a way that is distinct from managers in large corporations. Furthermore, patterns found in cognition research suggest that entrepreneurs think the same when considering whether to start a new venture. Our study of innovation-based corporation entrepreneurship initiatives suggest that it is the cognition-environment nexus that is most important, not simply the manner in which entrepreneurs think. Our study indicates that entrepreneurs and managers think alike with respect to identifying opportunities and starting new ventures but organization environments differentiate the manner in which they think as they go to execute these opportunities.

INTRODUCTION

Research over the past decade suggests that cognition is an important factor in understanding the creation of ventures (Mitchell, Busenitz, Lant, McDougall, Morse, & Smith, 2002). From broad theoretical work that first stressed the need for incorporating cognition into the process of entrepreneurship (Vekataraman, 1997; Shane & Venkataraman, 2000) to more focused research that examines how individuals think (Baron 1998; Gaglio 2004), learn (Corbett, 2005; Minitti & Bygrave, 2001) and use their knowledge (Ardichvilli, Cardozo, & Ray 2003) to find opportunities and start new ventures, scholars are demonstrating important links between individual's cognitive facility and their interests and abilities as entrepreneurs (Corbett in press; Shane, 2000; Ward, 2004).

In fact, empirical evidence suggests that there is consistency in the knowledge structures individuals have with respect to entrepreneurship and the scripts they follow when deciding to start a new venture (Mitchell, Smith, Seawright, & Morse, 2000). Mitchell, et al. found that entrepreneurs exhibit a similar pattern of thinking when considering whether to start a new venture. Regardless of nationality, individuals think first about the *arrangements* (resources or access to them) they believe are necessary to start the venture and then gauge their *willingness* and *ability* to perform the task.

Additionally, Mitchell and his colleagues demonstrate that in some cultures, values will also moderate the relationship between cognition and the venture creation decisions (2000). This secondary finding triggered the authors to ask, "Are entrepreneur scripts similar to or different from those in other domains (Mitchell et al., 2000, p. 986)?" Others have also wondered about the impact of environment on entrepreneurial decision-making (Stewart, Watson, Carland, & Carland, 1998). In the current study we heed this call by investigating the affect that the corporate domain has on the cognitive scripts of individuals charged with developing ventures in established organizations. Corporate entrepreneurship activities are vital to the sustainability of established firms (Dess & Lumpkin, 2005). Therefore, gaining a better understanding about the cognition of corporate entrepreneurs may help guide better execution of corporate entrepreneurship initiatives.

Through in-depth cases studies of innovation-based corporate initiatives we show results that bring into better focus the manner in which entrepreneurs think. Despite a long list of studies that suggest that entrepreneurs think differently than other individuals – particularly, managers in corporations -- (Busenitz & Barney, 1997; Stewart, Watson, Carland, & Carland, 1998) we find that those charged with developing internal new ventures follow the same primary cognitive scripts as entrepreneurs. Additionally, we find

that intrapreneurs rely on numerous other sub-scripts that are not manifest in entrepreneurs who start their own independent ventures. These findings are important because they allow us to further understand the role of environment within the process of entrepreneurship. While the manner in which entrepreneurs think is certainly important, prior suggestions that it is distinct may not be completely accurate. Our study suggests it is the interaction of the entrepreneurs' cognition and environment that is most important.

The article begins by providing an overview of entrepreneurial cognition literature and the need for an exploration of cognition within the corporate entrepreneurship domain. We then detail social cognitive theory, modeling and observational learning as the theoretical underpinnings to our work. After detailing our research design, we use data to illustrate our key findings.

ENTREPRENEURIAL COGNITION

Each individual has different stocks of information and these differences matter with respect to economic development (Hayek, 1945). Hayek's seminal work examining the importance of the dispersion of information between individuals in society has proved to be the cornerstone for the development of theory of the entrepreneurship process (Venkataraman, 1997; Shane & Venkataraman, 2000; Ardichvilli, Cardozo, & Ray, 2003), while simultaneously embedding cognition as an important factor in the development of the field (Baron, 1998; Kruger, 2000; Gaglio & Katz, 2001; Mitchell, et al., 2002; Baron, 2004; Ward, 2004).

Many empirical studies have supported the links between cognition and entrepreneurship. Busenitz and Barney (1997) demonstrated that in contrast to managers, entrepreneurs use heuristics (mental shortcuts) and biases in their decision-making. The authors suggested that these shortcuts in the cognitive processes of entrepreneurs were important in allowing entrepreneurs to seize opportunity. Shane (2000) demonstrates that individuals start distinctly different businesses even when they are provided with the same basic information. Mitchell et al. (2000) demonstrate that entrepreneurial cognitive scripts are consistent across national cultures. Simon and his colleagues illustrate the importance of illusion of control and other biases in the venture formation process (Simon, Houghton, & Aquino, 2000; Simon & Houghton, 2002 Brigham & DeCastro, 2003) suggest that an entrepreneur's cognitive style may contribute to a mis-fit with his venture as it grows over time.

In summarizing the explosion of recent research on cognition and entrepreneurship, Mitchell, et al. (2002) build towards a theory of entrepreneurial cognition that states that the mental processes that occur within the individual have a direct bearing on entrepreneurship. "Entrepreneurial cognitions are the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth (2002, p. 97)."

The extant entrepreneurial cognition literature reveals the importance of an individual's cognition on the entrepreneurial process. However, with the exception of a few (Simon & Houghton, 2002; Shepherd & Krueger, 2002), the large majority of studies today that focus on the individual give less regard to the environment in which the individual operates. The current study is designed to highlight the importance of the environment by focusing on mental scripts of corporate entrepreneurs. We propose an extension of Mitchell et al.'s work on cognitive scripts. We investigate whether the corporate context necessitates the development and use of different scripts within the new venture creation decision process. The next section shows how social cognitive theory supports our perspective.

SOCIAL COGNITIVE THEORY

Social cognitive theory (SCT) explains human functioning in terms of a bidirectional triadic relationship in which behavior, cognition, and the environment operate as interacting determinants of each other (Bandura, 1986; Wood & Bandura, 1989). Of most importance to our argument is that the environment impacts cognition and behavior, suggesting that a significant change in environmental

factors will have a corresponding change in cognition and behavior. We posit that the corporate environment – which is distinct and different from that of a startup – will have differential effects on the cognitions of fledgling intrapreneurs.

Due to the bi-directionality of influence, people are both products and producers of their environment. Wood and Bandura (1989) explain that individuals develop their knowledge and skills on the basis of information they receive through interactions with others in the environment. Thus, individuals model their behavior based what they have seen demonstrated in the environment. The act of modeling is governed by observational learning, which in turn is determined by four distinct processes—attentional, representational, behavioral production, and motivational (Wood & Bandura, 1989). *Attentional processes* refer to what individuals observe from ongoing activities. *Representational processes* are “how individuals represent” the activity they have seen in the environment. *Behavioral production processes* are used to transform symbolic conceptions into appropriate courses of action. Lastly, *motivational processes* are related to the fact that individuals do not do everything they observe or learn. Instead, individuals will only take on new behavior if there is a personal motivation to do so. To this end, individuals tend to do what they find most self-satisfying.

By deconstructing modeling and observational learning into its four elemental parts, we can see how the corporate environment might both enable and constrain entrepreneurial behavior. Individuals are able to take what they remember from their observations, transform it into new behavior and then decide if they want to put this new knowledge into action. Therefore, corporate employees certainly are able to engage in entrepreneurial behavior, as a result of their innate *behavioral* and *motivational* processes. The issue of interest here is that these employees are likely to use different scripts than independent entrepreneurs, because their environment will strongly influence their initial *attentional* and *representational* processes. Simply stated, corporate employees work in environments that stress certain norms and routines that are often counter to entrepreneurial activities. In their daily interactions, they are engulfed in a culture and organizational structure that champions mechanistic as opposed to organic management practices (Burns & Stalker, 1961).

It is against this setting that we examine the issue of entrepreneurial cognitions and the role that environment plays in shaping mental scripts.

METHODOLOGY & RESEARCH DESIGN

This research is part of a broader research program that seeks to understand how corporations develop capabilities in breakthrough innovation. We, with seven multidisciplinary researchers from three institutions, tracked innovation-based corporate entrepreneurship initiatives in eleven industry leading, Fortune 1000 firms including Air Products, Albany International, Corning, Dupont, GE, IBM, Johnson and Johnson, Kodak, Sealed Air, Shell Chemical, and 3M. All companies included in the sample had formal initiatives or a declared strategic intent around breakthrough innovation. The companies varied with respect to the length of time their initiatives have been in place; age of the innovation-based corporate entrepreneurship initiative at the start of the study ranged from just starting to eight years. The average initiative age was 2.76 years.

Over a three year period 246 interviews were conducted, including screening interviews, initial on-site interviews, and follow up interviews every six months. Interviews were semi-structured, an hour in length, and followed a specific, predetermined protocol. All interviews were recorded and professionally transcribed. A total of 59 interviews were used for this paper because we were most interested in tracking the lead corporate entrepreneur, the person most responsible for managing the innovation based entrepreneurial projects, over the time period studied. This allowed us to focus on a single leadership perspective.

Data were analyzed through multi-case analysis methods (Eisenhardt 1989b; Yin, 1994). More specifically, an “extended” case methodology (Burawoy, 1991; Danneels, 2002) was employed in order to build on existing entrepreneurship cognition research. Mitchell, et al. (2002) define what comprises an expert script for new venture decision-making. These authors define arrangement scripts for new venture formation as the knowledge structures individuals have with respect to the tools, contacts, relationships, resources, and assets necessary to form a new venture. Willingness scripts are the knowledge structures that lie beneath an individual’s commitment to starting a venture. Ability scripts are the knowledge structures revolving around the skills, capabilities, and attitude that are necessary to get the venture up and running.

Table 1 defines the coding categories used in our analysis. Given the existing knowledge on entrepreneurial cognition, our initial coding was guided by the primary new venture creation scripts of arrangement, willingness, and ability as defined by Mitchell et al. (2000). As the analysis proceeded we identified subscripts particular to corporate entrepreneurship that were not accounted for in Mitchell et al. Thus, final data coding included Mitchell’s original conception of arrangement, willingness, and ability plus additional corporate entrepreneurship scripts that emerged throughout our coding process.

Qualitative inquiry is an iterative process that requires the balance of theoretical discipline in consort with openness to additional interpretation. Expanding theory to additional contexts, such as applying new venture knowledge to corporate settings, demands continuous communication between researchers. To aid our qualitative analysis, NVivo, a computer aided text analysis software program, was employed to facilitate coding. To achieve a minimum 70% intercoder reliability suggested by Miles and Huberman (1994), we did the following: (1) each coded the same transcripts (a company) for arrangement, willingness, and ability as defined by the literature; (2) coding was merged to determine discrepancies in coding; (3) discrepancies were discussed and definitions of arrangement, willingness, and ability were better defined by citing examples in the data; (4) authors coded another set of transcripts for another company in the sample where acceptable intercoder reliability was achieved; (5) subscripts for corporate entrepreneurship were discussed based on coding of the first two companies; (6) the remaining transcripts were coded based on the original definitions of arrangement, willingness, and ability plus the subscripts that were specific to corporate entrepreneurship (See Table 1).

ENTREPRENEURS AND CORPORATE ENTREPRENEURS THINK ALIKE

Mitchell et al. (2000; 2002) explored the arrangement, willingness, and ability scripts of individuals who had started new ventures because research shows that individuals who outperform others develop domain specific knowledge structures in this manner (Leddo & Abelson 1986; Lord & Maher 1990). The development of scripts is important because they lead to superior performance within a domain in comparison to those who have not developed a similar script (Ericson, Krampe, & Tesch-Romer 1993).

The research of Mitchell and his colleagues (2000; 2002) demonstrates that there is a common cognition-based structure to the venture creation decision process that holds true across national cultures. Furthermore, their study shows that cultural values (power distance, individualism) have a moderating affect on the scripts. This work showed that entrepreneurs think in a distinct manner, but that the environment may be a differentiator. These findings were the initial motivation for us to investigate whether – and to what extent – the environment of a large corporation would affect the cognitions of corporate entrepreneurs.

Our data revealed that corporate entrepreneurs will possess the same primary cognitive scripts – arrangement, willingness, and ability – as individuals starting independent new ventures. Table 2 represents the cases in our study and provides evidence that corporate entrepreneurs do follow similar expert scripts within the new venture creation decision process. In a summary fashion, this table tells the story of each firm’s perspective towards the new venture creation process through the cognitions of innovation-based corporate entrepreneurship initiative leaders. We found 2,655 passages that were

representative of the new venture creation decision scripts outlined by Mitchell and his colleagues. Combining scripts as part of the venturing decision making process illustrates an entrepreneurship perspective for a company.

For example, corporate entrepreneur in Company 4 was asked about the ideal conditions for innovation based entrepreneurship. His *arrangement* response was, “CEO commitment from day one.” In an earlier interview he expressed the *willingness* around corporate entrepreneurship initiatives. “We want to create new ideas and get our people passionate around new ideas,” he said. “By the same token, we want to tell them what we’re interested in versus having randomness of ideas; we want to have a strategic context.” Finally, the lack of *ability* to follow through on innovation-based projects was evident when he said, “We’ve been really doing a lot of education around tools developments. We’ve been doing a lot of stuff on discovery driven planning. We’ve got people taking classes on entrepreneurship and the like. We’re starting to train some of the talent.” By analyzing the broad scripts of arrangement, willingness, and ability in this particular company, the data begins to tell an important story around corporate entrepreneurship: The Company needed top management support from the beginning. Eventually the CEO showed support but only for aligned business opportunities; therefore, ideation needed to focus on the core competencies of the organization so projects could eventually find a home in an existing business unit. Recognizing its shortcomings, the organization is committed to innovation-based entrepreneurship and is willing to train employees and provide the necessary tools and resources to encourage innovation and commercialization.

The above script summary suggests this firm’s competency for corporate entrepreneurship may be very mature. However, analyzing the scripts of the corporate entrepreneurship initiative leader in Company 1 demonstrates a very different perspective. With respect to *arrangement*, this entrepreneurial initiative leader states, “Very simply we have had, over the years, enough people whether they were the best chemists, or the division vice president, or whether they were the chairman of the board that made a connection between a customer need and a technology solution.” In a later interview he expressed the firm’s *willingness* to not just create new products, but to create markets as well, “The trouble is the people that make fuel cells aren't really selling any. So we're probably going to have to end up developing our own market. I mean, we might end up making fuel cells.” Lastly, when speaking about *ability* scripts and a successful multimillion dollar opportunity, the entrepreneur stated, “We did a good job on this, a very good job. This shows how our reflective polarizer works. This is another use of it. These are just different uses. Here’s my point. We went from idea, get this, idea to make the materials, to make the process, to organize the materials, to a whole new family of products.”

The first example above shows scripts that may suggest a relative lack of expertise with respect to corporate entrepreneurship while the second shows a firm in a more mature state. Our initial analysis of the data was not designed to assess the degree of expertise but to simply uncover if arrangement, willingness, and ability scripts were present in corporate entrepreneurship initiatives. Driven by the data – the examples given above and the case summaries in Table 2 – our first finding confirms the existence of primary scripts for new venture creation decision-making within the corporate environment. This finding is further supported by a count of the passages within the transcripts. As note above, we found 2,655 passages representing arrangement (1,084), willingness (775) and ability (796) scripts. All of which indicates that the entrepreneurs and corporate managers think the same way with respect to initial new venture creation.

This finding allows us to bring great clarity to previous literature that states that entrepreneurs and corporate managers think differently (Busenitz & Barney, 1998; Stewart et al., 1998). The contributions of these works provide a foundation from which we can build. Busenitz and Barney showed that entrepreneurs and corporate managers differ with respect to the heuristics of overconfidence and over representation. Their study examined managers in large corporations who had oversight for two or more functional areas of the corporation. These individuals may or may not have any mandate or need for strategic renewal or corporate entrepreneurship so it may not be surprising that these differences were

found. Stewart et al. demonstrates that entrepreneurs and managers think differently with respect to innovation, risk, and need for achievement. The sample in this study, perhaps as expected, shows the majority of managers working in very large organizations (by sales and number of employees) whereas the entrepreneurs were working in small one. We state this in an effort to gain a better understanding of *why* entrepreneurs and managers *might* think differently. Both of these studies document evidence that differences exist, but neither was specifically designed to help us understand why these differences might exist.

Each of these studies examines entrepreneurs who are actively engaged in operating their venture. Therefore, the seemingly conflicting results we found may be due to (1) the stage in the process, and (2) the environment. As Baron (1998) proposes, “such differences in cognition do not stem primarily from differences between entrepreneurs and other people with respect to personal traits but rather from the fact that entrepreneurs operate in [different conditions]” (1998, p. 288).

It appears that entrepreneurs and corporate managers do think in the same manner with respect to the cognitive scripts that support initial new venture creation decisions. Additionally, we investigate the effect of the corporate environment as individuals after their decision to start a venture and as they attempt to capitalize on their initial cognitions.

CORPORATE ENVIRONMENT SHAPES ENTREPRENEURIAL “EXECUTION SCRIPTS”

Context does seem to matter with respect to execution as evidenced by other studies contrasting entrepreneurs and corporate managers. In the most simple and clear terms, we see that entrepreneurs often make bad managers (Schell, 1991). Palich & Bagby (1995) note that entrepreneurs and managers differ on one very basic perception: entrepreneurs are more likely to see the possibilities in an opportunity whereas managers were more likely to sense the threats. Stewart et al. (1998) state that managers and entrepreneurs tend to be higher in their risk-taking propensity. While others have suggested there is no difference in the risk taking propensity of entrepreneurs and managers (Brockhaus, 1980; Low and Macmillan, 1988), Busenitz and Barney (1997) appeared to have found a more nuanced solution: entrepreneurs and managers do not differ in their risk propensity, it is just that entrepreneurs are more likely to perceive less risk. Below we take a similar path and explain that entrepreneurs and managers think alike in their preparation for entrepreneurship but due to their environment differ in their execution.

Busenitz & Barney explain that during conditions of environmental uncertainty and complexity the use of biases can be an effective decision-making tool since cautious and time-consuming decision making may not be possible. They find that entrepreneurs are more likely to enact mental shortcuts to arrive at decisions whereas managers are not. The authors state that corporate managers and entrepreneurs both have to make complex decisions under conditions of uncertainty and ambiguity. However, decisions made by entrepreneurs tend to be more uncertain, more ambiguous, and more complex. This last qualifier is most important because it supports the idea that these different contexts affect thinking and decision-making. As Busenitz and Barney point out, larger organizations tend to make readily available more methodological information in order to make decisions. The context is different and it affects cognition.

Shrader and Simon (1997) provide more evidence that the process of entrepreneurship and the process of corporate venturing are different. They explain that corporate ventures and independent ventures face different obstacles and therefore must take different paths to success. These authors state that corporate entrepreneurs emphasize making use of internal capital sources, proprietary knowledge, and marketing expertise, while entrepreneurs running start-up operations focus on external capital sources, technical expertise, and brand development.

Given the evidence in the existing literature, we investigate the scripts of corporate entrepreneurs with the underlying thesis that due to their environmental constraints, corporate entrepreneur’s cognitive

scripts will differ from start-up entrepreneurs as they begin to execute on their opportunities. While the primary scripts (arrangement, willingness, ability) of individuals may be similar to those starting independent ventures, we expect the multifaceted design and complex dynamics within large organizations will necessitate corporate entrepreneurs to develop more detailed and explicit knowledge structures to match their environment.

The context for corporate entrepreneurship is particularly important in our sample of companies because corporate entrepreneurship activities were innovation-based. However, the innovations targeted were breakthrough in nature as opposed to incremental product development activities. Given the extreme nature of breakthrough innovation, companies were faced with uncertainty and risk from many spheres including market uncertainty, organizational uncertainty, resource uncertainty, and technical uncertainty (Leifer et al., 2000). The impact of the corporate environment on venture creation decisions is exacerbated by many aspects of uncertainty and perceived associated risk.

Our data suggests that the unique corporate environment plays an important role in how arrangement, willingness, and ability scripts are used for intrapreneuring. In addition to the new venture scripts of arrangement, willingness, and ability there are added dimensions due to the environment in which innovation is trying to taking place. Table 1 provides an overview of this distinction. This table first shows the definitions of arrangement, willingness and ability scripts given by Mitchell and his colleagues in their investigation of start-up, independent entrepreneurs. Then we add our findings which indicate the manifestation of a corporate entrepreneurship execution script. Below, we expand upon this table by providing more detail and support from the transcripts.

Arrangement. Arrangement scripts refer to the knowledge structures one has regarding the various tools, contacts, relationship resources, and assets one has at his/her disposal. Specifically, Mitchell et al. (2000) state that entrepreneurs will have arrangement cognitions about how to use patents and trademarks; and that they will develop scripts for business resources and networks. In the corporate domain, our data suggests that there is increased emphasis and evidence of arrangement scripts for culture, coaching, and the necessity of top management support.

In our sample, the culture often dictated how governance structures were created to support initiatives. A culture conducive to entrepreneurship encouraged experimentation and accepted small losses. Arrangement scripts focused on culture were exemplified by the following:

“Well, I think from the standpoint in doing it right is that we have always maintained our culture for team work, technology, sharing and transfer, bringing in technology from the outside and building on it for our needs. We have probably an unrealized strength that most people don't realize, but our international structure is second to none and we create that same culture and environment in every country that we work in or do business in together with laboratories. ... So it's sort of a passion for business building. You know, it comes from that build a project, split it off, you know, grow it as a business kind of mind set that's occurred over the years. So the foundation is very strong there.”

In many of our companies, it was evident that few had entrepreneurial experience in terms of starting new ventures, entering new markets through the commercialization of breakthrough products. As a result, coaching was an initiative among some of the companies. Arrangement scripts focused on coaching were exemplified by the following:

“And her team is actually -- you know, has a little group of consultants that are out working with each of the emerging business opportunities coaching them and working with them through strategies and issues as an outbound little consulting arm.”

In a corporate setting, top management support is important for innovation efforts. Such support signals that it is acceptable to work outside the core or experiment with new technology. Without

approval, R&D innovations efforts were often found underground and under resourced. Arrangement scripts focused on top management team support were exemplified by the following:

“In part, what does this mean? This actually means regular reviews involvement with those teams. So if [CTO name deleted] who would be in Iowa, actually once a month we’ve got ten corporate initiatives, he spends two hours a month at each one of them with the teams actually working through strategic issues. More of a rolling up sleeves and working through things, not a stand back, did you make your numbers kind of effect. So, active involvement”.

Willingness. Willingness scripts are seen as how individuals think about new opportunities, pursue those opportunities, and stay committed to them (Mitchell 2000). Again, our data suggests that entrepreneurs and those in corporations may differ on this dimension. The data suggest that corporate entrepreneur have unique knowledge structure surrounding willingness with respect to rewards and incentives, ideation, project transition into business units, conflicts between business units and R&D. This is seen from the data in Table 1 and 2 and also from the quotes below.

Transitioning projects from R&D and the entrepreneurial development team to a strategic business unit in order to fully commercialize it can create difficulties. Many companies transitioned too early which often caused the project to receive less attention given the constraints on business units. Other companies transitioned too late resulting in business units that perceived a lack of ownership over a project that had been previously housed in another part of the company.

“Well, I wouldn't say they need hand holding, but it presents a concern for them. I mean, they're looking at a portfolio, and they see this as a potential transition issue or value capture issue. So yeah, it requires more discussion. There's a bit of a hurdle to overcome there. It's good. I mean, I think it's good that there's some skepticism that's applied there so that we -- because there is a little bit more risk about the route to market.”

With respects to one’s career and rewards, even in these companies that are entrepreneurially oriented, getting personnel on board is sometimes difficult because “typical” corporate employees may be less willing to get involved in high risk projects. They see a limited career path or lack of a job if things do not work out.

“You do have to provide protection and it is true that I do that overtly. But from a business side, they really think it is truly career limiting.”

Abilities. Ability scripts refer to the knowledge structures surrounding the capabilities, knowledge, norms, and attitude required to start a new venture. Our data suggests that the size, scale, and focus differentials between a fledgling start-up and an established corporation impact how individuals will think about their ability. Corporate entrepreneurs develop knowledge structures around learning, informal training, successful launch or transition of projects, building the depth and breadth of the pipeline, and “killing” projects. Example can be seen in the following:

“We need to do a better job of some additional -- have some additional thoughts about how we could drive the pipeline, and there's some things that we're going to do in the management system to continue to improve the management systems to help ensure that we make progress. “

“When I look and say -- see the stuff that's in, you know, the pipeline and how that compares and all that I feel great, that's good and we'll see what happens on both the fact that we're growing faster, but I do have this nagging concern that we may still be too much in our comfort zone in our executional stuff.”

“Many people will say, one of the main reasons we’re not very good at new things is because we will not kill anything. We just kind of keep things going and going and going versus saying, OK tried that sufficiently, stop that and reallocate resources.”

In sum, our data suggests that during the new venture process corporate entrepreneurs have to think about a number of arrangements, willingness, abilities that are beyond the scope of what was found with independent startups.

CONCLUSIONS

The findings in this study are important because they disentangle the previously murky waters surrounding the thinking of entrepreneurs versus other groups. Most importantly, we demonstrate the importance of context by showing that entrepreneurs and intrapreneurs actually think in the very same way when considering new venture creation. Corporate managers charged with starting internal new ventures follow the very same scripts as independent entrepreneurs as outlined by the Mitchell and his colleagues. Our results further indicate that it is during the execution of new ventures where the thinking of these two groups diverge.

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Table 1 – Data Coding

Primary Coding Category	Start Up Script Definition (Mitchell et al.)	Expanded for Corporate Entrepreneurship	Data Example
Arrangement	<i>Arrangement scripts</i> are the knowledge structures people have about the use of specific arrangements at their disposal (tools, contacts, relationships, resources, and assets, etc.) that are necessary to form a new venture.	Innovation culture, processes related to venture creation, coaching and training, senior management support, governance and evaluation boards, funding, networking, innovation career paths, leadership changes	“So I’ve taken the position that all my seed money will go for is marketing and business concept validation. So I only fund people to travel to validate their businesses with customers or do marketing work. I will not fund technology development until I have all that work done. But it sort of moved technology further -- if you needed to do a technology development or do more work, I require that we do the marketing work first, and that’s what I will spend my seed money on.”
Willingness	<i>Willingness scripts</i> are the knowledge structures that lie beneath an individual’s commitment to start a new venture including commitment tolerance, opportunity pursuit, and opportunity seeking.	Rewards and incentives, experimentation, ideation, project transition into business units, innovation strategy, conflicts between business units and R&D	“There’s an understanding all the way up to current senior management that we cannot continue to incrementally develop the same products and improve them and get the kind of results that they’re looking for. They’re looking for significant top line growth and some competitive managers and we’re just not -- it’s understood we’re not going to do that just by incrementally improving what we currently make. So, we’ve had to start thinking longer term and looking at technologies that we think could be applicable as opposed to looking at products or product concepts, but look at technologies that we think could be applicable to develop whole new product of process concepts for the corporation.”
Ability	<i>Ability scripts</i> are knowledge structure individuals have regarding the skills, capabilities, and attitudes that are necessary to get the venture up and running.	Effectiveness of innovation processes, experimentation & learning, informal coaching and training, successful launch or transition of projects, project projects, depth and breadth of the pipeline, “killing” projects	“And so one of our big concerns is and one of our challenges going forward here as we try and grow the company again is to how to get more of a business creation skill set in the organization.”

Table 2 – Summary of Corporate Entrepreneurship Scripts by Case

Case	Age	Arrangement	Willingness	Ability
1	0	Entrepreneurial projects developed within the central R&D group then transfer them to business units quickly. Strong belief that corporate entrepreneurship is a team activity and that sponsors must come from the VP ranks.	Fosters a culture of entrepreneurship – everyone is expected to aid in both innovation and commercialization. Focus in current business units should be on constantly reinventing themselves.	Focuses on the management of technology. CTO: “I’m really much more of a business builder, entrepreneur, than I am a chief technology officer...I’m a lightweight inventor.”
2	0	Breakthrough projects are vetted in the Advanced Technology Group, but each business unit has a product development committee for incremental innovation. No process to handle major capital advancement for later stage projects.	Culture is not conducive to entrepreneurship and there is no consensus around the need for change and/or innovation. Slow realization that the company will not realize its growth objectives through incremental innovation.	Little entrepreneurial ability within the company and most enthusiasm is coming from the junior, lower ranks rather than the senior people. Application of stage gate process to breakthrough innovation projects will not likely work.
3	7 mo.	Entrepreneurship projects are initiated in corporate R&D but parallel development of the project is also done in a business unit. Highly developed networks within the organization, financial resources extreme discipline in the systems	The following quote from the hub leader reflects the willingness of this firm to pursue new opportunities. “There’s no failure here because you discover something which doesn’t work.”	Highly diversified skill base and deep expertise within the infrastructure of what it takes not just to invent but to commercialize and then develop new businesses.
4	1 yr.	Several groups responsible for governance and evaluation of new entrepreneurial projects. Overall, there is strong interest in keeping innovation and projects teams with the SBU; process operates best when the project has a home in a business unit.	Culture of innovation and entrepreneurship is being built. Participation in high risk, entrepreneurial projects is being perceived as a good career move by younger employees. Organization is very good at coming up with new ideas and devoting some resources across an array of ideas, but have yet to face the challenge of having to go after one big thing in a very big way.	Heavy emphasis on market due diligence before funding the technical side of entrepreneurial projects. Innovation is not a disciplined process within the organization and recognize the need to take a skills inventory to determine what is needed to move forward. Doing a lot of education and training.
5	1 yr.	Not a process oriented organization; therefore, a disciplined process around breakthrough innovation does not bode well. A series of experiments led to a platform orientation and a focus on fewer but bigger innovation. Advance Technologies Group evaluates and funds breakthroughs	New CEO asked everyone to be entrepreneurial in their orientation. Innovation of fewer but bigger things became the mantra. A few stories of failure and the demise of careers permeate the organization and limit the risk-taking of individuals. Willingness has evolved in a positive way but there isn’t a sense of urgency.	The company generates many incremental innovations per year but lack entrepreneurial experience to generate the “next big thing.” Company makes big ideas small because they incorporate the same process for breakthrough as they do incremental.
6	2 yrs.	Two governing bodies for entrepreneurial projects: Corporate Technology Council and Growth Strategy Council. CTC does tech review (stages 1 and 2) and GSC does business review (stages 3-5). Working to increase focus on the early stage	Trying to build a business creation culture and want to become more disciplined in how they identify opportunities. Due to the emphasis on exploratory marketing as well as the development of people in innovation ability, it’s clear that the willingness to	Given its technology orientation, the organization lacks marketing and business creation experience and ability. The innovation process is the company’s #1 business process on the technology

		pipeline through exploratory marketing.	engage is entrepreneurial activity through high risk innovation is present.	side of the organization, but they falls short on business creation and commercialization. The gaps or weaknesses in the system are being filled by specific people rather than sustainable processes.
7	2 .75	Entrepreneurial projects reside in the business units but corporate group manages program and aligns cross unit opportunities. Regular, hands-on involvement of top management team with all projects.	Aggressively looks beyond the firm's many existing cash cows to push for new opportunities and even cannibalize existing lines. Invests in research outside of firm and has permanent group stationed in Silicon Valley to work with VCs, get ideas, develop relationships, etc.	Strong technology and market-based abilities. Focused on getting all projects visibility with the firm's systems which allows leaders to measure, managed, and communicate efforts. Power, influence and coaching from TMT helps move projects along.
8	3 yrs.	Gamechanger group handles breakthrough entrepreneurial projects. Budget was enough for seed funding only and the group was separate from the business units (tax on BU's). Later, Gamechanger was folded into a larger Innovation and Strategy Group.	CEO has mandated that all new entrepreneurial projects must have a home in a business unit; therefore all new growth must come from existing businesses. Target areas (platforms) for innovation have been established.	Each project has a coach from the Gamechanger group but most of the coaches have little entrepreneurship/commercialization experience. Given the political nature of the organization, the Gamechanger admits to the need to develop the skill to sell ideas internally.
9	5 yrs.	Entrepreneurial projects are developed within the central R&D group after lack of success having this activity based in the business units. Each project is managed by decentralized groups within the entrepreneurship hub; a board oversees progress, development and transitions.	Due to a previous corporate perspective that focused too much on cost reduction and productivity, the firm now is looking at high uncertainty- high reward projects to drive growth. Willing to take on risk and searches for ideas from all corners of the firm.	Entrepreneurship group leaders have diverse cross functional skills; deep reservoir of science and technical skills. Renewed focus on internal growth unleashed the leadership, power, and influence of TMT to help achieve entrepreneurial targets.
10	7 yrs.	Technology projects are incubated in a corporate group and then sent to the business units to be worked on. The organization is the aftermath of a recent merger of two diverse cultures. A strong technology push operation.	Early confusion about mandate of the program and projects led to more incremental product line extensions not a willingness to find new businesses. Willingness is evolving.	Strong technical base but still developing an appreciate for all of the skills and attitudes necessary for launching new ventures.
11	8 yrs.	SCC is the group that manages entrepreneurial projects, separated into Alpha (opportunity defining) and Beta (market testing) and Gamma (market testing) phases. SCC only responsible for unaligned innovation; business units take on aligned opportunities. Venture board evaluates new opportunities (review board). Accelerator created to speed up the commercialization stage.	Alpha works on exploring trends to identify new opportunities. SBUs are not taking ownership of projects, so the accelerator was ended to encourage more accountability in the business units. Concerned about the breadth and depth of pipeline. Overall declining performance and layoffs does not contribute to a culture of high risk innovation.	Low success rate is driving the organization to work more closely with the SBU. Very mature capability on the front end of the process and weaker on the back end, transition process.