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THE LEARNING ORGANIZATION AS A PATH TO DEVELOPING DYNAMIC CAPABILITIES IN A SMALL ENTREPRENEURIAL FIRM

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Abstract

Research on dynamic capabilities has focused primarily on debates around foundational and definitional issues. These debates have continued in the literature for almost two decades, however empirical investigation that would render the construct useful and help develop the dynamic capabilities framework into a theory is still in its infancy. Despite claims of the construct's importance in achieving sustained competitive advantage, there is little in the literature dealing with how management can go about developing dynamic capabilities. This study is an empirical investigation that joins the dynamic capabilities and learning organization literatures to construct a conceptual model of the development of dynamic capabilities in the context of a learning organization. The case study follows the strategic development of a small utility construction company over a ten year period. We find that learning organization characteristics and processes facilitated the development of dynamic capabilities and we provide insight into the development of adaptive, absorptive and innovative dynamic capabilities through these processes.

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Keywords

Dynamic capabilities, learning organization, organizational learning, case study

Introduction

For organizations to survive and grow they must have a superior ability to change their resource base. Teece et al. (1997) propose the dynamic capabilities framework as an answer to the question of how firms respond to change through the ability to integrate, build and reconfigure internal and external resources and competences. Successful change requires adaptation (March and Simon, 1958) absorption (Cohen and Levinthal, 1990; Easterby-Smith et al., 2008) and innovation (Jantunen, 2011; Schumpeter, 1943), common typologies of dynamic capabilities (Wang & Ahmed, 2007). There is however little empirical evidence of how these dynamic capabilities are identified and developed in practice over time, that is the question this paper seeks to address. How do firms develop dynamic capabilities?. The dynamic capabilities literature has treated the framework more as a means of understanding competitive advantage rather than a methodology for developing dynamic capabilities. As a result the concept remains abstracted from everyday management practice (Helfat 2007).

To address the issue of ongoing definitional debates surrounding dynamic capabilities we follow the advice of Giudici and Reinmoeller (2012) and make explicit the meaning that will guide this study. Based primarily on the definition of Helfat et al., (2007) our definition espouses the notion that dynamic capabilities are created through path dependent learning (Zollo and Winter 2002), engaged in the purposeful or deliberate creation, extension or modification of the firm's resource base (Helfat et al

2007), while not linking these changes to a changing external environment but rather being open to exogenous or endogenous drivers of change (Zahra et al., 2006).

Managers as decision makers are central to the process of developing dynamic capabilities (Helfat et al., 2007, Teece et al., 2007, Zahra et al., 2006) and pursuit of improved performance is aspired to without any tautological assumption of sustained competitive advantage. The working definition of dynamic capabilities that will guide this study is: the ability of an organization to learn purposefully to create, extend or modify its resource base in a manner deemed appropriate by its decision makers, in pursuit of improved performance.

Learning and dynamic capabilities are widely acknowledged as path dependent concepts: what a firm learns depends on what it already knows and similarly, how it changes depends on what it has done in the past (Teece et al., 1997; Autio et al., 2000; Zahra, et al., 2006). Some researchers have claimed learning as an antecedent to dynamic capabilities (Zollo and Winter, 2002, Easterby-Smith et al., 2009; Klingebiel and Lange 2010). As intangible assets, dynamic capabilities are built internally over time through learning processes (Zollo and Winter, 2002). They consist of such things as tacit knowledge, skills, intellectual property, competence or culture (Teece et al., 1997) and as such tend to have high sunk costs (Helfat et al., 2007). They reflect the accumulation of learning through both experience and more deliberate processes of knowledge articulation and codification (Zollo and Winter, 2002).

The learning organization is an ideal-type of organization to which managers may aspire. The purpose of a learning organization is to facilitate innovation through creating an “adaptive learning and knowledge culture” (Angel, 2006:4). Learning organizations support effective information systems, self-directed teamwork, employee empowerment, effective leadership and continuous analysis of customer needs. This breakthrough level of learning goes beyond improved performance, productivity and flexibility to a new level of performance and innovation aligned with strategic goals (Angel, 2006). Investigating the development of dynamic capabilities is dependent on “looking in the right places” (Di Stefano et al., 2010:1200), the learning organization should in theory be such a place.

The paper sets forth an account of the theoretical evolution of dynamic capabilities, linking it to the characteristics and processes of a learning organization, before developing a conceptual framework and outlining the research methodology. The company background and case evidence is presented and discussed. We then explore the relationship between dynamic capabilities and the learning organization before finally presenting the implications of our findings for research and practice and suggesting some opportunities for further research.

Dynamic Capabilities

Many claim the idiosyncratic nature of dynamic capabilities prevents common guidance emerging from empirical studies (Augier and Teece 2007; Griffith and Harvey 2001; Teece et al., 1997). Others however claim the common characteristics of dynamic capabilities across firms are identifiable, and only idiosyncratic in detail (Eisenhardt and Martin 2000; Wang and Ahmed 2007). The identification of such common features are proposed to “guide the development of actionable prescriptions or practical tools and techniques for managers to use for the purpose of improved performance” (Wang and Ahmed 2007:35). Drawing on empirical findings they identify three main component factors of dynamic capabilities which they propose as a classification framework suitable for development into a measurement construct: the ability to identify opportunities, the ability to absorb external knowledge; and the ability to create knowledge.

Each component factor is underpinned by a considerable literature of its own. Adaptive capabilities refer to the ability to identify and capitalise on new opportunities and align internal resources with external demand (Chakravarthy 1982; Edmondson and Moingeon 2004; Jankowicz 2000, Teece et al.,1997). Absorptive capabilities refer to the application of organisational learning processes to recognise the value of new, external information, the ability to assimilate it, and to apply it to commercial ends (Cohen and Levinthal 1990; Easterby-Smith et al., 2008; Zahra and George 2002). This

ability to evaluate and utilise outside knowledge is largely a function of the level of prior knowledge and incorporates both exploitative and exploratory learning processes leading to innovation. Innovative capabilities refer to the overall innovativeness of the organisation as the propensity or likelihood of an organisation to produce innovative outcomes in response to identified opportunities (Wang and Ahmed, 2004). Table 1 summarises some of the key measures of dynamic capabilities. Outlining the commonalities of dynamic capabilities does not contradict the idiosyncratic detail or path of development of each of these features (Eisenhardt and Martin 2000, Wang and Ahmed 2007). Adaptive, absorptive and innovative capabilities can be considered generic types while the development path and detail may be considerably different in each organisation.

Table 1 about here

While greater detail on the nature of dynamic capabilities is useful to practitioners, it still leaves unanswered the question of how capabilities are developed. Recently, interest in the context in which dynamic capabilities are developed and applied has focused particularly on organization design and deliberate learning, with researchers highlighting the need for organizations to be designed to facilitate both exploitative and explorative learning simultaneously (Loasby, 2010; Romme et al.,

2010; Tushman et al., 2010). Zollo and Winter (2002) put forward three learning mechanisms that can operate in organizations to support the development of dynamic capability. Learning through experience is the tacit accumulation of knowledge where the stimulus of problems encountered leads to the development of solutions and hence learning. Knowledge articulation and knowledge codification are more deliberative processes that organizations can employ to stimulate and benefit from learning. By engaging in a collective discussion around key activities, important and often previously tacit understanding of cause and effect can be surfaced. Putting this new understanding into practice can be supported by the development of formalised guidance for future action, allowing the knowledge articulated to be diffused and adopted within the wider organization.

Because learning processes are the source of dynamic capabilities (Zollo and Winter, 2002, Easterby-Smith et al., 2008) it follows that learning organizations, designed specifically to enhance learning should be capable of developing dynamic capabilities. We argue that joining these two concepts presents an opportunity to unify the field of learning and change and address the need for a greater understanding of how dynamic capabilities are developed through organizational learning (Argote, 2011). Both dynamic capabilities and the idea of a learning organization are based on the assumption that in a changing and turbulent environment the organization needs to be able to change in order to address the problems the environment presents (Jankowicz

2000). Change requires adaptation, successful adaptation is contingent on effective learning (Popper and Lipshitz, 2013), with adaptation being “the chief characteristic of any learning organization” Jankowicz (2000:471) and a dynamic capability in itself (Wang and Ahmed, 2007).

The Learning Organization

The concept of a learning organization was popularised in the late 1990s as a pre-emptive and comprehensive response to the problems of renewing sources of competitive advantage (Ferguson-Amores et. al., 2005). The learning organization facilitates change, some claim a learning organization is synonymous with change and adaptation, and is an organization that can change from within itself (Ferdinand et al., 2004; Finger and Burgin Brand, 1999; Garvin, 1993; Jankowicz, 2000).

Organizational learning refers to “processes in which an organization’s members actively use data to guide behaviour in such a way as to promote the ongoing adaptation of the organization” (Edmondson and Moingeon 2004:28). Organizational learning may incorporate both exploitative and explorative learning and can be described as the processes of experience accumulation, knowledge articulation and knowledge codification.

Distinct from the process of organizational learning, the learning organization is a normative description of a type of organization designed to maximise organizational

learning and adaptation with its philosophical basis being to seek out opportunities for learning on a continuous basis (Cummings and Worley 1997; Edmondson, and Moingeon, 1998; Jankowicz, 2000; Tsang 1997). While it can be argued that all organizations learn, some organizations are faster and more effective learners thus creating the potential for competitive advantage. Learning organizations see learning as inseparable from everyday work, they provide flexible work environments that are open to creativity, continuous learning and encourage employee input and capability (Revens, 1998).

There are certain organizational characteristics that have been identified in organizations aspiring to be learning organizations. These are grouped into five interrelated categories: structure, information systems, human resource practices, organization culture and leadership (Cummings and Worley, 1997). Traditional hierarchical structures do not lend themselves to efficient sharing of information and openness, both necessary for organizational learning (Morgan, 1997). Learning organizations create structures that enhance organizational learning and maintain functional excellence while at the same time facilitate networking and team work across functional and other boundaries both internal and external to the organization (Sanchez, 2001). The learning organization employs information systems that facilitate rapid acquisition, processing and sharing of information to support deliberative learning (Arygris, 1999; Senge 1990). Human resource practices promote learning among and

between members, including creative appraisal and reward systems that take into account both individual and group performance and knowledge acquisition (Jones and Hendry, 1992). Shared perceptions, modes of behaviour, attitudes, values and norms all comprise an organizations culture (Schein, 1992) and have a strong influence on how members carry out learning processes. In learning organizations there is a culture of openness where members feel safe to share information and ideas. The learning organization encourages creativity and experimentation and sees the value of learning from mistakes (Senge, 1990). Leaders in the learning organization see themselves as models of what they are trying to create and encourage the adoption of a shared vision of the learning organization (Revens, 1998).

Although organizational characteristics provide a useful description of what a learning organization looks like it cannot be adequately described without referring also to the behavioural and cognitive characteristics of its members (Edmondson and Moingeon, 2004). The work of Senge (1990); and Argyris (1982) is key to this discussion. Senge (1990) outlines five disciplines: personal mastery, mental models, shared vision, team learning and systems thinking which he claims will lead to the creation of a learning organization. Personal mastery commits the individual and the organization to the process of learning and clarifies what is important by exploring how personal vision can be facilitated by the organization. Mental models refer to the assumptions held by individuals and the organization, which include behaviours, norms

and values. Openness, inquiry and trust are important desirable dimensions of mental models in learning organizations. Developing a shared vision motivates staff to learn, as it creates a common identity that provides focus and energy for all members. Team learning requires individuals to engage in both dialogue and discussion. Dialogue requires individual team members to suspend their mental models in an effort to understand other views. Having heard all the assumptions of team members, discussions can then take place to arrive at the best possible alternative thus optimising the problem-solving capacity of the organization through better access to knowledge and expertise. Systems thinking helps individuals observe the organization in a holistic manner diagnosing systemic implications of organizational actions (Edmondson 2004).

While these behavioural and cognitive characteristics assist individuals to learn it should be noted that organizational learning is not simply the sum of individual learning (Schechter, 2013). Learning organizations are social arenas where learning results from the processes of knowledge creation, transfer, and retention (Vera and Crossan, 2003), to form routines and procedures that become the property of the organization. Routines however are habit forming, firms need a mechanism for changing routines the learning organization provides a highly decentralised flexible mechanism for responding quickly to a changing environment (Zollo & Winter, 2002). Building on this a conceptual framework is developed (Figure 1) of the interrelated

concepts and relationships that lead to the development of dynamic capabilities through a learning organization.

Figure 1 about here

The study examines the path dependent nature of dynamic capabilities (Teece et al., 1997, Zollo 2002 and Zahra et al 2006), developed over time, in the context of a learning organization design (Cummings and Worley, 1997), triggered by strategic decision making behaviour of exploitation and exploration (Tushman et al., 2010, Zollo and Winter 2002). It is proposed that the learning organization creates a supportive environment for the development of dynamic capabilities that enhance the firm's VIRN resource base (Barney 1991) and ultimately performance, while not making any tautological assumptions as to whether or not performance is improved. This process is mediated by strategic decision-making and is presented as a cyclical model of the continuous nature of the process of learning, change and feedback.

Research Methods

The research in this paper was carried out using a longitudinal, action research case study of a single company, with data being collected over ten years through

involvement by the first researcher. Essentially what is being studied here is the change process in the case company, from the establishment of the company through diversification into new domestic markets to international diversification a decade later, and how adopting a learning organization led to the development of dynamic capabilities. A process unfolds over time, it is not possible to study a process by looking at a snapshot in time, it must be studied longitudinally to give valid results (Helfat et al. 2007). Employing a case study approach allows the researcher to be close to the subject under study so as to gain insights into the complexity of dynamic capabilities and their path dependent nature and how they have developed over time. This will be achieved by analysing the strategic choices of the organization and the subsequent development of specific dynamic capabilities. By taking a micro approach, it is possible to obtain evidence of what dynamic capabilities look like in organizations, how they are developed and deployed, and how context may impact upon them (Ambrosini and Bowman 2009).

The case company, CIET, is an Irish SME utility construction company that has over the last decade successfully diversified into new product and geographic markets. The firm's history and first researcher involvement provides an opportunity to explore concrete illustrations of dynamic capabilities. The first researcher was contracted from 1999 to 2004 to assist the company in strategic planning with a view to moving into new markets. This initiative led to the company's agreement to participate in an action

learning research project with adoption of 'the learning organisation' as a strategic goal (Author, 2002). The first researcher subsequently engaged in a second period of consultancy over 9 months between 2010 and 2011, again to assist with strategic planning work, this time in support of the company's move into overseas markets.

Coughlan (2003) differentiates between mechanistic practitioner research where the focus is on solving a problem and organic practitioner research which is a process of learning, involving reflection on the underlying assumptions held within the organization and supporting deep change. This project could be characterised as having evolved from mechanistic to organic. Having engaged the first researcher to solve the problem of establishing a new strategic direction, the company embarked on a journey towards becoming a learning organization, requiring members to engage in a process of inquiry into the most fundamental aspects of the company and its processes. This process could probably only be captured by a participant-observer involved in events as they happened. Our study demonstrates two of the strengths of practitioner research: access to observe otherwise tacit working practices as they evolve, and the opportunity to generalise to wider lessons for practice on how dynamic capability development may be achieved (Corradi et al., 2010).

The case study presented in this paper was developed from data collected during in-depth interviews, informal meetings, email and telephone communications with the board of directors, in addition to the first researcher's observations of her experiences.

Care was taken to gain multiple perspectives from company directors and key management staff to understand the extent to which views were shared or contested. The interviews were hand written and ranged in duration from ninety minutes to an informal meeting with all three directors lasting seven hours. All interviewees with the exception of the business development manager had been with the company since it was established. The semi-structured interview questions were designed to explore ways in which individual directors and managers sought to conceptualise the company's evolution over time. Also examined was the company's current position and future plans. Where necessary, issues were re-visited with the interviewees to provide clarification. Triangulation was facilitated by corroborating the emergent themes across interviewees against published material and the first researcher's in-depth knowledge of the company. The secondary data accessed included ten years of company annual reports, the company's strategic plan 2010 – 2015 and company, customer and industry publications. The firm's history provides an excellent opportunity to explore concrete illustrations of dynamic capabilities. By taking a micro approach, it is possible to obtain evidence of what dynamic capabilities look like in organizations, how they are developed and deployed, and how context may impact upon them (Ambrosini and Bowman, 2009).

Case Study

Company Background

The company was established in 1987 as a forestry company engaged in a wide range of forestry-based activities for the private and semi-state sectors throughout Ireland. In 1999 the managing director was concerned that the company was going into decline: labour rates were rising and profit margins were falling. He felt the company needed strategic direction and engaged in a period of strategic planning, aided by the first researcher. The company diversified away from its original business, developing new, higher-value added activities. CIET has grown to become one of Ireland's most reputable contractors for overhead power line infrastructure in the country. By 2010 the company employed sixty two highly skilled employees and was certified to ISO9001, ISO14001 and ISO 18001 standards. It has also moved into related markets and new geographic markets, diversifying from overhead line refurbishment into network renewal, design solutions, training and assessment of electrical line staff, emergency repair work, patrolling and planning. CIET has succeeded in securing two contracts in the UK and are actively engaged in assessing opportunities in Ghana and Uganda. The company has enjoyed a decade of almost uninterrupted continuous growth (table 2), even more impressive when viewed in the light of the current Irish and global recessions. So how has this growth and strategic development been achieved?

Table 2 about here

From learning organization to dynamic capabilities

During the initial phase of strategic renewal begun in 2001 the company worked intensively at implementing learning organization practices during a process of moving the company into the new market of power line construction. The first researcher worked closely with the company through informal management meetings with the director aimed at reflecting on the issues facing the company, as a team member carrying out a feasibility study on the new market opportunities and as a member of the management review team which was implementing the learning organisation principles. The focus was on Senge's five disciplines: personal mastery, mental models, shared vision, team learning and systems thinking.

This process challenged management and staff to reflect on their personal vision, to surface and change their existing mental models about how the company should be run, and to develop a shared vision for the future. The director was able to reflect on his assumptions about the business and come to a clear statement for himself: *"I want to be involved in strategic partnership with customers and not this short low value tendering the company is engaged in at present. I want to grow the company in a balanced way bringing people along with me, and allowing them to develop"*. The

company then undertook a process of deep engagement, exploring what CIET would look like as a learning organization and developing a shared vision of: *an organization that is continually expanding its capabilities to create a rewarding and successful future.*

The director was very clear that teams were an ideal structure for learning, “*I see team learning as similar to shared vision, a goal to work towards*”. He saw the need to bring the employees into the process: “*we have to try and spread this thing throughout the company, and we need to do it in such a way that there is a bit of fun involved*”. The company began to hold regular staff meetings at the head office – for many of the ground crew leaders this would have been their first time at the company’s offices. Ground crews became involved in organising work schedules and contributing to tender preparation, with positive impacts on labour costs. This increased responsibility and engagement also led to ground crews taking the initiative in winning new business. “*Before these meetings that would never have happened, he [ground crew leader] would not have felt he had the authority to negotiate work on behalf of the company*”. It was agreed that members could see the benefit of how extra work for the company could contribute to their personal vision.

Adopting systems thinking has allowed the company to move beyond reactive responses to external events. By acknowledging that initial mental models and assumptions should be tested, investing time in tracing the root cause of problems and taking into account the broader context the company has developed a stronger sense of

its own agency, has liberated unused capability within the company, and has better control of its future.

Out of the staff meetings, the need to measure progress towards a learning organization was identified. The first researcher facilitated a collective discussion and scoring of the company's learning profile (Pedlar and Aspinwall, 1998). As can be seen in Figure 2, lack of information was seen as a weakness. This became a starting point for a lengthy process of developing a set of key indicators for CIET. The process was in itself an opportunity to confront mental models, to engage in team learning about how different parts of the organization impacted on each other and on total profitability, and also an exercise in systems thinking as the root drivers of key performance were identified for measurement. The six indicators (learning profile, safety, customer complaints, successful tenders, debtors, switch-outs) were developed as a performance dashboard, with the purpose of disseminating information for learning, not for control.

Figure 2 about here

By 2002 the conclusion of the action research study was that the company was capable of practicing the five disciplines of a learning organization and measuring their performance in achieving their collective vision (Author, 2002). While the company treats the learning organization as a continuous journey rather than a reachable

destination, and continues to practice the disciplines, there is evidence even after this first phase of many learning organization characteristics (see Table 3).

Table 3 about here

Key strategic decisions

The role of the learning organisation in fostering dynamic capability can be seen in four key strategic decisions in the company's evolution. There is the original move into power line construction; the achievement of certification; the opportunity to move into training provision; and the exploration of overseas markets.

Power line construction. Recounting the story of how the company diversified from forestry based activities to power line building, the managing director provides evidence that the company's strategy contained both planned and emergent elements, a theme which is repeated throughout the ten year cycle of this study. Much of the company's forestry based activities involved carrying out the clearing of trees and vegetation from underneath power lines for the Irish Electricity Supply Board (ESB).

“The idea of carrying out Network Renewal contracts first surfaced in 1999 following a casual remark made by an ESB employee, that he was busy with union negotiations regarding contracting out some of the Network Renewal programme”. (Managing Director)

Initially this information was perceived as a threat to the company's line clearing work as it was conceivable that the line clearing work might be subsumed into a larger

contract of line building. However, on closer reflection the opportunity to diversify into line building dawned on the managing director. CIET were already familiar with ESB as a customer, they had relational capabilities and operational capabilities in dealing with the ESB. The idea was pursued through the strategic planning process and contact was made with a utility consultant who had extensive experience of network renewal in the UK and was also acquainted with how the Irish market might develop. The utility consultant, the managing director, the first researcher and a training consultant formed a feasibility study team. The outcome of the feasibility study was that power-line building was considered a viable option for development. The company commenced work on putting in place the necessary resources and capabilities and engaged in the lengthy tendering system for carrying out network renewal, which it commenced in 2003. The company has grown its activity, winning new contracts every year since establishing itself in this area (see Table 4).

Certification. Meanwhile, the commercial director had been pushing the idea of getting formal certification of the company's quality system. While there was some support for the idea, it did not appear to be a critically urgent issue for all the directors. However, in 2009 when exploring new business opportunities the idea of registering the company a professional procurement agency was pursued. This led to the completion of a prequalification questionnaire and it became immediately apparent that the lack of formal quality system certification would impact significantly on the company's rating

and disqualify them from tendering for many large contracts. The need for formal certification was now critically urgent. A decision to seek certification to ISO9001, ISO14001 and ISO18001 was taken and all three certifications were quickly achieved by 2010.

Training. During the initial process of adopting the learning organization principle, safety emerged as key issue for the company, given the dangerous nature of power line work. Employing systems thinking identified safety as having a broader context and impact. Insurance procurement is difficult and a significant business cost, because of the poor safety record in the construction industry in general. In a competitive tendering process, the company was often up against competitors who cut costs in the area of safety. The possible impact of this problem on safety was unacceptable to the company who decided to forfeit tenders in the short-term in order to maintain a good safety record. Training was identified as a key contributor to safety, and a training index was developed as one of the six key measures of learning organization progress. Initially the company trained their own work-force. Difficulties in sourcing skilled labour led them to identify a market opportunity, which coupled with the capabilities and reputation developed through their commitment to safety, allowed them to develop this resource to become a City and Guilds certified training and assessment centre for the industry.

Overseas markets. International diversification is by its nature a risky business for a small company, even more so in an unstable economic environment. In 2010 the company began negotiations on contracts in Ghana and then Uganda.

“Working in Africa is a completely different ‘ball game’. We don’t need to go half that far to lose money, we have to be very careful. But, in fairness to the managing director he has negotiated entry at a sufficiently high level, however he does it”. (Business Development Manager)

When questioned about how Ghana had been identified as a possible opportunity the managing director replied:

“quite by chance actually; I was always interested in doing work in developing countries, particularly Africa. I happened to meet someone informally who was doing business in Ghana and was interested in the fact that we were looking for new opportunities and suggested our regional contracting model, employed successfully by the company here, could be replicated in Ghana where only forty three percent of the population have access to electricity “.

The managing director immediately commenced work on seeking out key players in the provision of electricity in Ghana. Having made contact with Tradelinks (an Irish not-for-profit organization which supports trade links between Ireland and Africa) an electrification rate of only ten percent in Uganda was identified as another possible opportunity for development. Having made a number of fact finding and relationship building trips and established who the key stakeholders in the market were, the

capabilities of the newly appointed business manager were brought to bear on negotiations. This allowed a memorandum of understanding to be drawn up and market analysis to be conducted. *“The Business Development Manager brought a more structured approach to the investigation of the African markets”* (Managing Director).

The business model preferred for the company’s international diversification has been tried and tested in the Irish market and was strongly influenced by the director’s values of equity and fairness. An initial deployment of Irish staff and management will gradually be replaced by an indigenous workforce trained by CIET while at the same time redeploying the Irish resource to new emerging contracts and markets.

CIET have also been successful in securing two contracts in Scotland and Wales, this is a significant diversification for the company. *“Winning a contract in the UK is a major achievement, we have been trying to break into this market for some time, now that we have we need to prove ourselves quickly”* (Managing Director). The board of directors are acutely aware that international markets comprise an entirely different business context from the one they are used to. While there are some reservations about entering new markets they are all agreed on the importance of reputation and flexibility and a tight control on finance in a changing market. *“Working in the UK is an entirely different way of operating, to the model we are used to here in Ireland. It’s much more competitive, the contract management procedures are different, the customer relations are different, we have to remain conscious of this”* (Non Executive Director).

CIET is preparing for a review of the company's five year strategic plan. The managing director initiated this process as a direct result of being interviewed for this research. While explaining the process of developing the strategic plan he comments: "*I would like the directors to get together and review the strategic plan and decide if it is still in keeping with each of our own personal visions*". To a large extent the company's future hangs in the balance: while the five year strategic plan maps out a strategy, the realisation of that strategy depends on establishing itself quickly in new markets. The company has made the decision to allocate a third of profits in the development of new markets.

By supplementing the narrative outlined above with secondary data it is possible in Table 4 to summarise CIET's strategic successes over a ten-year period from initial investigation of the Irish utility construction market to international diversification, highlighting changes in the resource base over time.

Table 4 about here

Discussion

Returning to the objectives of the study, the focus was to identify dynamic capabilities and examine the role of the learning organization in their development. Our conceptual model proposed that dynamic capabilities be classified as adaptive, absorptive and innovative capabilities - each having idiosyncratic features. Dynamic capabilities are path-dependent, learned responses to strategic decision making, determined by the exploration and exploitation orientation of management and bringing about changes to the company's VRIN resource base with the possibility of improved performance. The model further proposes that context matters greatly in the development of dynamic capabilities and that the context of the learning organization in CIET facilitated the company's ability to develop dynamic capabilities.

Development of dynamic capability

In relation to our first objective, it is clear that several examples of dynamic capabilities can be identified and classified from CIET's evolution. Using the framework offered by Wang and Ahmed (2007) the company's strategic decisions are mapped in Table 5 in terms of their adaptive, absorptive and innovative aspects.

Table 5 about here

While the common characteristics of dynamic capabilities are identifiable, underlying each of the capabilities mapped in Table 5 are a range of idiosyncratic details or firm specific capabilities that contribute to the VIRN nature of the company's dynamic capabilities. In CIET the company demonstrates its development of adaptive capability through its continuous identification of new opportunities through environmental scanning routines, assessing the condition of electrical networks worldwide, watching infrastructure expenditure globally, identifying needs in developing countries. This is supported by relationship and networking capabilities, actively seeking out opportunities to network, and then negotiation capabilities are crucial in securing the opportunity for the company. Absorptive capability for assimilating new knowledge has been developed through the practice of system thinking and team learning; the company now uses formal analysis tools to support decision making in assessing the viability of opportunities. Open access to information and a culture that prioritises learning supports routines for the accumulation of experience, such as the development of project execution plans. Innovative capabilities allow new opportunities to be realised through capabilities such as relocation (enabled by the flexibility and high involvement of the workforce) and agile resource allocation. This evidence of the idiosyncratic detail in CIET upholds the view that every firm adapts, absorbs and innovates in different ways (Eisenhardt and Martin 2000; Wang and Ahmed 2007).

Dynamic capabilities as a development path

The case also shows the path-dependent nature (Teece *et al.*, 1997, Zollo 2002 and Zahra et al 2006) of the development of dynamic capabilities. In analysing the evolution of the company through its strategic decisions the development of dynamic capabilities, based on the company's prior experience and knowledge is evident (see Tabel 4). Examples include: the diversification into more complex work; the company's evolution from working as a sub-contractor on a pilot project carrying out refurbishment on low voltage lines, to working as a main contractor designing and building new medium voltage lines and renewable energy projects; developing the internal training capability to become a commercial training and assessment centre; moving from working in the Irish market, to working in Northern Ireland and UK markets and seeking out opportunities in developing countries. All of these developments were dependent on the company's learning processes and the knowledge, skills and behaviour embeded in the company from previous work. The behaviour learned from implementing the learning organization impacted on the decision making behaviour at CIET and contributed to its ability to change its resource base.

The role of the learning organization characteristics

The learning organization characteristics in CIET have played a central role in developing dynamic capabilities in the company. Outlined below are examples of how many of the characteristics play a complementary role in developing adaptive, absorptive and innovative capabilities.

The flat organic organization structure (Morgan, 1996; Sanchez and Mahoney, 1996; Senge, 1990) in CIET enhanced individual learning and contributed to a process of continuous organizational transformation (Pedler et al., 1990), while also having an important bearing on the rate and direction of innovation (Teece, 1996) as evidenced in Table 4.

Systems thinking and triple-loop learning are practiced continuously through open access to information which supports adaptation (Arygris, 1999; Senge, 1990) and absorption (Chen, 2004; Zahra and George, 2002). In the development of markets in the UK, Ghana and Uganda: the managing director goes out and brings back ideas and information which the business development manager then analyses and assesses.

Through adaptive learning the lack of formal certification was identified as a block to company growth. This realisation created new mental models among managers which lead to both absorptive and innovative capabilities and ultimately a changed resource base through ISO certification. This is a good example of the rapid acquisition,

processing and sharing of information, characteristic of learning organizations and crucial for strategic innovativeness (Wang and Ahmed, 2004).

The promotion and practice of Senge's (1990) five disciplines evidenced throughout the case also complements the development of capabilities. For example: the initial mental model of line building as a potential threat to the business changed, to perceive this threat as an opportunity, supporting Gibson and Brikshaw's (2004) notion that adaptive capabilities require management systems that challenge outmoded traditions and practices.

The role of leadership and key individuals

Central to both the concept of dynamic capabilities (Helfat et al., 2007, Teece et al., 2007, Zahra et al., 2006); and the learning organization (Garvin, 2008, Schein, 1992; Senge, 1990) is the notion that management and leadership play a pivotal role in both concepts. Each of the strategic decisions outlined in Table 4 resulted in changes to the company's resource base as directed by the company's key decision makers (Zahra et al., 2006). The practice of personal mastery and shared vision is on-going, and can be seen in the recent strategic development process, and has the potential to lead to the further development of dynamic capabilities.

The development of a strategic plan in 2010 is also evidence of the formalisation of the decision making function at CIET. Making choices as to what to pursue as opposed to reacting to a dynamic market supports the argument that efforts to upgrade capabilities tend to be spontaneous and spur-of-the-moment for young firms but more deliberate in established firms (Zahra et al., 2006). In CIET where there was a perceived lack of dynamic capabilities the company recruited people to address these needs. The inability to systematically identify and assess new opportunities, was addressed by contracting consultants who, having proved their worth, subsequently joined the company. These individuals developed routines such as assessing the state of electrical networks worldwide to identify opportunities; and producing procedures for quality assurance, capabilities that will remain embedded within the company even if the individual leaves (Teece et al., 1997).

Through the practice of systems thinking the management team have learned to reflect on the dynamic nature of their business and of the need for both explorative and exploitative learning as evidenced in the comment:

“Typically contracts have a four year cycle; the first year is concerned with defining the process, setting up operations and procedures, with a risk of negative cash flow. The second and third years focus on refining and controlling the process with the potential to maximise profit. Year four is concerned with an exit strategy and stringent control to

minimise exposure to risk. In year four efforts are also increased to identify and pursue new opportunities”. (Non-executive Director)

This exploitation of current capabilities and exploration of future opportunities is key to adaptation. CIET’s ability to perform incremental innovations in the company’s existing contracts as well as performing more substantial innovations that allow it to diversify into different markets is a manifestation of its capability to initiate innovation streams (Tushman et al., 2010).

Conclusions

Research into dynamic capabilities is still in its early stages, and a coherent framework is yet to emerge (Peteraf et al, 2013). A significant shortcoming of dynamic capability theory as it exists currently is the absence of attention to the origins and development of dynamic capability. This is one of the reasons that the theory has been criticized for being of limited use to practicing managers. If we cannot explain how dynamic capability is formed, then how can managers act intentionally to develop dynamic capability?

Our contribution has been to show that both common and idiosyncratic dynamic capabilities can be developed intentionally, through a supportive context such as that created by the learning organization environment. To our knowledge no existing studies have systematically identified the commonalities of dynamic capabilities through inductive research within a firm or indeed a learning organization, something critical for the development of the dynamic capabilities concept (Eisenhardt and Martin 2000). Having identified both the general classification and idiosyncratic details we can conclude that dynamic capabilities are open to intentional development (Wang and Ahmed 2007). Contributing to the thin empirical base of research in this area, our research supports the path dependent nature of dynamic capabilities: the opportunities open to the company in the future are strongly dependent on its current position which undoubtedly has been shaped by its past paths. This path is also context dependent and a function of the path of the external environment in which the company operates (Teece et al., 1997, and Russo, 2007).

Our study has certain limitations. The depth achieved in this longitudinal single case study has allowed us to look closely at the emergence of dynamic capability, exploring the context and conditions that facilitated change and tracing the evolution of

the organisation's processes. However, it remains subject to the limits of a single case study: we can generalise to the theory of dynamic capability but not to the population of organisations. Further study would be needed in a variety of initial conditions to see if the learning organisation characteristics offer a reliable mechanism for fostering the development of dynamic capabilities.

Notwithstanding these limits, we believe the insights from our research gives practising managers an understanding of how the development of dynamic capabilities can be fostered in their organizations. We found that the learning organization characteristics of: organic structure; open access to information; the practice of Senge's five disciplines; a learning culture; and distributed leadership all contributed to the development of dynamic capabilities. Adaptive capabilities have been developed through a flexible work environment with individuals empowered to make decisions locally. Their development is fostered by beliefs and values and are long-range in focus, such as the example of the managing director wanting to put in place the means to allow the company to survive him long into the future. The development of absorptive capabilities is moderated by social integration mechanisms (Zahra and George, 2002) such as a learning organisation structure that facilitates the sharing and exploitation of knowledge. Through its open access to information, flexible work practices and dialogue the learning organization lowers the barriers to information sharing and

increases the efficiency of assimilation and transformation capabilities (Zahra and George, 2002). Innovative capabilities are developed through a clear articulation of a common vision and strategic direction combined with permeable and organic organization structures and conscious and explicit development and investment in all of these elements (Lawson and Samson, 2001). The changes in CIET, starting with a shared vision, the development of systems for objective analysis and decision-making, and a culture of engagement have led to a capability to continuously transform knowledge and ideas into new processes and systems for the benefit of the company.

Furthermore, our experience in this practitioner research was that being introduced to the concept of dynamic capabilities was a useful lens for the management to examine their own practice. The research was approached in the knowledge that no common understanding of dynamic capabilities existed within the case company. This avoided any deliberate tendency among managers to try and find examples of dynamic capabilities in the company's history. By the end of the research, on reflection the directors agreed that the dynamic capability framework, especially the idea of adaptive, absorptive and innovative capabilities, was actually how their work plays-out in practice. The realisation came as somewhat of a surprise to them as they had no prior understanding of the concept of dynamic capabilities. Investigating this analysis further

the managing director was asked where he felt each of their individual strengths lied in relation to these elements. The managing director reflected:

“Yes the analysis is correct; I go out and source the business. I now have the business development manager to put some structure to that process. He and the non-executive director take the information I bring back and assess its viability as a project. The commercial director has a huge capability in turning plans into procedures and practices. But I never actually thought of it like that before”.

Now that the daily routines practiced by directors in pursuance of new opportunities have been isolated and named, directors are enlightened as to how they can best develop and use their own individual capabilities in pursuing their collective vision.

This suggests that more attention is needed in the theory to the role of key individuals in the dynamic capability of an organization. While carrying out the classification and analysis of capabilities with the company directors, it became apparent that individual directors were consistently responsible for developing routines necessary for a particular class of capability. From the outset the managing director assumed responsibility for the adaptive capabilities, more recently assisted by the

business development manager. The non-executive director drives the process of absorptive capabilities and the commercial director is the individual who drives the functions of innovative capabilities. Perhaps CIET's success to date lies in the synergistic management of the individuals instinctively driving different elements of dynamic capabilities. Since all three classes of dynamic capabilities are unlikely to be found in individual managers, they must be represented somewhere in top management, who must be capable of operating as a team (Teece, 2009). The implication of this for management being that an excessive focus on any one capability, adaptive, absorptive or innovative, is not likely to yield positive results.

Future research should explore further the behavioural and cognitive characteristics of decision makers and focus on developing a balanced holistic approach to the development of capabilities. The interdependence of adaptive, absorptive and innovative capabilities may well lead to superior performance. But, while certain individuals in the firm may have the necessary cognitive and creative skills, the most desirable approach is to embed these processes inside the enterprise itself. Otherwise, the firm will be vulnerable if this is left to a few individuals (Teece 2010). While embryonic in its nature the idea that individuals gravitate towards different capabilities presents an opportunity for future research. Of particular interest are the ways in which firms manage the tension between exploration and exploitation. On the one hand, firms

must constantly respond to changing circumstances in order to remain competitive, yet on the other they also need stabilising routines in order to operate effectively. 'Free spirits' such as the managing director may well be essential for the former, but they are often disruptive to the latter, as attested to when he stated: "Put me in the office and I will create mischief just to amuse myself".

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Table 1. Measures of Dynamic Capabilities

Adaptive capabilities	Absorptive capabilities	Innovative capabilities
<p>A firm's ability to:</p> <ul style="list-style-type: none"> • adapt their product/market scope • scan the market • monitor customers and competitors • allocate resources • respond quickly to changing market conditions <p>(Oketemgil and Gordon, 1997)</p>	<p>A firm's ability to:</p> <ul style="list-style-type: none"> • recognize, assimilate and apply new external knowledge to commercial ends • see the relevance of internal knowledge • use boundary workers or gatekeepers to interface between the firm and its wider environment <p>(Cohen and Levinthal, 1990)</p>	<p>A firm's ability to continuously transform knowledge and ideas into:</p> <ul style="list-style-type: none"> • new products/services • processes • systems <p>(Lawson and Samson, 2001)</p>
<p>Management systems that encourage people to:</p> <ul style="list-style-type: none"> • challenge outmoded traditions, practices and sacred cows, • respond quickly to changes <p>(Gibson and Brikshaw 2004)</p>	<p>A set of organizational routines and processes for:</p> <ul style="list-style-type: none"> • acquiring, assimilating, transforming and exploiting knowledge • a dynamic capability geared towards strategic change and flexibility <p>(Zahra and George, 2002)</p>	<p>A firm's innovativeness in relation to:</p> <ul style="list-style-type: none"> • products/services • processes • markets • strategy • behaviour <p>(Wang and Ahmed, 2004)</p>

Table 2. CIET Growth 2001 - 2010

Turnover (€million)									
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
.4	.5	1.5	2.7	3.8	3.6	4.4	5.7	4.4	6.3

Table 3. Learning Organization Characteristics in CIET

Characteristics	Typical Learning Organization	Adopted in CIET through
Structure	Organic structure designed to facilitate learning, networking and team work (Morgan, 1996; Sanchez and Mahoney, 1996; Senge, 1990)	<p>Flat organic structure</p> <p>Individuals empowered to make decisions locally</p> <p>Flexible team work - teams made up of employees from all levels and functions, form and disband as the need arises</p> <p>Networking with customers, suppliers and competitors</p> <p>Employees are encouraged to communicate issues and information to management on a regular basis</p>
Systems	Rapid acquisition, processing and sharing of information to support triple-loop learning (Arygris, 1999; Senge, 1990)	<p>Open access to information</p> <p>A performance dashboard developed that outlines key performance indicators in the areas of; learning profile, safety, customer relations, finance, tender success and operational efficiencies. The result of each indicator was an agenda item at monthly management meetings</p>
Human Resources	Support for employee learning and personal development (Jones and Hendry, 1992)	<p>A training index developed to track progress of all employees</p> <p>Senge's five disciplines promoted and practiced by all employees</p>
Culture	Openess, trust and continuous learning (Schein, 1992)	<p>Management meetings designated as a safe place to explore new ideas, surface mental models and practice dialogue</p> <p>Employees who work remotely are facilitated in meeting regularly at the company's</p>

Leadership	<p>Facilitate organization direction by the development and communication of a shared vision (Schein, 1992)</p> <p>Act as mentors and models of the learning behaviour they are trying to create (Revens, 1998)</p> <p>Leadership distributed throughout the organization (Senge, 1990)</p>	<p>offices to engage in learning and sharing ideas</p> <p>Management and employees from all levels of the organization facilitated in developing a vision of CIET as <i>“an organization that is continually expanding its capabilities to create a rewarding and successful future”</i></p> <p>Leading and learning are distributed activities throughout the company. All employees are encouraged to surface new ideas and better ways of doing things</p>
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Table 4. Summary of CIET's Strategic Success

Period	Strategic Success
2000 - 2003	Strategic planning initiated and power-line building identified as a viable option for growth and the necessary resources acquired
2003 - 2004	Appointed as a sub-contractor, carrying out refurbishment of existing overhead power lines
2004 – 2006	Appointed as a sub-contractor building new medium voltage power lines
2006 – 2011	Appointed as a main contractor on a framework contract Progressing from low voltage refurbishment to medium voltage design and build
2007	Main contract won (additional to framework contract)
2008	Appointed as a main contractor on a systems improvement project (under timed conditions)
2009	Main contractor on renewable energy project
2010	New market - Carry out emergency repair work in Northern Ireland following extensive storm damage
2010	Work as main contractor on high-voltage transmission project for ESB 110kV refurbishment
2010	Diversification – Develop a City and Guilds training and assessment centre
2010	Certified to; ISO 9001 , ISO 14001 and ISO 18001 standards
2010	Strategic Plan 2010 – 2015 developed – one-third of annual profits to be allocated to finding new markets
2010	International diversification- Ghana memorandum of understanding agreed
2011	International diversification UK - awarded two contracts 460km of network refurbishment in Scotland and Wales
2011	International diversification – Uganda initial contacts established