4-9-2015

Managing the Connections: A Case Study of Managerial Interventions and Contextual Ambidexterity

Richard F. Read
Georgia State University

Follow this and additional works at: http://scholarworks.gsu.edu/bus_admin_diss

PERMISSION TO BORROW

In presenting this dissertation as a partial fulfillment of the requirements for an advanced degree from Georgia State University, I agree that the Library of the University shall make it available for inspection and circulation in accordance with its regulations governing materials of this type. I agree that permission to quote from, to copy from, or publish this dissertation may be granted by the author or, in his/her absence, the professor under whose direction it was written or, in his absence, by the Dean of the Robinson College of Business. Such quoting, copying, or publishing must be solely for the scholarly purposes and does not involve potential financial gain. It is understood that any copying from or publication of this dissertation which involves potential gain will not be allowed without written permission of the author.

Richard Franklin Read

Managing the Connections:

A Case Study of Managerial Interventions and Contextual Ambidexterity

BY

Richard Franklin Read

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Executive Doctorate in Business

In the Robinson College of Business

Of

Georgia State University

GEORGIA STATE UNIVERSITY

ROBINSON COLLEGE OF BUSINESS

2015

ACCEPTANCE

This dissertation was prepared under the direction of the Richard F Read Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Executive Doctorate in Business in the J. Mack Robinson College of Business of Georgia State University.

Richard D. Phillips, Dean

DISSERTATION COMMITTEE

Pamela Scholder Ellen

Lars Mathiassen

Deborah Butler

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Managing the Connections*:*

A Case Study of Managerial Interventions and Contextual Ambidexterity

BY

Richard Franklin Read

May 2015

Committee Chair: Pam Scholder Ellen, PhD

Major Academic Unit: Robinson College of Business

ABSTRACT

Business organizations rely on exploitation and efficiency to provide short-term results and on exploration and innovation for their future viability. The ability to simultaneously exploit and explore has been termed organizational ambidexterity. Front-line managers who are able to encourage both exploitation and exploration from their employees should therefore be quite successful, but this is not an easy task. Managerial interventions seek to align the employees' interests with the manager's interests and therefore can be perceived as more controlling than enabling, thereby negatively impacting ambidexterity. This case study uses agency theory as a theoretical lens to understand managerial interventions that could focus attention on individual employees' actions that are both exploitative and explorative in an enabling fashion to allow for success. The study advances managerial practice, addresses gaps in the literature on ambidexterity, and advocates development of a new management theory by recommending that managers focus their interactions into three sets of tasks, 1) those that connect the employee to the organization, 2) those that connect the manager to the employee, and 3) those that enable the employee to go forward and own their decisions, within these connections. We argue, this combination of interventions work together to encourage an environment of both exploitation and exploration, or contextual ambidexterity, with the opportunity to be successful in both the short-term and into the future.

I. INTRODUCTION

A firm must simultaneously be able to exploit and explore in order to compete over time (Abernathy 1978) by striking a balance between the exploitations of old certainties and the exploration of new possibilities (March 1991). The ability to do both has been termed ambidexterity (Duncan 1976). For an employee to be ambidextrous, the employee must be allowed, encouraged, motivated, incented, or somehow provided an environment where the employee feels the obligation, opportunity, or the freedom to use their personal discretion to focus on both the short-term needs and results through exploitation of current capabilities and resources while enhancing the long-term interests of the organization through exploration of new possibilities. A Research and Development (R&D) team is usually designed to explore and be innovative. The team should provide the organization with the ability to compete in the long-term. Yet, the R&D team also has their own short-term results to accomplish as they seek to address customer needs, schedule production trials, record costs and expenses accurately, and adhere to regulatory policies and processes

In a unique role, the on-site, front line R&D manager seeks to guide the R&D team members so that both short-term and long-term objectives are met. This would include accomplishing day-to-day duties, while at the same time providing an environment to consider the future, be open to new ideas, and pursue new product or service opportunities, so that long-term objectives, such as new product sales, can be met. This research focuses on such an R&D function with team members who are expected to be focused on both the short- and long-term goals with stated objectives to accomplish today's needs and to seek out the new, developing new product opportunities. Therefore, the R&D manager has to seek to provide an environment

where the demands to accomplish day-to-day needs and to explore the future possibilities can be balanced together.

A Research and Development (R&D) Manager in a manufacturing based company is in a prime position to experience and to work the balance of exploitation versus exploration and seek exploitation and increased efficiency and reliability through process control standards, protocol, stringent quality requirement, and a significant amount of measurement. As the company has strong motives to align its employees toward common goals, management interventions occur and are sometimes designed to direct, watch, cause, and incent employee behaviors; or as the word 'manage' itself indicates, to use one's hands to handle, control, influence, govern, or dominate. The manager's perceived ability to effectively interact with employees through various interventions while fostering an environment conducive to openness and exploration is the focus of this research.

Therefore, this research will use an embedded case study method to study two R&D units within the same manufacturing organization. The units will provide two cases, with the ability to compare and contrast management interventions used in the two separate R&D units in the same company.

The research will provide a contribution directly to the company and their practices as they attempt to understand and increase their contextual ambidexterity. There will also be contribution to ambidexterity literature and the gap that exists regarding managers and the role they play in providing this type of environment. Finally, the research will also contribute to management theory as groundwork will be laid to discuss new theories and practices, including what will be termed connectivity-based management.

II. ORGANIZATIONAL AMBIDEXTERITY

The term ambidexterity is used to describe the ability to accomplish both exploitation and exploration activities within an organization. Abernathy (1978), in a research study of the automotive industry, suggested that a firm's ability to be simultaneously efficient and innovative was imperative in its short-term and long-term ability to successfully compete. These demands, which themselves compete for time and resources, were deemed to be critical for viability into the future. He and Wong (2004) found that ambidexterity was correlated with sales growth and showed a positive interaction effect of exploitation and exploration on firm performance.

March (1991) defined exploitation using the terms refinement, production, efficiency, selection, and execution. To define exploration, he used terms such as search, variation, risk taking, experimentation, flexibility, discovery, and innovation. This research will use these definitions of exploration and exploitation. See Table 1.

The concept of the ambidextrous organization, the ability for an organization to both exploit and explore, was discussed by Tushman and O'Reilly in 1997. This concept has been often used since to describe the organization or even the individual that is able to simultaneously both exploit and explore.

II.1.   Structural Ambidexterity

One alternative to design an ambidextrous firm is to structure the company with internal subunits that focus separately on either exploitation or exploration (He & Wong 2004, Birkinshaw & Gibson 2004, Gupta et al. 2006, O'Reilly & Tushman 2007, Napier et al. 2011, Heublein 2012, Tushman & O'Reilly 1997). This ambidexterity would therefore be structural by design. The premise is that each unit can then be organized to focus on the singular activity of either exploitation or exploration. By dividing these activities among separate units, there is an

assumed level of stronger focus by aligning the unit through practices, incentives, and culture

that best fits either exploitation or exploration.

Table 1 List of Constructs and Definitions for Employee Ambidexterity

Construct	Definition and Source
Exploration	Adaptive systems and processes that engage in search, variation, risk taking, experimentation, discovery, and flexibility (March, 1991).
Exploitation	Systems and processes that include refinement, efficiency, selection, implementation, and execution (March, 1991).
Ambidexterity	The ability to simultaneously explore and exploit. Can be at a firm, subunit, or even individual level. (Tushman & O'Reilly, 1996; Birkinshaw & Gibson, 2004)
Structural Ambidexterity	Setting up an organizational structure to separate exploitation and exploration activities into different units to be able focus on the unique activities of either exploitation or exploration (Tushman & O'Reilly, 1996)
Contextual Ambidexterity	An organizational environment where employees are able to choose how to use their time, focusing on both aligning (exploiting) and adapting (exploring) activities within the same role. (Birkinshaw & Gibson, 2004)
Performance Orientation	An organizational context characterized by strong results focus, with a strong sense of personal accountability to assist the organization to accomplish its goals. (Birkinshaw & Gibson, 2004) This is measured by stretch and discipline. (Ghoshal & Bartlett, 1994).
Social Support	An organizational context that provides a sense of security and latitude. This is measured by support and trust. (Ghoshal & Bartlett, 1994)

II.2.   Contextual Ambidexterity

Birkinshaw & Gibson (2004) suggested that ambidexterity can be both structural and

contextual. While structural ambidexterity supposes that there is organizational separation of the

explorative and exploitative activities, contextual ambidexterity is defined as an environment

where the group, and even individual employees divide their work time between the two

competing types of activities. In a contextually ambidextrous organization, individual groups or

employees feel free or empowered to act with ambidexterity, exploiting and exploring.

Birkinshaw & Gibson (2004) suggest that these competing priorities can both be accomplished

when the organization supports both types of activities and when the unit or individual has the necessary skill set to do both.

In order to have and actually sense the flexibility to both explore and exploit, it is proposed that there are two primary organizational factors at play, both a culture of strong performance orientation and a culture of social support (Birkinshaw & Gibson, 2004).

II.3. Performance Orientation

Performance orientation is defined as the drive toward results. It is goal oriented. In this setting, employees feel the accountability for their actions as they impact the results of the firm. Employees feel stretched to use their full potential and have the discipline to keep moving forward. Some specific indications of an environment of performance orientation include (Birkinshaw and Gibson, 2004):

- The existence of goals deemed challenging

- The belief that employees are stretched

- Performance measures are used to run the business

- People held accountable for performance

II.4. Social Support

Social support is an environment where individuals feel encouragement and openness to take risks associated with exploration, by feeling trust, security, and latitude (Birkinshaw & Gibson, 2004). This may be indicated by the following perceived characteristics:

- Effort devoted to developing people

- Decisions pushed down to the lowest appropriate level

- Sufficient access to information

- Willingness to take prudent risks

An organization with a strong performance orientation <u>and</u> a strong sense of social support has the type of context where the unit members or even employees on an individual basis can feel and act ambidextrously.

Birkinshaw & Gibson use the Ghoshal & Bartlett (1994) definitions of performance, characterized by stretch and discipline, and social support, characterized by trust and support. This research project further uses the same definitions by Ghoshal & Bartlett (1994). These definitions will form the basis for assessing contextual ambidexterity in the subject organization of the case study through a survey of R&D managers and employees. (See Table 1)

In their discussion of contextual ambidexterity, Birkinshaw and Gibson (2004) suggest that, '…managers shape organizational context through the systems, incentives and controls they put in place…' (pg. 51). As part of a survey to assess the performance management side of contextual ambidexterity, Birkinshaw & Gibson (2004) suggest it is appropriate to ask if the organization is perceived to "Encourage and reward hard work through incentive compensation". (pg. 53) This research project assumes that this set of examples (i.e. systems, incentives, and controls) represents agency theory at work, with the manager seeking to align individual employee interests with their own interests to enhance the organizational performance or as Birkinshaw and Gibson (2004) referenced, the environment of performance.

This research therefore focuses on contextual ambidexterity, which is assumed to be critical because the R&D employees must balance day-to-day tasks such as dealing with customers, internal production requirements, laboratory records, regulatory paperwork and at the

same time, find time to think about and pursue more open ended explorative efforts such as considering the customers' future, searching information, reading articles, attending industry forums or conferences, or simply thinking or bouncing ideas off of colleagues and other employees. Therefore, an environment of both performance and support should be of significant value to enhance contextual ambidexterity (Birkinshaw and Gibson, 2004).

II.5.   Management Interventions

This research defines a management intervention as an interaction between a manager and employee. The interaction could be initiated by either party and would generally include some form of specific communication in one direction or both. These interactions start with the initial hiring and onboarding process, but could also include goal setting, informal or formal meetings, providing feedback, recognition, or discipline.

In an effort to seek unbiased input, the research was conducted with open ended interview questions that allowed participants in the research to explore what they felt were impactful interactions between manager and employee. To be noted, the researcher has over 25 years of experience in a manufacturing company environment, specifically in the human resources and operations functions. As such, the researcher has unique interest in specific interactions designed by HR departments and their effectiveness. If not called out specifically otherwise, the researcher pursued specific questions around performance appraisals and cash incentives at the end of each interview to understand potential impact on the environment of performance and support.

II.6.   Performance Appraisal

The Performance Appraisal is defined as a formal discussion between a manager and a subordinate employee to discuss goals, objectives, and possibly a combination of positive,

neutral, and/or negative performance results and/or feedback related to employee actions or

behaviors. The Performance Appraisal is usually documented and an overall numerical rating

assigned. In a recent Atlanta area roundtable of senior human resource executives, the existence

of Performance Appraisals would be considered very much alive, as almost all of the dozen

organization represented, had such a system currently in place.

II.7.   Cash Incentive

For the purposes of this research, a cash incentive is defined as a payment to an

individual or group for reaching a pre-set goal or objective, usually in a preset time frame. There

can be both short-term and long-term cash reward programs. A short-term program is defined as

payment for an objective tied to a time period of one year or less. A long-term cash incentive

program is therefore defined as a payment tied to a performance period of greater than one year.

III. AGENCY THEORY

According to Eisenhardt (1989), agency theory has origins in the works of Bernard (1938) and '…the nature of cooperative behavior' (pg. 63) and has been discussed since the 1960s and 1970s as economists explored the sharing of risk between groups. Eisenhardt (1989) proposed that the primary idea of agency theory is that the 'principal-agent relationships' or the 'contract' between a principal and their agent(s) is defined by '…efficient organization of information and risk-bearing costs'. In accordance with agency theory, an owner or manager (the principal) has an interest in persuading or aligning the subordinates or employees (the agents) to accomplish his or her goals or objectives. The manager may utilize different tools to cause or encourage this alignment. These tools can include incentives and other controls (Birkinshaw and Gibson, 2004). As the manager determines what is in his or her best interests, the manager intervenes with these controls to set direction, accomplish tasks, and achieve results. This research project examines how various interventions used by R&D managers to align their agents to positively impact an environment of contextual ambidexterity. Therefore, agency theory is used as a lens to examine how manager interactions are perceived positively or negatively in impacting an environment of performance and support (Birkinshaw and Gibson, 2004).

III.1.   Overlap of Ambidexterity and Agency Theories

Current literature touches many aspects of ambidexterity, including its antecedents, outcomes, and moderators. For example, high levels of ambidexterity have been positively related to information flow with top down knowledge flow positively related to exploitation while knowledge up or horizontal knowledge flow is positively related to exploration (Raisch and Birkinshaw, 2008). This top down knowledge flow may indicate the presence of agency theory as upper management seeks to instill control and structure. What role than does the

manager play in this flow of information and providing an environment of ambidexterity? If he or she is mostly focused on day-to-day duties, how would explorative ideas naturally flow upward or horizontally?

However, the research of the ambidexterity literature stream by Raisch and Birkinshaw (2008) results in their position that "With the notable exception of Mom et al. (2009), there is a complete lack of research into ambidexterity at the individual level of analysis." They argue for more detailed case studies to increase the understanding of this topic. This is the gap addressed by this research, with a focus on managerial interventions and their perceived impact on contextual ambidexterity at the individual level.

By many accounts, functional managers play a critical role in executing a strategy of ambidexterity. Sarkees and Hulland (2009) state the importance that "…managers remember that balancing efficiency and innovation is difficult, and requires constant attention." (pg. 50) They ask the question "How can the firm become ambidextrous?" They suggest the importance of incentives and note that successfully ambidextrous firms must have an incentive strategy that rewards both exploitation and exploration. While the importance is noted, there is no information presented to demonstrate whether or not rewards can really be linked to ambidexterity or if in fact the existence of ambidexterity is in spite of otherwise effective or ineffective reward systems.

Several suggestions are made for middle and lower level managers and frontline employees by Sarkees and Hulland (2009), including (pg. 52):

- Provide resources and knowledge so that managers become more efficient and innovative

- Position managers as enablers for frontline employees

- Promote cross-functional interaction

- Reward managers for enhancing levels of efficiency and innovation in their teams and in others

- Create an improvement mentality among frontline employees

- Teach frontline employees the skills required to make 'real-time' decisions

- Provide a forum for employees to share ideas, knowledge, and new learning

The concept of a reward to enhance efficiency and innovation is noted but is not specifically explored in the work by Sarkees and Hulland (2009) in that the article does not outline the interaction of ambidexterity with rewards or performance management in a way that a manager can effectively use in setting up processes that further align their interests. Is a dual purpose reward strategy to incent both short-term exploitation and long-term exploration activities a possibility?

The paradox of exploitation and exploration specifically as it applies to innovation and management is addressed by Andriopoulos and Lewis (2009). They hone in through a series of case studies on three 'nested paradoxes' (page 697) that underlie the overarching dilemma faced by ambidextrous organizations. The third nested paradox addressed is that of personal drivers, which wrestles with the opposites of discipline and passion. Andriopoulos and Lewis (2009) suggest that ambidextrous organizations, whether structural or contextual, which are able to manage the paradox of both discipline and passion can also therewith tap into "…it's energizing potential." (pg. 702) The authors do not explore what management actions might tap into or hinder this potential. They do suggest that discipline is defined by deliverable targets, budgets, control, and execution, while passion is defined by creativity and engagement motivated from

personal expression, challenge, and pride. This bifurcation into a mental and an emotional connection between the organization and the individual is of interest to this research and will be explored again later, especially since they somewhat reflect the Birkinshaw and Gibson (2004) work on performance and support, comparing to the concepts of mental stretch and discipline and emotional support and trust. Are these two primary tasks of connecting to employee hearts and minds a key to effective management interventions leading to contextual ambidexterity?

A manager is seen as tactical and day-to-day oriented. Dover and Dieck (2010) explored the roles of manager, leader, and entrepreneur as they relate to innovation management, specifically in R&D units. They suggest that the manager is focused on short-term results and is more risk averse while higher level leaders have to focus more on the ambidextrous combinations of exploitation and exploratory creation of the future while taking appropriate risks. They do not posit how managers can create a greater balance of both exploitation and exploration in a contextually ambidextrous environment, especially at the individual level.

Like previous authors, O'Reilly and Tushman (2011) note the absence of information for the operating manager on how to balance the ambidextrous demands for exploitation and exploration. They acknowledge that greater insight is still needed, while their research then focuses on senior management. Therefore, there continues to be a gap in the literature on analysis at the individual manager level and the application of this day-to-day focus on the employee connections to performance with management interventions leading to contextual ambidexterity.

Research by Mom, et al. (2009) suggests decision making is positively related to ambidextrous behavior by managers. In their study, the authors site prior research that indicates

increasing decision making authority of the manager is linked to an increasing sense of responsibility for the conduct and performance of tasks. This pushing down of decision making should facilitate a greater awareness and understanding of explorative opportunities across markets and technologies (pg. 814). Other studies cited by Mom et al. (2009) link greater decision authority to a combination of both greater short-term and long-term thinking. This connection to decision making was furthered in a study of the competencies related to ambidexterity in small to medium sized enterprises (Hofkesbrink et al., 2012). Is it possible that a manager who is able to push down decision making authority within his or her team, or in other words, allow and trust employees to have decision making responsibility, can enable a stronger environment of contextual ambidexterity for the team members? It is acknowledged that the work by Mom (2009) regarding delegated decision making is influential to this research as it indicates a positive relation to contextually ambidextrous behavior.

Mom (2009) also notes a positive relationship to ambidexterity from participation in cross functional teams and by connectedness to other parts of the organization. Mom (2009) suggests that these connections provide for positive communications flow with dissemination of ideas and thinking. Kortmann (2012) also indicates that connectedness and interfunctional coordination are important pillars supporting ambidexterity. These studies support and enhance the suggestions by Birkinshaw and Gibson (2004) that an environment of strong social support is an important element of ambidexterity and lead to further theoretical discussions on an important part of organizational connections.

Connection to an organization is a theme seen in work on leadership of innovation which emphasizes that information, collaboration, and decision making are key elements of an environment conducive to exploration (Hall, et al., 2014).

Additional research by Turner et al. (2013) asks the question, "What are the mechanisms for achieving ambidexterity?" They reviewed 85 papers and developed a three by three categorization of ambidexterity mechanisms. Their three levels of analysis included the organization, group, and individual. They then divided intellectual capital into Organization Capital, Social Capital, and Human Capital. (See Appendix – Chart 1). Included in the combined lists of mechanisms then categorized are: reward systems to support ambidexterity, HR practices supportive of ambidexterity, and individuals creating and supporting the context for ambidexterity (Turner 2013). It is then suggested that this categorization can assist in a synthesis "…of the actions managers can consider to achieve ambidexterity at the operating level in complex organizations." (pg. 323) It is explicitly suggested that an ambidextrous structure can be supported at the group and individual level with effective social and reward systems (Turner 2013). Turner (2013) concludes with the recommendation for further study '…of the mechanisms underlying the achievement of ambidexterity at the individual and social levels" (pg. 328).

This research project seeks to fill a literature gap with a specific review at the individual level of analysis by understanding the manager and some of the specific mechanisms used in their regular interventions, which impact contextual ambidexterity and lay groundwork for a discussion of connectivity-based management.

III.2.   Management Theory

Finally, the author notes the existence of many management theories. Table 2 lists a number of past and current theories that consider work, motivation, and interaction with

employees. They touch on the nature of the organization, basic assumptions of worker

motivations, and the complexity of unique systems and interactions.

Table 2 Management Theories

Scientific Management Theory	Measurement and specification of activities with standardized activities, rewards and punishments
Bureaucratic Management Theory	Divide organizations into hierarchies with strong lines of authority and control
Theory X	Workers inherently dislike work, lack ambition, and need incentives to increase productivity.
Theory Y	Workers are naturally driven and will take responsibility. Participation should be encouraged.
Theory Z	Increase loyalty by providing lifetime employment with a focus on the well-being of the employees, both on and off the job.
Contingency Theory	A manager must take into account all aspects of a decision – for example, using autocratic or facilitative leadership as needed by the situation
Systems Theory	Different systems affect employees and the employee affects the different systems around them. A variety of parts work together to achieve a goal.
Chaos Theory	Events are rarely controlled with high complexity and volatility
Management by Objective	Participative defining of objectives so that management and employees agree, understand, and work to achieve them

While Table 2 is not intended to be an exhaustive list of theories, it is intended to show several

common theories and their basic definitions.

III.3.   Research Question

The research question focuses on the intersection of contextual ambidexterity and agency theory, where managers, with their focus on day-to-day needs, specifically interact with employees in a way that impacts the environment that is needed to support short-term day-to-day results and long-term exploration necessary for future growth by the company. The research considers the R&D department specifically, which is by definition tasked with exploration. This research searches for the impact of the R&D manager interventions on exploitation of current knowledge and exploration of new knowledge as managers rely on the use of these interventions to align employees with their interests, both short- and long-term performance success.

The research question is therefore: How do R&D managers enable a contextually ambidextrous setting that provides an environment aligned with successful performance?

III.4.   Research Contribution

Agency theory suggests that managers, as principals, seek to align the interests of their subordinate employees, or agents, with those of the principal, through direct and indirect interventions. For example, a manager may use a cascading goal development process or a cash-based incentive program as a tool to set direction and motivate employees toward goal completion and to encourage increased efficiency or short-term results. The manager may seek to align employees with his/her interests through a variety of interventions. This research will add to ambidexterity literature with a focus on the managerial mechanisms leading to contextual ambidexterity. This research will add to practice as it addresses problems seen in the subject organization used in the case study. The research will provide direction for company managers who aim to connect employees with his/her interests to accomplish short-term results and seek long-term opportunities by both exploiting existing resources and exploring new horizons.

Additionally, this research will also proposes ideas about connectivity-based management that lays groundwork to theorize about the manager's ability to enable an environment that successfully balances the performance and support suggested for contextual ambidexterity.

III.5.   Constructs

Because the subject matter of organizational ambidexterity has been the focus of much research over the past 10-20 years, there are many different word choices to name the two sides of the ambidexterity paradox. This includes exploitation and exploration, alignment and adaptation, efficiency and innovation. Table 1 notes the use of the terms exploitation and exploration as the key terms used in this research. The term contextual ambidexterity, is defined by its two primary pillars as noted by Birkinshaw and Gibson (2004), both performance and support.

Managerial interventions are defined as specific programs or processes used by the manager of an employee unit to direct, motivate, or otherwise influence the behavior of the employees. Under agency theory, the purpose of the intervention is to align employee behavior with the interests of the manager. See Table 1.

IV. RESEARCH CONTEXT

IV.1. The Company

The Company is a manufacturer of image and performance based products made from a variety of fiber substrates, mostly paper based, but increasingly developed from manmade fibers, such as polypropelene (fossil fuel based) and microglass. The Company is US based, with headquarters near Atlanta, Georgia. The Company has manufacturing facilities that have been in operations since the 1870s and has an employee population of 2,000. In 2010, the Company was $700 million in sales and stated an objective to grow to $1 billion in sales. They told their shareholders that this growth would be both organic and by acquisition.

For many decades, divisions of the Company have had research and development (R&D) teams, which now total close to 50 employees and who are located in several different laboratories close to separate manufacturing locations. The R&D teams have specific objectives to develop new products for current and potential new customers. A key metric has been developed to track successful R&D efforts. This metric is defined as new product sales as a percentage of gross sales and is viewed over a 3-year period, noting that R&D efforts can take a significant period to be commercialized, or brought to market.

The research study will use a business division which makes performance related products with sales close to $450 million. As the research and development (R&D) departments are connected to current customer success and to the development of new products in the area of performance based papers, the contextual ambidexterity and management interventions within a pair of R&D teams within the same business unit will be reviewed. The two R&D teams are separated by product line and location as the company has a stated focus to locate R&D employees close to their respective manufacturing operations. The two R&D teams are also

separated by history and organizational leader, yet they provide important similarities in many other ways as noted below which can enhance the relevance to other organizations.

One subdivision of the Company, which we'll call Unit Alpha, was owned by a major consumer products firm for over 50 years before being separated into the current organization within the past 10 years. The second subdivision, we'll call Unit Beta, was owned by a private equity firm before being purchased by the current organization within the last 10 years. Each group reports to different R&D leaders and business vice presidents in their respective organizational structure. Each group manufactures a unique set of specialty products that require special chemical coatings and saturants. The unique chemistry involved has been a strategic advantage for both Unit Alpha and Unit Beta in the past and both groups have spent significant money on maintaining an R&D department focused on their product innovation. Both groups employ 10 or more people in the R&D department. Both departments have researchers with backgrounds that cover chemistry, chemical engineering, materials science, paper science, and physics, among others. Each R&D department is led by a single R&D manager who is on site in the same building. Each R&D department has a designated laboratory owned by the Company where their personal offices are located.

This study is designed to understand the success of two different R&D teams, as defined by the Company, to assess the environment of contextual ambidexterity as it exists in these two teams, to review the interventions used by the R&D team managers to interact with employees, and to explore the perceived impact of these interventions on the environment.

The two different R&D teams are further described in a side by side comparison shown in Table 3. Because of a request to maintain confidential of specific information, the units will be labeled Unit Alpha and Unit Beta as part of this research study.

Table 3 Comparison of Two R&D Units

	Unit Alpha	Unit Beta
Total Employment Size	10	26
Number of Scientists/Engineers	8	12
Number of Lab Technicians	2	10
Overall Unit Leader	Senior Vice President	Senior Vice President
Direct Leader	VP, Sales & Marketing	Director, R&D
Direct Manager	R&D Manager	R&D Manager
Located next to manufacturing?	Yes	Yes
Annual Performance Appraisals?	Yes	No
Annual Cash Incentive available?	Yes – since 2006	Yes – since 2010
Long-term Cash Incentive available?	No	Yes

IV.2. Engaged Scholarship

The research method was conducted as engaged scholarship as defined by Van de Ven (2007), which involves collaboration between researcher and practitioner to co-produce knowledge. This approach enhances the inclusion of different perspectives with the ability to connect the research to real world problems.

This case study, including the problem area regarding the R&D success and management interventions, the theoretical background of contextual ambidexterity and agency, and the research method of interviews were all discussed with managers inside the subject company, including the Company CEO, who was directly involved in the dialogue that formulated the project. The Company CEO hosted the researcher and two dissertation committee members in discussing the opportunities and how the context could be explored. The CEO suggested that the senior managers, both of the business and R&D department, meet together to review the data collected, including the interviews in general, the themes from the breadth of discussions, and the survey. This engaged scholarship interaction covers all four elements of the research model as proposed by Van de Ven (2007), including problem formulation, theory building, research design, and problem solving. This 'co-produced' form of engaged scholarship was used (Van de Ven, 2007) as the company leadership collaborated in the description of the problem and explanation of the findings.

V. RESEARCH METHOD

The research was conducted as an embedded case study of two R&D units at the manufacturing organization, called the Company. While centered in just one company, the study will span to independent R&D units, housed in separate locations, with separate managers, and reporting to separate Vice Presidents within the same company. Therefore, the single company allows for two embedded cases to be studied. Therefore, we will be able to view management interventions in each unit as well as compare across the two units.

The research meets the three suggested considerations for the appropriateness of a case study, including: 1) a how or why research question; 2) little control over events by the researcher; and 3) focus on a current real life context and problem (Yin, 2009). In all these three areas, the answer for this research study is yes. In line with these considerations, we seek to understand how a manager provides a contextually ambidextrous setting in an area with little control by the researcher, and which is filled with the richness of real life context.

The case study was informed through three data sources: 1) company data gathered to understand the success of the R&D departments, 2) an employee survey to assess the level of employee ambidexterity among the R&D units, and 3) a series of employee and manager interviews in a semi-structured style.

V.1.   Performance Success

For several years, The Company has determined that the primary measurement to denote success of the R&D department is new product sales as a percent of gross business unit sales. This measure is kept by product line and by subdivision, so that historical 'success' rates are available from 2010 through 2014, or a full five years. The measure has also been divided into new and replacement product sales. This means that we can see if there is a difference in R&D

efforts to simply enhance a product, known internally as replacement sales and denoting a relatively minor revision to the product, or a more substantial 'new' product sale, meaning success through the introduction of a product that is new to a customer or a market. New product sales is known in both R&D units, their employees, and leadership as a key success metric designated by the Company and tracked monthly.

V.2. Data Collection

A voluntary employee survey was conducted with the employees of the two R&D groups. The survey was designed to measure the current level of contextual ambidexterity among the two groups of employees and was based on the work done by Birkinshaw and Gibson (2004). The survey assessed levels of both performance and support. These two elements are suggested to be indicators of an environment of contextual ambidexterity.

As noted in Table 1 previously, performance is defined by a focus on results, with a strong sense of personal accountability to assist the organization to accomplish its goals. This is measured by elements of stretch and discipline (Birkinshaw and Gibson, 2004; Ghoshal and Bartlett, 1994).

To assess levels of performance, employees were asked to rate their perceptions of their current environment on a 7 point scale. The survey supplied a set of statements and asked the employee to rate each on the range of 'Not at all' to 'A great extent'. Examples of statements used to assess the performance environment include:

- Set challenging/aggressive goals
- Make a point of stretching people
- Hold people accountable for performance
- Encourage and reward hard work through incentive compensation

The second set of statements assessed the second aspect of social support. This is defined as the presence of a sense of security and latitude felt by the employees. Statement examples included:

- Devote considerable effort to developing people
- Push decisions down to the lowest appropriate level
- Treat failure as a learning opportunity
- Willing and able to take prudent risks

Using the work by Birkinshaw and Gibson (2004), the survey results were mapped to a graph (see Figure 1) with average performance scores on the x-axis and support scores on the y-axis.

The quadrants are labeled based on potential results, indicating that low performance and low support indicate an overall environment of low performance. The theme is that perceptions of both high performance and high support are needed to ensure an environment of contextual ambidexterity, which enables the strongest performance. Of potential concern is the environment where either performance or support is weak, which could indicate a 'social club' culture (low stretch and discipline, but high support) or one that indicates potential 'burnout' because of the strong performance mindset with weaker sense of support and/or trust. (Birkinshaw and Gibson, 2004)

Survey: R&D Environment

Support (y-axis, values 1 to 7)

Performance (x-axis, values 1 to 7)

- Social Club (upper left quadrant)
- High (upper right quadrant)
- Low (lower left quadrant)
- Burnout (lower right quadrant)
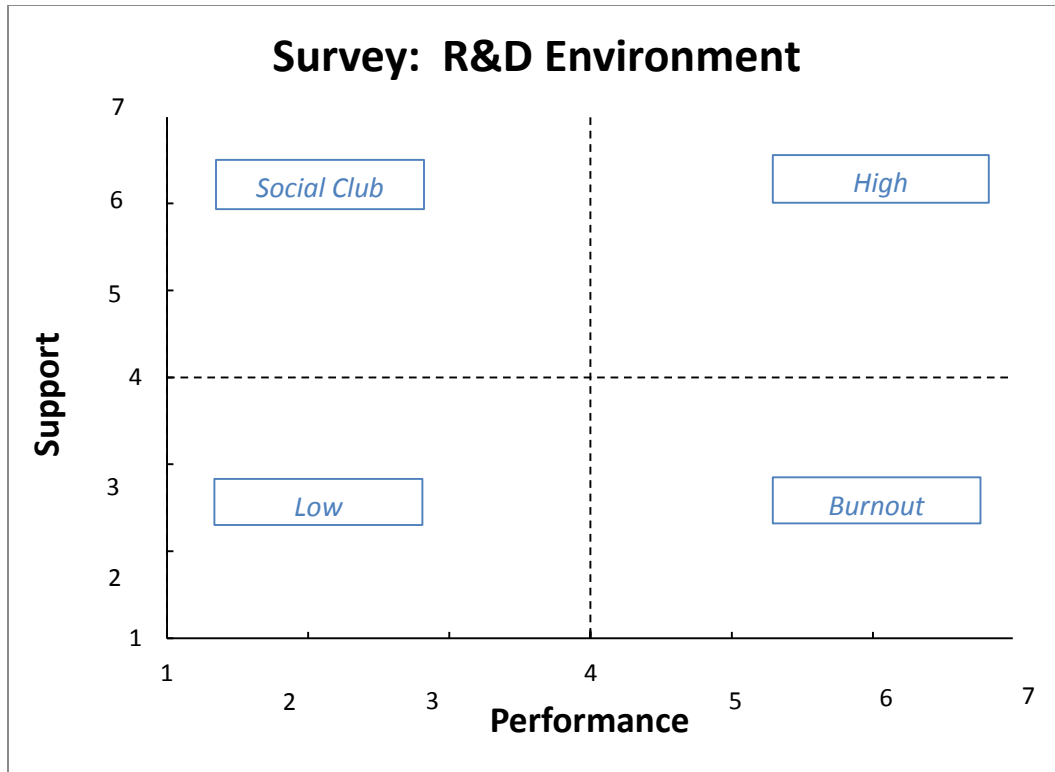
Figure 1 Employee Environment Quadrant

V.3.   Qualitative Data Analysis

The final method of data collection was a set of employee interviews. Twenty-five employees were interviewed. This included the CEO of the Company, other senior business leaders, R&D Managers, and many R&D scientists and engineers. Each interview was conducted in person and in a private setting. Almost all interviews ranged from 45-60 minutes in length and were audio recorded. The interview format was semi-structured with a general outline as follows:

- Introduction – included a review of the voluntary nature of the interview, the confidentiality and privacy, a review of the consent form, with a specific discussion about the audio recording and permission to proceed

- Background of interviewee

- Discuss a recent product R&D success

- What enabled the success

- What were potential barriers to the success

- How did management interventions interact with this success

- What other management interventions supported or detracted from the success

The interviews were transcribed and coding scheme developed to assess the variety of perceptions about the contextual ambidexterity of the R&D environment and the potential impact of various management interventions. Elements of the coding scheme are listed in the Appendix on page 92.

Several follow up interviews were conducted by telephone to pursue themes that had appeared in the original interviews. R&D team members were asked about some specific management interventions and their relation to an environment of performance and support.

The employees were approached independently by their manager initially to explain this research project and verify their interest. They were informed of the confidentiality of the interview and the ability at any time to withdraw or to have their data pulled from the study. As noted in the interview protocol, consent form, and introduction to the interview subjects, the interview was entirely voluntary. All of the interviewees responded in the affirmative with their willingness to participate and expressed their interest in the study, both the process and the combined results. All initial interviews were audio recorded except one, where the participant requested the interview be recorded by hand notes only.

VI.1. Unit Performance

For proprietary reasons, as requested by the Company's General Counsel regarding this

research project, the two research units will continue to be called by their fictional names, Unit

Alpha and Unit Beta.

The following table shows the success metric for new product sales as a percent of gross

sales, tracked for the last five years.

Table 4 New Product Sales as Percent of Total Sales- by Unit

	2010	2011	2012	2013	2014	Average
Unit Alpha	7.1%	4.7%	3.9%	4.2%	6.8%	**5.3%**
Unit Beta	6.0%	7.5%	9.9%	12.1%	12.9%	**10.2%**

The data shows that for four of the five years, Unit Beta would be deemed more

successful in generating new product sales, with an average almost 2x the Unit Alpha results.

The only year that Unit Alpha was higher was in 2010, the year after the global recession when

there was a significant bounce back in the markets they serve. Since that date, Unit Beta has

been substantially higher with two years where the result was over 2x the Unit Alpha number.

Table 4 is calculated using new product sales only and not adding 'replacement sales' as

defined earlier. The Company considers this a stronger measure. However, to note, if

replacement sales were also included, Unit Alpha moves to an average of 10.5% while Unit Beta

moves to 18.4%, maintaining a significant margin of difference between the two units. It is

noted that the increase in sales at the lower performing unit, Alpha, increased from 2013 to 2014

by greater than 50%. (See Figure 2 – New Product Sales by Year) During this time frame, the

organizations reporting structure changed. The unit R&D manager from 2010 to 2013 reported

to a plant manager. This changed in 2013 and that same R&D manager now reports to a VP of

Sales and Marketing.
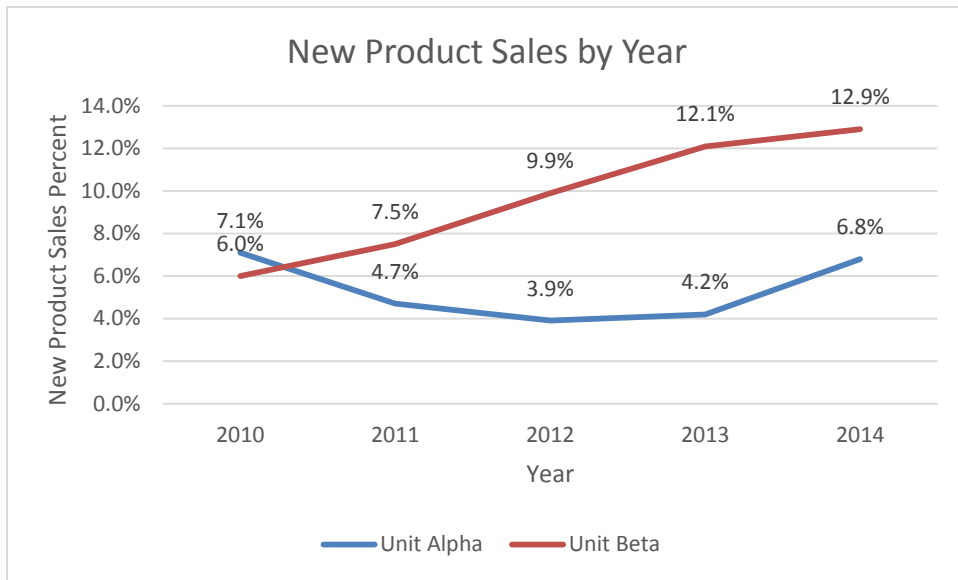
Figure 2 New Product Sales by Year

VI.2.　　6.2 Unit Context

Employee survey results were divided by unit. Figure 3 shows the plot based on average

score for performance and support.
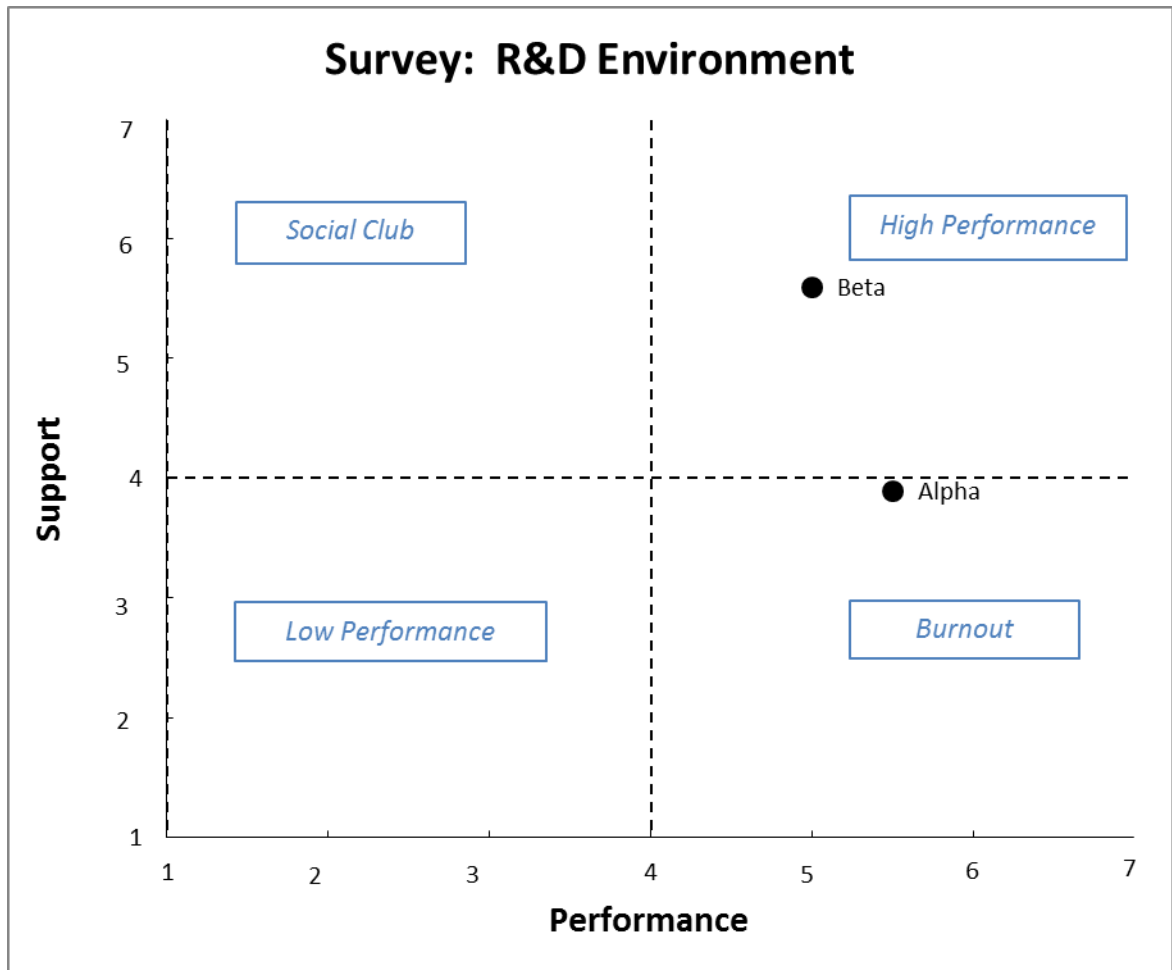
Figure 3 Company Survey Results

This shows that the Unit Alpha employees were actually in the Burnout quadrant while

the Unit Beta employees were in the High Performance quadrant. Average actual scores for Unit

Alpha were 5.5 on Performance and 3.9 on Support measures, while Unit Beta scores were 5.0

on Performance and 5.6 on Support.

This data supports the notion that the unit with greater contextually ambidexterity

correlates to stronger overall results, as seen in the Company performance metric on new product

sales. However, company leaders have pointed out that the individual markets served by the

units are unique and different enough that the markets themselves could be a primary factor for the different percentages, including Unit Beta's noticeably stronger numbers.

Back to the employee survey, the employees in Unit Alpha perceived their environment as less contextually ambidextrous because of weaker sense of social support. This is shown in lack of balance in the average performance and social support scores (5.5 and 3.9, respectively), while employees in Unit Beta had much more consistent and strong performance and social support scoring (5.0 and 5.6, respectively).

When examining that specific statements that were noticeably different in scoring in the area of social support, we see that Unit Alpha was specifically lower in their perceptions about delegated decision making, concerted efforts to develop them as individuals, the ability to treat failure as an opportunity, and the ability to take prudent risks. Their numerical scores on these questions ranged from 3.1 to 4.4 while the Unit Beta employees had scores on the same questions ranging from 5.3 to 6.0. These responses and their significant differences begin to introduce some themes that can be checked with the employee interviews. For example, are there any noticeable differences in the discussion on employee decision making comparing the Unit Alpha to Beta? And if there are differences, do they interact with the employees' perceptions on their overall successful R&D efforts? Similarly, are there differences between efforts or at least perceptions regarding personal development, the way failure is perceived, or risk taking of the unit?

While still strong, the Unit Beta has a lower average score in the assessment of the performance environment with a 5.0 rating vs. the Unit Alpha 5.5 rating. In a further review, there is really only one question that stands out as significantly different in average scores. The

employees of Unit Beta rated much lower the statement: "Encourage and reward hard work through incentive compensation" with Unit Alpha at an average score of 5.0 and Unit Beta at 3.0.

Upon further review Unit Alpha employees have had a short-term cash incentive program in place since 2006 (see Table 3). It has historically been tied to results in the adjacent manufacturing operations, where if costs, quality, and operational efficiencies were improving, all employees at the location, including R&D team members, received a quarterly bonus payment, as a percentage of quarterly wages or salary. The average payout over the past 8 years has been around 3% of wage per quarter, with a range of 0% to 6%. At the same time, the Unit Beta employees were placed on an annual cash incentive plan around 2010, with a tie to the business unit earnings. In their plan, the employees receive an annual payment of approximately $750 per person if a strong earnings number above budget is achieved. There were some years where payment was received and other years where there was zero payment.

In addition, the Unit Beta employees have access to a long-term cash incentive arrangement. If their patents can be tied to direct sales, the employees will receive royalties as a percentage of the sales. The reported payments are not great, as characterized by employees in their interviews, but two Unit Beta employees called out this program specifically.

Of interest to this research is the question of correlation of these cash incentive plans, clearly a management intervention, with the perceptions of a performance culture, as indicated by the survey results and the company's results, since the stronger performance unit (Beta), as indicated by the stronger overall performance results through new product sales, has an incentive system that is less focused on day-to-day results and had a significantly lower survey score on

the use of incentive compensation. As we examine the employee interview data, will employee comments indicate that the incentive compensation schemes are important to the performance culture yet simply lacking in Unit Beta, where results are therefore strong in spite of the lack of incentives? Or will we see that incentive compensation schemes are neutral or even negative to the support culture, its associated contextual ambidexterity, and ultimately to the longer-term new product sales that are so valued by the company?

VI.3. Data Analysis

The interviews of the employees yielded a rich set of qualitative data. The approach taken to develop themes from the data as they occurred, continue the interviews based on themes being generated, while then continuing to develop themes. This allowed for selection, focusing, and 'reducing' the data, as described in Miles and Huberman (1994). Table 5 is from Singh (2011) as adapted from Miles and Huberman (1994) and depicts the data reduction strategy that was employed. The process included multiple iterations of data collection, data display, data reduction, and drawing conclusions, which moved and forth from data collection to data analysis.

VI.4. Themes from the Analysis

The following sections will discuss the overall content and comparisons, then discuss specific themes from the interviews using quotes from the data. Overall, the differences in interview content was noticeable. A general breakdown of relevant themes are listed below. Unit Alpha themes include a strong sense of structure, focus, process, project, and results.

- New product revenue is a key R&D goal and objective
- Market contact for R&D is primarily through the sales employees, who visit customers and bring back customer requests for new product ideas
- R&D uses substantial time working on the projects brought back by Sales

- Time for exploration by R&D team is about 5% of their total work time and time for day-to-day tasks takes up about 95% of their work time

- There is a high sense in Unit Alpha to 'get stuff done' and work on the assigned projects

- Short-term cash incentives are visible and used with annual objectives

- Strong desire to minimize error and push through commercialization quickly
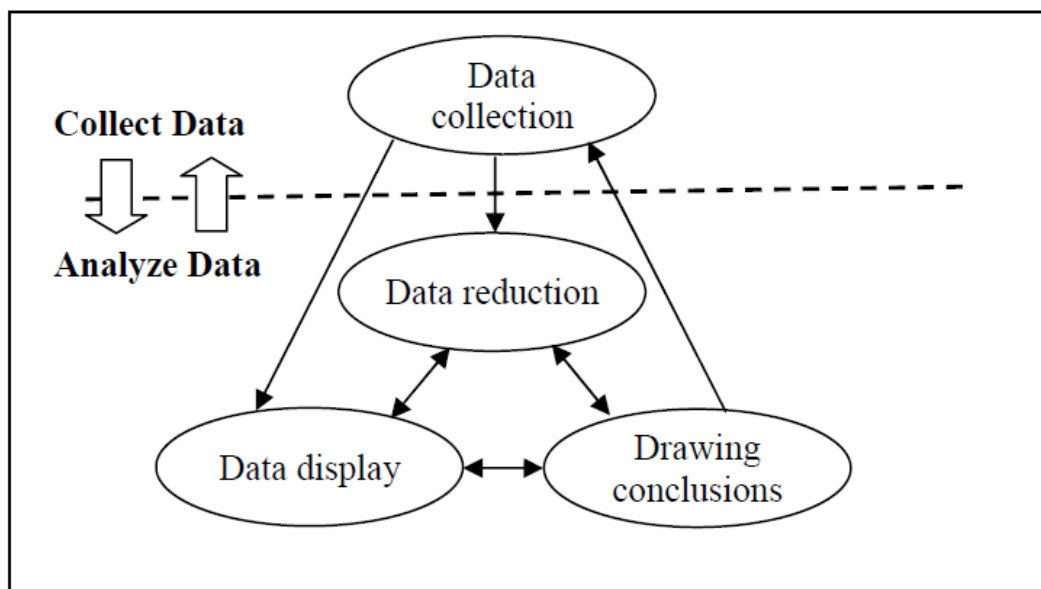
Figure 4 Data Analysis

(Singh, 2011, adapted from Miles & Huberman, 1994)

Unit Beta themes have a repeated and strong sense of openness, willingness, understanding customer and market structure, but then having responsibility and decision making authority.

- Ultimate goal of increased revenue

- Open contact by R&D with customers to understand their needs and market needs

- Responsibility for specific customers with customer calls to R&D directly

- Understanding of boundaries and high sense of personal ownership

- Decision making responsibility to R&D for trials, travel, and project

- Open relationship with production to set trials

- Willingness to try new ideas, decide, learn, move forward and learn from trials

- In hiring process, seek people with willingness to take on responsibility and be open to others

- Time for exploration by R&D team is about 30% of their total work time and time for day-to-day tasks takes up about 70% of their work time

- Unit Beta has annual profit sharing cash incentive arrangement. If earning targets are exceeded by the broad business unit, each team member receives a bonus

- Unit Beta R&D employees also have a long-term patent cash incentive arrangement that provides cash as a percent of sales, or in essence a royalty on the sales based on the patent

In looking at the set of themes from each unit, the strongest themes from Unit Alpha were about performance. They included significant comments about revenue generation, market information, and exuded a sense of tight control in the unit. The Unit Beta on the other hand, showed a stronger mix of themes that focused on both performance and support, including discussion about responsibility, recognition, and the opportunity to make decisions. The combined list aligned with the stronger employee survey scores of support, while also indicating strong performance themes. Therefore, the set of employee interviews underscored and corroborated the employee survey data that Unit Beta appears to the employees to have greater contextual ambidexterity.

We will specifically pursue the comments about decision making later. We will now explore specific themes, noting differences between the two units, still labeled as Unit Alpha and Beta.

VI.4.1. Customer Access

Throughout most of the interviews in both units, there was a repeated strong theme of the customer. This was seen in comments about the customer requirements, contact and visits with the customer, relationships with the customer, and communications with the customer. This theme was by far the overall number one theme of the set of interviews in both units.

Interesting however, were some of the subthemes about customers and how they played out in each unit and how they could relate to the unit's contextual ambidexterity. For example, the general discussion about the customer in Unit Beta was that the customer relationship with the individual R&D employees was high. There was repeated direct contact with the customer. This is seen in the following comments from several different Unit Beta employees:

> *"We are very, very close to our customer and we try to understand their needs of course, their requirements, and due to the fact that we're in the front line, we get first hand information, what is really necessary in the market."*

> *"[We] are in direct contact with the customers…there is no information lost like when talking through sales,… because they just don't know about the details. "*

> *"…most of the projects that I currently have they are coming mostly from the customer side, from discussions with the customers, what they see as important in the future, what we do see as important in the future"*

"Close collaboration with the customer, so that you know what are his requirements, this is very important so that you can develop according to his requirements."

"..all people in R&D have direct contact to technical people of the customer. This is also very important for the work and not to have a sales guy or someone else in the communication between the customer. In my experience, it is not so good for innovation if the customer talks to the sales guy and the sales guy reports it to R&D, because then its like the… telephone [game], if you tell someone silently and then tell over 2,3,4 people and then in the end its something completely different at the end of the row. So it's always good to have direct contact with the customer, because then you can better understand their technical requirements. "

We see in these comments that the direct and close contact with the customers is highly valued and seen as an important part of their role. The closeness of the employee relationship was emphasized in this statement by one of the BG employees.

"So we are right in the middle between the biggest factory and the [customer's] headquarters. That's a wonderful situation for us because all of the guys going from headquarters to factory usually make a stop here, for a discussion, maybe just for lunch, but we have very close connection."

In contrast, the similar comments from the Unit Alpha employees are noticeably different and highlight in most cases a more distant relationship with the customer as noted in these statements:

"The primary contact with the customer is still through either the sales or market manager and we occasionally will go on site. I've been working on [this account] for 3

or 4 years and I've only been there once to meet with them. A lot of the times they come up with new ideas or have meetings and I am not there and that definitely is a disconnect because I understand when they're asking for something what it translates to what the product should look like, and when I have to – when it's basically the kid game of "phone" when it has to go through a few people. But it really hurts the development if I'm not there listening directly and being able to ask to questions on the spot. Because if I'm being told secondhand through it and I do have questions, it doesn't make sense for me to ask somebody to ask the customer. It's lost all over again. "

"I feel that there has to be a very strong Marketing and Sales,…because they're out there talking more frequently with the customer and determining where do we want to go and there should hopefully be also be the people that are out there 'okay, you know I've talked with enough customers, I'm starting to see a broad pattern emerging' and they should be the ones who are pushing it"

"I think it needs to be a direct communication instead of layered because if it went through another layer then there will be information that gets lost there and I understand that you will not engage unless it is authorized…"

"We have limited access to customers. Almost like 'don't call'. Sales & Marketing will follow up. They are the key point person. That was not like that before. We had direct contact before. Much less contact allowed in the last 3-4 years."

It must be noted that not all of the Unit Alpha employees responded this way. Two employees commented:

"I talked directly to their technical people. Like, daily during this project, which is a little different than some of our accounts...where you might talk to some people where there seems to be a bunch of layers. I know I go directly, they come to me and I go directly to them. There's no in between."

"..we're just communicating with the other researcher, keeping the sales rep in the loop too and so when those trial rolls get sent out that when the feedback comes back it doesn't always come back just to Sales, it'll be a group email and the feedback comes back to the researchers, too and we've got a direct link to those researchers."

However, while this sense of direct and positive customer contact was visible in Unit Alpha with two team members, the majority of comments were clearly stating that their relationship is distant and that communication with the customer is predominantly through the sales and marketing function. The researcher suggests that the very nature of limited contact with the customers is an organizational limitation that impedes the employee sense of support and limits the unit contextual ambidexterity.

The recommended management intervention is to provide opportunities to have repeated and open access to the direct customer.

VI.4.2.   Internal Collaboration

A second theme that appeared strongly in both units was that of collaboration. In this case, employees from both units seemed to have equally strong opinions about how important it was for the R&D employees to be able to have a congenial atmosphere in which to work, where they had access to other ideas and opinions, and had regular access to each other's experiences and know how. This provided the opportunity to 'bounce' ideas off of each other in the effort to

explore and consider new alternatives in their work. The following statements are from both units and show the general considerations and positive awareness of collaboration as a key environmental factor:

"We were working as a team to submit patents and stuff, it is more a collaboration of efforts instead of just one scientist coming up with the idea"

"I think innovation as we do it is a team effort. "

"I really enjoy the interaction and I think we do a good job. It's a pretty free flowing group."

"We talk a lot internally, it's a pretty small group. When we do have successes and failures we tend to talk more internally because it's kind of a safe zone, really."

"We worked together here…one main thing here is cooperation…this is also very important to have this interaction in the group. Everyone has his own projects, but there is also like a good direction helping out each other. This motivate[s] me."

"We're a team, really a team…we know each other. That's quite important."

"By close collaboration and by internal meetings with the other guys who are technically oriented and who have their own projects you can gain ideas or you can take a little bit from their know how. And since we are under one roof, and since we have our offices next to each other and since we can use our equipment together there is a lot of know how exchange and this collaborates very well to generate new ideas or to solve or to look for solutions to customer requests."

The recommended management intervention is to allow access to other scientists and team members, with an open atmosphere that allows discussion and cooperation that is both planned and thoughtful and that can also be spontaneous.

VI.4.3. Decision Making

This theme came up earlier in the employee survey as the Unit Alpha employees scored the statement about 'pushing decisions down' at a much lower level. At the time, we asked the question: Are there any noticeable differences in the discussion on employee decision making comparing the Unit Alpha to Beta? The answer from the employee interviews is clearly 'yes', but in part because of the strength of the Beta comments on decision making and also because of the lack of positive commentary and sometimes negative commentary on this topic from the Alpha employees. For example, here are some of the comments from the Unit Beta employees on decision making.

> *"I think the philosophy of [our team] is like we all have the right to decide many things yourself. Important that person has the character that he is willing to decide."*

> *"So for these applications, I can more or less decide by myself which trials on the machine I want to do."*

> *"More or less I can decide what I'm doing and only like problems come up then I go to [my manager] but it is like my own"*

> *"Very helpful is that we are able to follow our own intention so that if I want to go to a fair, if I want to visit a trade [show], if I want to visit a possible supplier, if I want to visit a company who is producing supplies which are providing technical things which are combing those two layers I just can follow. I don't need to double check if I can go or*

how big the costs are, I can just go. Of course, if a colleague is interested in a trade or in a supplier visit too we can go there. In principal we are free"

"For me it's also important that I can make decisions here in the company, that I don't have to ask anybody. If I say so, we take this supplier, then we will do it. That's important to me, responsibility. I'm responsible for something and nobody tries to change my decisions. That's also important to me."

"One thing is that you have responsibility so that one decides and that you can make your own decisions. That you have your own responsibility and that you can interact with the suppliers and customers that is necessary for the project. Nobody is telling you 'do this', 'do this', you really have a free approach to solve the problem."

So, while these comments were unsolicited on decision making specifically in Unit Beta, the employees of Unit Alpha were generally silent and sometimes negative on this topic. When a few employees in Unit Alpha were specifically asked about decisions or 'decision rights' as the Company calls them, the following was stated:

"Decision rights? We have limited access to customers. Almost like 'don't call'. Sales & Marketing will follow up. They are the key point person. That was not like that before. We had direct contact before. Much less contact is allowed in the last 3-4 years."

"There are some things that I can do, but I still feel there are so many restrictions on so many things."

"I think if you don't have enough decision rights and you don't have enough ability to do authorizations and make decisions, it's going to slow everything up because the more paperwork and steps you need to go through to make something happen, the less efficient

it's going to be…that's why I've been I think pretty effective is people have trusted me to talk to the customer and then tell them, 'oh yeah, we can run a trial and the next run we can make a set. We can make 2 rolls and we'll try this, and we'll trial them for you'. I don't have to go check, 'Is this okay if we do this?'… and then tell them, 'Well, I'll get back to you'."

These responses are noticeably different in their tone about decision making and the extent to which decisions are pushed down in Unit Alpha. The employee interviews therefore support the survey responses that indicate the employees in Unit Alpha have a lower perceptions of the level of 'social support' to be considered contextually ambidextrous.

The recommended management intervention is to allow for employees to have decision making responsibility to enhance the ambidexterity and align with potential success of the unit.

VI.4.4. *Short-term vs. Long-term Focus*

During the early interviews, a few employees volunteered that they were often busy with day-to-day tasks that included a variety of short-term needs. As examples, they had to complete necessary government or other regulatory paperwork. They had to work with the production team to prioritize, schedule, and set up trials. They had to respond to customer phone calls and immediate questions or quality concerns. In most cases, employees explained that this work was necessary and important, but recognized that it took time away from their long-term developmental thinking. One employee at Unit Beta explained:

"Where do we earn money? First of all, the customers. If a customer calls, it's clearly the number one [priority]. Everything will stop until we fix the thing with the customer.

Second is production. If production cannot produce, we don't earn money. So it's quite

clear that these two topics are clearly number one."

This comment shows that this employee understands the need to exploit the current

product line so that the company can survive with successful current results. This type of

comment was made often. During the conversation, employees were asked how much of their

time was spent doing the day-to-day work versus the more explorative long-term thinking. The

difference in average numbers between Unit Beta and Unit Alpha responses was noticeable as

seen in the summary Table 6 on page 71. The Unit Alpha reported that they worked on short-

term tasks 95% of the time, with 5% of their time devoted to long-term activity, while Unit Beta

reported 70% short-term task orientation with 30% long-term, or six times greater. The

differences in these scores is substantial, showing a strong focus in Unit Alpha on the short-term

results, with a much more balanced view in Unit Beta of day-to-day and long-term activities,

reflective of their higher level of contextual ambidexterity. Comments from Unit Beta on this

topic include:

> *"In order to be in line with our own rules and also to be within rules of the industry you*
> *have to do lots of bureaucratic things ..."*

> *"...a lot of us are involved in the daily business. So we are responsible for customers*
> *and all the things which comes from the customer or things inside the company for*
> *example that goes to customer A, I am responsible and I have to deal with it and take*
> *care of it so a lot of my time I will spend on daily business. A lot of us don't have the*
> *time to sit there and think about it. Development is a lot done between the doors. So not*
> *a lot of time to think about it to really checking Google because so many things incoming*

so you just have to deal with it. I personally I have 70% daily business and 30% of development work. 70% answering email from customers or suppliers, quality wise, visiting customers, giving support…”

Comments from Unit Alpha employees are as follows:

“I don't find myself having a lot of time to just explore things because I'm busy doing, 'Okay, I got to get this for next week.' or 'this needs to be done by Friday.'”

“We aren't generally given a lot of free time in order to look at long-term projects because we usually aren't ever presented with these long-term projects where somebody is like 'oh, you know in your spare time just noodle on this', those usually aren't presented, and I don't know why, it's like we always live, I would describe it, as in a short hopper. It's always we need this in a year or less…”

“If you're not making any money, you know, you can't keep the business going. What is it, the 3M model that I keep going back to, you know, the 5% of your time or 10% of your time work on anything as long as it doesn't interfere with doing 8 hours of your regular work. You can spend 10% of your personal time on it, right?”

“Probably not a lot on the thinking and exploring just because there's so much of the day-to-day stuff and kind of living in the now, you know, versus what's going to come out”

These responses continue to correlate with the overall theme that the employees of Unit Beta have a stronger environment of contextual ambidexterity in that they perceive that must also do day-to-day work, but that they are also able to focus more of their time toward long-term

thinking and exploration. If accurate, the estimated 30% of time in Unit Beta versus 5% of time in Unit Alpha is 6x the amount of long-term focus from a perception of personal activity.

Managers who understand the day-to-day needs of the business and its pull on her/his employees and who can intervene in a way that frees up and encourages long-term thinking and exploration should see a stronger contextually ambidextrous environment.

The recommended management intervention is to provide, allow, and even encourage the open opportunity to think and explore, to attend conferences, access on-line research data bases, and have unstructured time to read, think, converse and bounce ideas off of colleagues and other researchers.

VI.4.5.   5 Laboratory Resources

In many interviews, access to a laboratory and laboratory technicians were highlighted as key resources. Employees in both Unit Alpha and Beta noted this importance. However, the organizational structure and resource allocation of laboratory technicians was noticeably different. Access to laboratory technicians was much greater for Unit Beta employees. The distribution of scientists/engineers in R&D department to laboratory technicians is shown in the summary on Table 6. There is a ratio of 4:1 in Unit Alpha with 8 scientists and 2 lab technicians. Unit Beta has a very different structure with 12 scientists and close to 10 lab technicians (on a full-time basis). This is almost 1:1 ratio and greatly increases the ability for the scientist to delegate lab work to a technician. Regarding their lab technicians, the Beta employees stated:

> *"Every one of engineers has 1-2 lab assistants. If you have trials, they do all the testing and forward the results to us and we will discuss the results with customers or suppliers."*

"[I have] one assistant [who has] worked for me for 4 years."

"My assistant works for me now for [many] years, so she knows exactly what I want to have."

The Unit Alpha employees shared the following comments:

"My time is better spent looking at what the technician came up with for experiments that I gave them and researching new chemicals, looking at new market opportunities which we don't typically do unless it's within our very small sphere of influence."

"...up until recently, I did all my own lab work... and I'm still doing probably 90% of it."

"I personally think there is a value in doing some of your own lab work because there's things that you see and may observe that someone else that you ask to do that work may not pick up or may not mean anything to them."

It is interesting to note that while the Unit Alpha employees spoke highly of laboratory work, one explained the value of 'doing some of your own lab work'. Also, not one of the Unit Alpha employees seemed to complain of the lack of lab technicians and no one explained that they felt short staffed, short changed in some way, or otherwise put out by having relatively fewer lab technicians per employee. One of the Unit Alpha leaders declared a difference of opinion in how the overall Unit Alpha staffing was loaded toward scientists rather than technicians by stating:

"My theory, about how you can actually have a more efficient and prolific group... I believe that we are better off if we have fewer of the race horses and more the people who are, you know, working in the lab. So fewer senior scientists, and more technicians. I

think then you can maximize the brain power of your senior scientists and have a lot

more work get done. We have, in our organization, we have PhDs doing a lot of bench

work that they shouldn't be doing. There's no way we should have a PhD making hand

sheets, for example."

This research suggests that having a limited number of research laboratory technicians

could negatively impact contextual ambidexterity and resulting R&D success as scientists

themselves are frequently in the laboratory directly, running their own experiments rather than

delegating the direct lab work to a technician. It is noted that in this instance, the allocation of

resources is probably not in the scope of the front-line manager, although s/he could advocate

such a change.

The recommended management intervention therefore is the direct set up of the

organization structure, with the responsibility to provide time for long-term activities.

VI.4.6. Connections to the Employee

One of the clear themes in the interviews that had many sub-elements would best be

described simply as 'connect with me'. This theme manifested itself as employees spoke of the

environment of support and trust, and the value they felt as the manager knew of their strengths

and how they best fit and added value to the organization. The following statements as overall

examples are from both units:

""It is important that the manager knows the [individual]…"

"He knows me. [The manager] knows my strengths and weaknesses."

"It is important that the manager knows who needs more support and input and who

prefers working on their own."

A manager's personal interest in an employee naturally has positive correlation to increased trust in the relationship. This personal connection of the manager to the employee is a theme to consider further in a later section as this can directly increase employee perceptions of support and trust, with its resulting contextual ambidexterity

A sub-part of the theme of 'connect with me' is the theme that once understood, please connect with me in my own personal or career development. For example, specific positive references to the inclusion of personal development are reflected in these statements from Unit Beta employees:

> "The manager shows interest in personal development. As an employee shows interest in personal growth, the manager provides time and ability to do that. I feel 'I'm valuable'". "We talk about…personal development…Like how to behave in critical situations or…how to help you to do your work better."

The absence of this 'understanding of', 'interest in', and 'development of' the person manifested itself negatively in the following statement from one of the Unit Alpha employees:

> "Since I've been with The Company I have never had a discussion about what are my career goals. I get the sense that other people haven't had the discussion either. I think that means a lot to me as an employee and I think that would mean a lot to – I always felt it means a lot to other employees, too. The ability to [say], 'okay, there is something out there on the horizon' and …what's the path?"

The personal interaction between employees and managers noted in this theme of 'Connect with Me' appears to be an important combination that increases the trust and support leading to greater contextual ambidexterity.

The recommended management intervention is to connect by seeking to understand the individual, allowing for personal and career development opportunities, and providing access to resources, including time, money, and encouragement to pursue personal development.

VI.4.7. Goal Setting

The setting of goals and objectives is a key management intervention that was highlighted often. By definition, the setting of goals and objectives should lend itself to an environment that can have stretch and discipline, thereby achieving the performance component of contextual ambidexterity. Employees of both units, which both had high 'performance' ratings in the employee survey, noted how important it was for their manager to help them understand company, unit, and personal goals and objectives. This establishment of goals seems to connect the individual with their work. While providing direction as intended, along with a focus, a connection with the individual and his/her effort ensued. Employees from both units are represented by the following statements:

> *"The target is clear…we all try to achieve to achieve the same target…"*

> *"When you exceeded or reached the targets? That is also motivating."*

> *"Now, this year, I think it was spelled out clearly. We have kind of a group objective…"*

> *"I think it, for me, it's mandatory. How can you go into a year not having something set, right? On what your goal and objectives are and then how do you see yourself being successful…"*

The recommended management intervention is to set goals and objectives with its positive potential impact on performance.

VI.4.8. Recognition and Rewards

One of the more interesting themes to the author, is the potential impact of incentives and rewards on the contextual ambidexterity of the environment. The work by Birkinshaw and Gibson (2004) and others (Tushman and O'Reilly 1997, Sarkees and Hulland 2009, Turner et al. 2013) clearly place incentives as a primary part of the performance culture and necessary to pull, push, or drive performance behaviors. Part of the very essence of agency theory, is the principle that the principal can align the agent to accomplish results through the use of incentives.

The results of this research are mixed, in that some the research would suggest that short-term performance related goals could be positively correlated to performance, as necessary in a contextually ambidextrous environment, but negatively correlated to the required support and trust. Were ultimate unit results then negatively impacted by the very short-term incentives implemented as management interventions to drive results? Did the presence of a longer-term incentive arrangement cause focus on the longer-term thinking and exploratory behavior? Consider:

- The Unit Beta employees have the stronger performance based on company success factors, new product sales as a percent of overall sales

- The Unit Beta employees rated the presence of incentives much lower than the Unit Alpha employees with a 3.0 rating vs. 5.0, respectively.

- Unit Alpha employees have a more direct incentive arrangement. They were paid quarterly for several years, based on production measures tied to the manufacturing facility they were part of, though recent changes made their payment annual, tied to specific individual or group performance goals.

- The Unit Beta arrangement is for an annual profit sharing scheme based simply on earnings.

- The Unit Beta employees have access to a longer-term incentive arrangement which provides cash for sales generated by patent development.

The topic of incentive arrangements did arise in the employee interviews. In general, almost all comments on incentives were positive. The exception was a Unit Alpha employee who shared their concern about their short-term incentive arrangement by stating:

> *"We like being able to predict and going and right now this is one of those things that we're sitting there going 'we don't trust it yet.' We don't see the payoff, you know, and it's also one of those things why I understand why it's yearly, it's so far away it's like, 'whatever'…even though I've done exactly what's been requested of me, that does not guarantee I can sell anything. And it's beyond my control to get it sold, and yet that's what I'm being judged on. And it's like, 'okay, everybody likes being in control' and it's one of those things where all of a sudden where I'm out of control and I can't do anything about it, so it just – there isn't the trust built in yet."*

Interesting to note that the subject of trust came up in these comments. So which came first, the lack of trust or the incentive? In other words, did this employee not trust the incentive system because they didn't have an environment of trust? Or did something in the incentive plan feed into or even cause mistrust in the environment?

On the other hand, two of the Unit Beta employees called out the long-term incentive arrangements that were available to them.

"The inventor of products which are patented or used by the company, they get an incentive. That's a very important part for me. I really get some motivation out of that. I've run about 10 or 12 patents or products which are treated like a patent. I get money from that. Not too much, but I get some money. That's a direct connection to my work. It's up to .1% of the sales."

"We have several patents we are working on. We have discussions on patents of suppliers or customers which influence our daily business, but there are not goals which says that [we] have to make x patents per year. But if involved in patent you get money for the creation of the patent and after that when product is sold you get regular amount of sales."

Overall, there seem to be other factors involved that make the use of incentives confusing when seeking to tie their impact to overall performance. Several employees specifically noted that incentives are personal and expressed their opinion that having the same incentive plan or reward scheme for all employees wouldn't likely work as individual employees find themselves motivated by different things. For example, let's look at the variety in these comments on incentives and rewards from the two units. First, two different employees from Unit Alpha expressed these thoughts.

"Incentives could be cash, recognition, a pat on the back. Cash is a good one, but it doesn't tickle me. I'm not motivated by money, but how I move up the ladder. Recognition is an important incentive. Profit sharing is good – it gives me motivation to do the right job and focus on the right things. The best recognition I ever received though, that I will remember my whole life,

was personally a congratulations and recognition from the CEO about my work."

"Some people who will be motivated by acknowledgement from their peers, their supervisors, right? Some people will be motivated by numbers, just how much they invent, how many patents they could file, right? How many publications, whether they were able to go and present or publish in a journal. Just say like. And then some incentives will just be different for each one and just trying understand it and trying to design it as such it will maximize the group as a whole, would be the ideal situation…mostly we are trying to see everyone, trying to fit everyone with the same whatever system, right? That is companywide. So it might not actually motivate each person equally."

A third Unit Alpha employee went on for some time expressing thoughts about how incentives could be tailored to the individual. The quotes below are from an otherwise lengthy expression of this opinion from the same employee.

"…let me talk about incentives…"

"I think we do very much sort of make blanket statements like, 'well, variable comp is highly motivating.' Well, okay, I'm not going to object…but in all seriousness, it's like, how much really more motivating is it?"

"…I mean, if you're highly motivated, whatever those incentives whether it's recognition, time, so on, that's what matters and I can tell you my belief – I think they would much rather be recognized on patents…basically saying

'look what [Sally] did…put them in our Hall of Fame or whatever. I mean, talk to people like [Billy], he wants to basically make a difference and say, 'I want to be associated with a project. …That's what's most motivating to him, not that extra 3% variable comp he gets."

…So, I think that's where it gets so tough when…we look for a 'one size fits all' solution"

"[Ask] 'how motivating is it?' I think you would get a wide range of answers. Some people on that bell curve would be on the far right, right? Purely motivated by money and it's like 'hey, that's going to make me work that much harder.' Where some people are like – I've had people tell me, 'well, I'll take it, its money. I'm not counting on it. I'm going to work hard anyway'."

We notice themes from four employees in Unit Beta, expressing the impact of incentives and the motivation that they feel, or do not feel, based on incentives.

"If the company does [incentive] compensation or not, I would not say that it influences my personal motivation."

"For me personally, my job to be innovative and do good development work so I always try to give 100% and bring out products. So I think that this [incentive compensation] is nice to have. It's a good option, but I don't think that for development engineering or people who are dealing with innovations all day that it gives more than if do without because they do their job and give all they can"

"You can motivate with money, but only for a couple of months, not for years. But you can demotivate people with money. If there is not enough money, or if your colleagues

earn more, then you can demotivate them. That's important. I really appreciate that I get some extra money, because I did good work, or because we did a good work. I appreciate it, but it has no impact on innovation."

"You have a little more money and you can buy something that gives some happiness to family… [but] for the family, it's [more important] to have a stable job situation."

Through these interviews, there is no central theme. Some indicate that they are NOT influenced by cash incentives. Some say they are, but then reference either the short-term or long-term. This lack of clarity is not aligned with the current literature on ambidexterity, which seems to be on auto pilot regarding the importance of incentives. Most of the comments and even the employee survey in this research indicates that incentives are not a critical component and can even be a negative component of the very creativity needed in long-term exploration, which ties to other literature around the motivation of creativity (Amabile, 1988; Pink, 2009).

Incentives are by definition a management intervention. More study is recommended regarding incentive compensation and its use as a driver through agency theory, whether that be directly tied to long-term success or tied to greater contextual ambidexterity that leads to short- and long-term success.

VI.4.9. Feedback
In the open ended interviews, the subject of feedback was seldom mentioned. For Unit Alpha employees, the word was used only fifteen times throughout all the interviews. Half of those were related to customer information provided about the product. The other half were about individual performance feedback, but for the most part, were at the end of the interview when the researcher specifically inquired about any impact on the unit success as linked to performance feedback.

Perhaps even more noticeable, was that in all of the interview dialogue with Unit Beta employees, the word feedback was used only 3 times in total: once about customer information, once about information from colleagues, and once in relation to manager providing feedback about performance, in which instance the interviewed employee simply noted that:

"Some [employees] need more feedback and direction"

In looking at the Unit Alpha statements about feedback, their comments really are relatively weak about its influence on the environment and most were prompted by the interviewer asking specifically. One statement contained several of the references to individual performance feedback, in this case, it was at the end of the interview and prompted by the interview question about formal performance appraisal systems (see next section). The frequency distribution of the use of the term 'feedback' is listed in Table 6 on page 71.

What does this mean? Is performance feedback a critical management intervention that should correlate with both open communication, improved awareness of goals and objectives, an honest environment of sharing, and thereby enhanced performance and support? Is it possible that the scientists don't value ongoing performance feedback?

What should be remembered, is the high instance of the term collaboration and communication in both units. The concept of collaborating, sharing, bouncing ideas, having access to other scientists and getting their opinions was critical to many. Having regular access and open communication with the customers to understand their requirements was critical to many.

The management intervention of ongoing performance feedback about the individual and his/her personal performance was not a factor called out, implicated, or stated as strongly valued with these two R&D units.

VI.4.10. Performance Appraisals

This is the process during which the manager evaluates and/or rates the employee's performance, it is noted that the Unit Alpha has such a process, with a required review in a calendar year period. However, the Unit Beta does not have such a required practice of performance appraisals. Instead Unit Beta employees meet with their manager annually to review prior year objectives and set the New Year objectives. They talk of employee development needs, but there is no formal documentation of an employee's performance or specific performance rating delivered or even assigned.

The following quote is from a Unit Alpha employee. The researcher had at this point specifically asked about the appraisal process, which contains an element of 360^0 feedback from peers and others in the organization, and successful performance.

"I don't know how it ties…[to performance]. I don't know. I guess I think the process is important to get feedback, the 360 feedback. I think if it's used effectively, like constructively, it can help people and maybe if they have a weakness as far as developing new things or if there's things they should build strengths in, then maybe that'll identify it and maybe your peers are going to see that as much as anybody. So I guess, yeah. I guess it could if it's used constructively. At the same time, if there is feedback given on these types of things – are we almost out of time?"

The performance appraisal was not noted by any of employees as a part of the necessary environment of performance or support.   The annual performance appraisal, with its long-standing tradition in corporate organizations, is not used in the Unit Beta and was never brought up on its own as an important management intervention leading to an enhanced environment of performance or support, and when asked was given casual credence at best where it is currently part of the Unit Alpha performance process.

The recommendation is to look for alternatives to the annual performance appraisal process or adapt to an annual discussion that focuses on goal setting and personal employee development.

VI.4.11.   Barriers

The final interview theme that will be covered in this dissertation relates to the manager's ability to break down barriers for the employee or 'clear the path' so that the employee can continue their performance on their own. This was noted only by a couple of Unit Alpha employees through the following comments:

> *"[The manager] offers support if there is roadblock…from his aspect, asks what roadblocks he can remove."*

> *"He removes roadblocks and handles battles that prevent and take up time from the scientists' schedule…that allows us time to do rather than fight battles."*

While the term 'roadblock' was used 3 times in these two quotes, no other instances of this theme was found and no Unit Beta employee used the word roadblock. Does this suggest that employees generally feel accountable to take care of their own situation and are responsible to tackle their own issues and get them resolved, especially in Unit Beta?

The recommended management intervention is to regularly dialogue with the employee on the existence and best way to remove barriers to ongoing short-term and long-term work.

VI.5.   Summary of Results

These overall and detailed analysis of managerial interventions across the two R&D units at the Company can be summarized as follows:

- Both units have a strong environment of performance

- Unit Beta has greater contextual ambidexterity due to a stronger environment of support

- Employee interviews indicate or support the notions that:

  - Unit Beta R&D employees have greater direct access to customers

  - Delegated decision making is greater at Unit Beta

  - The focus on short-term results is higher in Unit Alpha, but their reported focus on long-term activities represents only 5% of their time

  - Unit Alpha R&D scientists spend more time in the lab, while Unit Beta scientists use lab technicians to a greater degree

  - Employees value being personally understood, including their strengths and weaknesses, and being developed

  - Employees value having goals and objectives

  - Rewards and specifically cash incentives are discounted by many, noted as positives by some. They play a mixed role and with some employees possibly play a negative role and some value non-cash incentives over cash incentives.

  - Performance feedback and performance appraisals are not notes as strong intervention tools by these employees

Table 5 Summary and Comparisons of Unit Alpha and Unit Beta

	Unit Alpha	Unit Beta
Average New Product Sales as a % of New Sales	5.3%	10.2%
Employee Survey – Performance Score	5.5	5.5
Employee Survey – Average Support Scores	5.0	3.9
• Push Decisions Down	3.1	5.8
• Devote Efforts to Develop	3.4	5.3
• Treat Failure as Opportunity	3.8	6.0
• Take Prudent Risks	4.4	5.8
• Incentive Compensation	5.0	3.0
Number of Scientists	8	12
Number of Laboratory Technicians	2	10
Time Devoted to Short-term Work (%)	95%	70%
Time Devoted to Long-term Work (%)	5%	30%
Word Frequency and Distribution		
• Feedback (as relates to customer)	7	1
• Feedback (individual performance)	8	2

VII.   DISCUSSION

Under agency theory, the manager seeks to align the interests of the employees with his/her interests and goals – to achieve the results required of the manager (Eisenhardt 1989). Contextual ambidexterity is the ability for the team, or even the individual, to focus on and accomplish tasks that exploit the current capabilities and explore future capabilities. This research has been based on the intersection between agency theory and contextual ambidexterity with the focus on the manager's ability to align employees with her/his objectives yet still enable an environment of both exploitation and exploration. The manager who can lead a team to accomplish both, should be seen as especially valuable by the company. So, how does a manager intervene, to cause and/or encourage both short-term exploitation and long-term exploration? This research examined two different R&D groups within the same company. The research results contribute to practice at the Company, to ambidexterity literature, and lays groundwork for a discussion of new connectivity-based management.

VII.1.   Contribution to Company Practice

The Company has an R&D unit that has been underperforming on the primary metric of New Product Sales as a Percentage of Net Sales compared to its sister R&D unit. There are several potential alternative explanations to be considered. For example, as noted earlier, past underperformance may be due to the markets served. This would suggest that even though employee ambidexterity scoring is different between Units Alpha and Beta, the overall performance of the two units is similar enough and greater movement toward employee support interventions would not change overall performance. However, the Company leadership has acknowledged that they believe a stronger environment of employee support is an important change for Unit Alpha.

Other alternate explanations for differences in performance include:

- R&D capabilities are significantly different
- Role design is centered on development in Unit Beta with greater use of laboratory technicians, giving them an advantage over the lab focus in Unit Alpha

Regarding these alternate explanations, the general scientific backgrounds and experience base is very similar between the two R&D units. The similarity of backgrounds is part of the rationale for choosing these two units to study. It is acknowledged however, that the job titled of the positions are different. Unit Alpha uses the job title 'Scientist' while Unit Beta uses the title 'Development Engineer'. The job structure is however is quite similar, with the primary differences being the job title, the access to customers, and the time spent in the laboratory. These later two items were called out in this research as part of the management interventions that need attention to drive greater contextual ambidexterity.

This research suggests that the Company examine the following practices or systems in order to increase the contextual ambidexterity of the lower performing R&D unit through interventions of the managers employing agency theory:

- Assure direct access to customers
- Explicitly delegate decision-making authority to the R&D scientists
- Use lab technicians to free up scientists to do more explorative work
- With the scientists, design personal development interventions for the scientist
- Establish goals for time allocated to explore and learn, then mechanisms to share
- Consider significant restructure and alignment of the performance appraisal systems
- Evaluate cash incentive practices to allow more flexibility

As the author has engaged senior and mid-level company leadership regarding the results of this study, the reactions have been positive. The Unit Alpha leadership has already started to have internal discussions on how they could better connect their R&D scientists to the customer. Where a strong relationship already exists between a Unit Alpha scientist and a customer, leadership is using this as an example to encourage greater dialogue with the other scientists. This is the initial primary area of emphasis to provide greater ambidexterity on the R&D team.

VII.2. Contributions to Ambidexterity Literature

Managers are seen as part of the tactical arm of the organization, with a strong bias to the short-term focus on day-to-day results (Dover and Dieck, 2010), yet there is little guidance on the mechanisms managers can use to expand their efforts to enable an environment of contextual ambidexterity. The role of delegated decision making has been indicated as a key influencer (Mom et. al., 2009). This research suggests that additional managerial interventions can also impact, both positively and negatively, the ability for employees to be contextually ambidextrous, creating an environment and opportunities to both exploit and explore. This is accomplished as the manager is able to successfully interact with the employee through the following recommended interventions:

- Provide opportunities to have repeated and open access to the direct customer

- Allow access to other scientists and team members, with an open atmosphere that allows discussion and cooperation that is both planned and thoughtful and that can also be spontaneous

- Provide, allow, and even encourage the open opportunity to think and explore, to attend conferences, access on-line research data bases, and have unstructured time to read, think, converse and bounce ideas off of colleagues and other researchers

- Allow for personal and career development opportunities, and provide access to resources, including time, money, and encouragement to pursue personal development appears to be a key

- Set goals and objectives to provide direction and connection to company strategy

VII.2.1. Connectivity

As these interventions are reviewed, two overarching themes about employee connections emerge, first between the employee and the organization and second between the manager and the employee. These connections are formed by the collective set of management interventions found in the employee interviews and noted by the employees as meaningful interactions that support an environment of performance and support. Added to the two primary connections is a third group of interventions that allow the employees to move forward with delegation of decision making, yet stay connected to the manager through regularly checking in. The result is a connectivity-based management, as follows:

1) Connect the employee to the organization

   - Set direction with goals and objectives

   - Set priorities

   - Set boundaries

2) Connect personally to the employee

   - Understand the employee, their strengths and interests

   - Be interested in the employee and their development

   - Listen to the employee

   - Recognize accomplishments in a way the employee appreciates

3) Provide an open environment and allow the employee, with decision boundaries

- Set decision boundaries

- Provide access to internal and external customers

- Provide access to necessary information and resources

- Allow the employee to take risks and learn from failure

These three groups of management tasks and interventions support the work done in many areas and recognize work by others as important to ambidexterity, including both upward and downward information flow (Raisch and Birkinshaw, 2008), in that both setting objectives, priorities, and boundaries (downward flow) and listening to the employee (upward flow) are deemed important.

The first two areas of direct connections, first to the organization with its goals and boundaries, and secondly to the employee with listening and development, support the discussion on the discipline and passion in the work by Andriopolous and Lewis (2009). One seems to suggest that the employee's mind needs to connect to the organization future and structure, etc. while the employee's heart needs to feel a connection as well, in this case, with the manager. This second connection seems to be manifest in the support and trust the employee has for the organization. Both of these connections also align with the work done by Birkinshaw and Gibson (2004), underscoring the two key factors of performance (the mental connection to the organization) and social support (the emotional connection). The third area is to both allow decisions and exploration, but to stay connected to the organization and to the manager.

These groupings of managerial interventions clearly align with the work on decision making (Mom et al, 2009; Hofkesbrink, 2012) and the connection to both short-term and long-term thinking. The Unit Beta employees, with their strong emphasis on delegated decision making authority and implications on trust, had stronger survey scores on support culture. The

suggestion is that as employees are empowered to decide, they feel the responsibility and the trust to be personally accountable, increasing their connection to both the organization and to the manager who has entrusted them.

This research suggests that to enable an environment of contextual ambidexterity, the manager should strive to 1) connect the employee to the organization; 2) connect personally to the employee; and 3) provide and open environment and allow the employee to control their own decisions within specific boundaries. The manager accomplishes these tasks by using the recommended list of interventions. (See Table 6)

Another practical contribution of this research however is that which is NOT included in the lists of managerial interventions. This list does not include a strong role for cash-based incentives or performance feedback, especially in the form of the ubiquitous performance appraisal, which is part of many organizations.

Table 6 Managerial Interventions to Enable Contextual Ambidexterity

Connection	Recommended Managerial Interventions
Connect Employee to Organization	• Set direction with goals/objectives • Set priorities • Set boundaries
Connect Personally to Employee	• Understand their strengths and interests • Be interested in their development • Listen to the employee • Recognize accomplishments in a way the employee appreciates
Provide and Open Environment and Allow Decisions within Boundaries	• Provide access to internal and external customers • Provide necessary resources • Allow the employee to take risks and learn from failure • Delegate decisions within boundaries

VII.2.2. Incentives

What is the role of an incentive? The subject of incentives is in much of the literature (Tushman and O'Reilly, 1997; Birkinshaw and Gibson, 2004; Sarkees and Hulland, 2009; Turner et.al. 2013) and seems readily listed as a necessary part of the environment to produce ambidexterity. One of the seven questions built into the employee survey to measure performance (Birkinshaw and Gibson, 2004) asked about the presence of incentives. As a reminder – the average employee score on this question was 5.0 for Unit Alpha and 3.0 for Unit Beta. If Unit Beta is more contextually ambidextrous and had equally strong survey scores on performance even without this question on incentives, what is the potential difference?

This research suggests that incentive compensation can distract from contextual ambidexterity. It was repeated often that employees view awards differently, very differently.

While some may be strongly influenced by monetary incentives, others are not. Why then build such an all-encompassing system to impact a few? And, what does the incentive do to focus attention? If the incentive is short-term in nature, those who feel its pull are likely to do as suggested by the program and increase their short-term focus, reducing the very balance on both short- and long- term thinking that is so valued in the discussion on ambidexterity and the need for exploration.

Can a long-term incentive program make a positive difference in building contextual ambidexterity? This research suggests yes, it is more likely to be neutral in impact, but rather than an incentive, it is valued as a potential reward for the exploration efforts. In other words, employees do not change their day-to-day short- or long-term activities because of a focus on the long-term incentive. Rather, it is a reminder that long-term efforts are valued. And again, this is for some employees only. Others make no mention to it in their perspective at all.

Therefore, this research calls for a reduction in the focus on cash incentives. They should be seen as an available award, but caution should be used in their design, especially when short-term drivers are needed, as the likely minimal effect or even distraction from contextual ambidexterity at the employee level is possible. If cash incentive design can balance both short-term and long-term needs, it may have value, especially as it could be seen as a reward for efforts, but for many employees who do not value this as a reward, it surely won't have the intended effect to incent much of effort for these employees.

As an alternative, the author suggests that a four square approach may be beneficial when considering rewards strategy. It uses a short-term or long-term view on one axis and a cash and non-cash perspective on the other axis. (See Table #7)

This approach could be reinforced and used by managers based on the employee's individual preferences. This would require discussion, open communication, and allow employees to occasionally move across from one square to another if their interests shift over time. For example, it was noted by several employees that someone's age, experience, or even family status might cause a shift in their perspective on awards as someone younger could be inclined towards cash, while a more established employee who has risen to a higher status with more stable financial situation may have shifted to a greater interest in long-term royalties from a patent.

Table 7 Incentive and Reward Matrix

	Short-term	Long-term
Non-Cash	Recognition via meeting, letter, posting, plaque, certificate	Career advancement, title, assist in publishing or conference presentation, award for patents
Cash	Quarterly or annual bonus / suggestion bonus	Profit sharing or percent of sales royalty

This research suggests that such an approach could enhance the manager's ability to provide an environment of contextual ambidexterity.

VII.2.3. Performance Feedback and Appraisals

A second common intervention which did NOT make the list is the very common employee performance appraisal. The Unit Alpha employees have been in an organization that has used a formal performance appraisal process for many years. The Unit Beta employees have not used this approach. The employee interview information on feedback, or lack thereof, along with the comments on collaboration, communication, and specific questions about performance appraisals lead this research to suggest that the performance appraisal process with its formal rating (according to human resources leaders, usually on a 3- or 5-point scale) is not conducive to the support and trust that is so valuable in a contextually ambidextrous environment.

As noted in the list of proposed managerial interventions, open communications are still critical. Collaboration between department members and across departments is also still critical. However, a mandatory process to annually rate an employee's performance on a pre-set scale can be counterproductive to the necessary support environment.

The author suggests that the managerial interventions listed previously in Table 6 are sufficient to provide the requisite environment of performance and support. It is acknowledged that some organizations have tied their compensation structures to this rating. The author suggests that an alternative system be determined and used instead, with a tie to cost of living adjustments, other market adjustments as needed, and promotions. More research is needed to continue this discussion.

VII.3. Contributions to Management Theory

A consistent theme stands out in this research that could lay the groundwork for new management theory and practice called 'connectivity-based management'. Simply stated, the research suggests that employees, or members of an organization, must be connected to the

organization both mentally and emotionally in order to consistently perform their best, connected by appropriate decision making controls and reporting mechanisms. This 'connectivity-based management' should be able to be measured and tested and correlated with employee performance in the short-term and over time. This management practice should align with the studies on employee engagement, in that longer lasting and stronger engagement should correlate with these employee connections. These concepts align with work done in previous studies; for example, as discipline and passion (Andriopolous and Lewis, 2009) with the discipline denoting the mental connection while the passion comes from the emotional connection of the employee.

The authors suggest that the manager is only part of this whole picture, but plays a key role in enhancing or negatively affecting these critical connections, to the mind and to the heart of the employee. The very structure of the research on contextual ambidexterity, seeking to build an environment of performance and social support, align with 'connectivity-based management'. This management practice also complements and advances several of the predominant management theories of the past. For example, Theory X assumes that workers inherently dislike work and lacked ambition; therefore workers need to be incented to action. Theory Y assumes that employees are naturally driven and will take responsibility on their own. Management by Objective theory focuses on the importance of mutually agreed to goals and objectives so that the employee can understand and will then work to achieve the objective. Connectivity-based management connects all of these into three buckets of tasks, which then can provide incentives if needed to connect the employee to the organization and its goals, allow for internal motivation to step in as the manager connects to the individual and his/her growth and development needs, and finally, helps to set direction and allow the employee to move forward to accomplish the goals and objectives of the company or business unit, and certainly of the

manager through agency theory. To repeat, with slight revisions to the titles, connectivity-based management advocates that the manager:

Connect the Employee's Mind with the Organization

- Set direction with goals and objectives

- Set priorities

- Set boundaries

Connect to the Employee's Emotions

- Understand the employee, their strengths and interests

- Be interested in the employee and their development

- Listen to the employee

- Recognize accomplishments in a way the employee appreciates

Delegate Decisions, Provide an Open Environment, and Allow the Employee to Go Forward within these Connections

- Provide access to internal and external customers

- Provide necessary information and resources

- Allow the employee to take risks and learn from failure

- Allow for the employee to own the decisions within the boundaries

The principal researcher acknowledges that in retrospect, he has seen these themes tied together in other management training. For example, management training designed by Development Dimensions International (DDI) has focused in two areas: the practical and the personal. This training is outlined by a two pronged approach as touching on the practical needs of the organization (to get results) and the personal needs of the individual. They coach the

manager on processes and 'key principles' to meet both the practical and the personal needs. Yet, the DDI work does not focus so much on connections as it does the practical implications of a manager's efforts to get the work done while personally acknowledging the people who get the work done, to the ultimate benefit of the person and the organization.

Connectivity-based management ties contextual ambidexterity and agency theory in that the manager, trying to accomplish his/her objectives and the objectives of the organization, has to get work done through others. Their ability to do so in a way that connects the individual to the organization mentally, while at the same time connecting to the person's emotions, then allowing the employee to go forward, has advantages to the company results by providing an environment of both performance and support, where the employee can flourish to understand and accomplish short-term results, while at the same time, feeling the openness and support to explore.

VIII.   LIMITATIONS AND CONCLUSION

This case study and analysis fill a gap in the literature on individual analysis of managers and their ability to enable an ambidextrous environment. The study uses agency theory as a lens to provide implications to managers regarding interventions that enable contextual ambidexterity and notes the potential ineffectiveness of the performance appraisal process and of broadly designed cash incentive systems.

There are limitations with this research project. It is an embedded case study involving two R&D departments with the same company. This will limit the generalizability of the results to other situations. Also, there is the potential that other factors influenced the survey findings and interview results. This could include local traditions or culture of the local R&D unit.

Increased rigor of this research is achieved through the use of additional data sources. Employees participated in a confidential survey to assess the contextual ambidexterity of their environment. In addition, alternate data sources from the company were made available, including company records on product sales.

As an engaged research project, the Company participated in a review and discussion of the project and its themes and findings. This assisted in providing additional review of the research project and process. The research suggests that a manager will be best suited to focus on three primary activities, connecting the employee to the organization, connecting personally to the employee, then delegating decisions while providing resources and allowing the employee an open environment with encouragement to experiment and explore.

In addition, this research suggests a possible theory which can be used by future researchers to test the level of connection in studies regarding employee engagement, employee

performance effectiveness, managerial effectiveness, and other key organizational and management topics.

There are additional research opportunities regarding the employee performance appraisal process and the effectiveness of feedback systems that focus on improvement opportunities, rather than seeking to understand and develop the employee. There are also many research opportunities on the subject of employee rewards and cash incentives and how to potentially personalize the rewards process to capitalize on the unique interests of the individual, while still aligning the employee with the goals of the organization and the manager.

REFERENCES

Abernathy, W.J. (1978). *The productivity dilemma*, Baltimore: Johns Hopkins University Press.

Amabile, T.M. (1988). A Model of Creativity and Innovation in Organizations. Research in Organizational Behavior, 10123.

Andriopoulos, C., Lewis, M.W. (2009). Exploitation-Exploration Tensions and Organizational Ambidexterity: Managing Paradoxes of Innovation, *Organization Science* 20 (4): 696-717.

Barnard, C. (1938). *The functions of the executive*, Cambridge: Harvard University Press.

Beckman, S.L., Barry, M. (2007). Innovation as a Learning Process: Embedding Design Thinking, *California Management Review*, 50 (1): 25-56.

Benner, M.J., Tushman, M.I. (2003). Exploitation, Exploration, and Process Management: The productivity dilemma revisited, *Academy of Management Review*, 28 (2): 238-256.

Birkinshaw, J., Gibson, C. (2004). Building Ambidexterity Into an Organization, *MIT Sloan Management Review*, Summer: 47-55.

Brady, T., Davies, A. (2004). Building Project Capabilities: From Exploratory to Exploitative Learning, *Organization Studies*, 25 (9): 1601-1621.

Büschgens, T., Bausch, A., Balki, D.B. (2013). Organizational Culture and Innovation: A Meta-Analytic Review, *Journal of Productivity and Innovation Management* 30 (4): 763–781.

Dover, P.A., Dierk, U. (2010). The ambidextrous organization: integrating managers, entrepreneurs and leaders, *Journal of Business Strategy*, 31 (5): 49-58.

Duncan, R. (1976). The ambidextrous organization: Designing dual structures for innovation, R. Kilman, L. Pondy, (Eds.) *The Management of Organizational Design*. New York: North Holland.

Eisenhardt, K.M. (1989). Agency Theory: An Assessment and Review, *Academy of Management Review*, 14, (1): 57-74.

Ghoshal, S., Bartlett, C.A. (1997). *The Individualized Corporation: A Fundamentally New Approach to Management,* New York: Harper Business.

Gupta, A.K., Smith, K.G., Shalley, C.E. (2006). The Interplay Between Exploration and Exploitation, *Academy of Management Journal*, 49 (4): 693-706.

Hafkesbrink, J., Bachem, C., Kulenovic, D. (2012). Contextual Ambidexterity and Individual Competencies for Exploration and Exploitation in Small and Medium sized Enterprises, *XIII ISPIM Conference – Action for Innovation: Innovation from Experience –* Barcelona.

He, Z.L., Wong, P.K. (2004). Exploration vs. Exploitation: An Empirical Test of the Ambidexterity Hypothesis, *Organizational Science*, 15 (4): 481-494.

Heublein, A.M. (2012). Open Source In The Clouds – How Organizational Ambidexterity Shapes and is Shaped by Disruptive Innovation in an Open Source Software Provider, *Business Administration Dissertations,* Paper 2.

Hill, L.S., Brandeau, G., Truelove, E., Lineback, K. (2014). *Collective Genius: The Art and Practice of Leading Innovation*, Boston, HBR Press.

Kortmann, S., Scharzlose, J., Leker, J. (2012). "The Influence of Integration Mechanisms on Organizational Ambidexterity", *XIII ISPIM Conference – Action for Innovation: Innovation from Experience –* Barcelona.

Miles, M., Huberman, M. (1994). *Qualitative Data Analysis*, Thousand Oaks: Sage Publications.

March, J.G. (1991). Exploration and Exploitation in Organizational Learning, *Organizational Science*, 2, (1): 71-86.

Mom, T.J.M., Van den Bosch, F., Volberda, H.W. (2009). Understanding Variation in Managers' Ambidexterity: Investigating Direct and Interaction Effects of Formal Structural and Personal Coordination Mechanisms, *Organization Science*, 20, 812-828.

Napier, N.P., Mathiassen, L., Robey, D. (2011). Building contextual ambidexterity in a software company to improve firm-level coordination, *European Journal of Information Systems*, 20, 674-690.

Quinn, R.E., Rohrbaugh, J. (1983). A Spacial Model of Effectiveness Criteria: Towards a Competing Values Approach to Organizational Analysis, *Management Science*, 29, 363-377.

O'Reilly III, C., Tushman, M. (2007). Ambidexterity as a Dynamic Capability: Resolving the Innovator's Dilemma, Research Paper No. 1963, Research Paper Series, Stanford Graduate School of Business.

O'Reilly III, C., Tushman, M. (2011). Organizational Ambidexterity in Action: How Managers Explore and Exploit, *California Management Review*, 53, 5-22.

Pink, D (2009). *Drive: The Suprising Truth about What Motivates Us*, New York, Riverhead Books.

Raisch, S., Birkinshaw, J. (2008). Organizational ambidexterity: Antecedents, outcomes, and moderators, *Journal of Management*, 34, 375–409.

Sarkees, M., Hulland, J. (2009). Innovation and Efficiency: Is it Possible to Have It All, *Business Horizon*, 52, 45-55.

Singh, R. (2011). Towards Information Polycentricity Theory: Investigation of a Hospital Revenue Cycle, CEPRIN Dissertations.

Turner, N., Swart, J., Maylor, H. (2013). Mechanisms for Managing Ambidexterity: A Review and Research Agenda, *International Journal of Management Reviews*, 15, 317-332.

Tushman, M.L., O'Reilly III, C.A. (1996). Ambidextrous organizations: Managing evolutionary and revolutionary change, *California Management Review*, 38 (4): 8-30.

Tushman, M.L., O'Reilly III, C.A. (1997). *Winning Through Innovation: A Practical Guide to Managing Organizational Change and Renewal*. Boston: Harvard Business School Press.

Van de Ven, A.H. (2007). *Engaged Scholarship: A Guide for Organizational and Social Research.* Oxford: Oxford University Press.

Yin, R. (1994). *Case Study Research: Design and Methods*. Los Angeles: Sage Publications, 1994.

APPENDIX

A multi-level categorization of ambidexterity mechanisms (Turner, et al., 2013)

Levels of analysis	Intellectual capital resources		
	Organizational capital	Social capital	Human capital
Organization	Structural configuration and separation. Development and maintenance of inter-organizational relationships. Coexistence of formal and informal structures.	Knowledge-sharing relationships with new and existing external parties. HR practices supportive of ambidexterity.	Individuals reconcile and coordinate exploitative and exploratory functions. Management ability to reconfigure organizational assets. TMT behavioural integration and complexity.
Group	Reward systems to support ambidexterity. Processes for creating dense social relationships and informal coordination. Formal and informal managerial integration and control mechanisms.	Complex network of strong and weak ties for effective knowledge-sharing, supported by formal and informal behaviours. Relationships supportive of ambidexterity. Shared values and goals.	Strong, compelling vision. Participation in cross-functional interfaces. Transformational leadership.
Individual	Multiple cross-functional interfaces to accommodate formal and informal coordination. Use of both 'best-practice' and local managerial discretion and judgement.	Individuals creating and supporting the context for ambidexterity. Both relational- and task-focused leadership.	Taking the initiative; cooperative behaviour; multitasking; brokering.

Employee Survey - Level of Performance Environment

On a scale of 1 to 7, please rate the following Neenah behaviors, where 1 = Not at all and 7 = To a very great extent.

	Not at all			Neutral			A great extent
	1	2	3	4	5	6	7
Set challenging/aggressive goals	○	○	○	○	○	○	○
Issue creative challenges instead of narrowly defining tasks	○	○	○	○	○	○	○
Make a point of stretching people	○	○	○	○	○	○	○
Use business goals and performance measures to run the business	○	○	○	○	○	○	○
Hold people accountable for performance	○	○	○	○	○	○	○
Encourage and reward hard work through incentive compensation	○	○	○	○	○	○	○

Employee Survey – Level of Social Support Environment

On a scale of 1 to 7, please rate the following Neenah behaviors, where 1 = Not at all and 7 = To a very great extent.

	Not at all			Neutral			A great Extent
	1	2	3	4	5	6	7
Devote considerable effort to developing people	○	○	○	○	○	○	○
Push decisions down to the lowest appropriate level	○	○	○	○	○	○	○
Have access to the information needed to make good decisions	○	○	○	○	○	○	○
Quickly replicate best practices across organizational boundaries	○	○	○	○	○	○	○
Treat failure in a good effort as a learning opportunity, not as something to be ashamed of	○	○	○	○	○	○	○
Willing and able to take prudent risks	○	○	○	○	○	○	○

CHART 2 – Initial Coding Scheme

	Environment
COLL	Collaborate/Work together
BLD-T	Build Trust
BLD- R	Build Employee Relationships
AVO-C	Avoid criticism for failure
FUN	Having fun at work, with others
COMF	Environment where comfortable
FRND	Friendships w/ co-workers
LSTN	Others listen to me, discuss
CHLNG	Comfort and ability to challenge others, status quo
GROW	Sense of growth, development, promotions
OFFST	Offsite activities, time together
RELAX	Pressure, yes, but also at times relaxed, w/o criticism

	Environment of Performance
CST-RQ	Customer Requirements
CST-CO	Customer Contact
CMPT	Competitive, Beat competition
CST-RL	Customer Relationships
P/AA	Production/Assets Available
CTRL	Control/Direction given or provided
MKT-I	Market Information available
RESO	Resources available
RSP	Responsibility/Ownership
OBJ	Objectives set or provided
EXPE	Experienced colleagues
PRIOR	Priorities established and recognized
REVE	Revenue or sales generation

	Interventions
I-RSC	Allocate Resources/budgeting
I-INC-ST	ST Incentives
I-OBJ	Set Objectives
I-DEC	Delegated Decision Making
I-DLG	Delegated Freedom to Act
I-REW-LT	Long-term Rewards
I-RECG	Recognition of employees
I-DVLP	Develop or grow talent/train
I-FLEX	Provide flexible work arrangements/time off
I-FAIR	Policies, practices, comp, recognition applied fairly
I-FEED	Provide appropr feedback
I-PERF	Performance reviews

I-DISC   Formal Employee meetings/discussions
I-MEET   Planned group/team meetings