DIALOGICAL ACTION RESEARCH AS ENGAGED SCHOLARSHIP: AN EMPIRICAL STUDY

Completed Research Paper

Gabriel Costello
Galway-Mayo Institute of Technology
Galway, Ireland
gabrielj.costello@gmit.ie

Kieran Conboy
University of New South Wales
Sydney, Australia
and Lero, NUI, Galway
k.conboy@unse.edu.au

Brian Donnellan
National University of Ireland, Maynooth
Maynooth, Ireland
brian.donnellan@nuim.ie

Abstract

The rigor versus relevance debate continues to be a matter of lively discussion in the information systems discipline. The main argument of this paper is that dialogical action research provides a methodology to pursue engaged scholarship in the IS field. The context is an examination of innovation management in an Irish subsidiary of APC by Schneider Electric. The primary objective of the paper is to answer the following research question: how does dialogical action research provide a milieu for engaged scholarship between researchers and practitioners. The work seeks to make a contribution by: testing out a novel form of action research; providing an empirical study of researcher-practitioner engagement; and suggesting improvements to the methodology. As a result the study should be pertinent to scholars who are interested in exploring approaches that facilitate real-world collaboration while also contributing to academic discourse.

Keywords: Dialogical Action Research, Engaged Scholarship, Action Research

Introduction

The rigor versus relevance debate continues to be a matter of lively discussion in the information systems discipline (Benbasat & Zmud, 1999; Davison et al., 2004; Zmud, 1996; Avison et al., 2004; Cranefield & Yoong, 2007; Lee, 1989; Dubé & Paré, 2003). The main argument of this paper is that dialogical action research (Mårtensson & Lee, 2004) provides a methodology to pursue engaged scholarship in the IS field. The context is an examination of innovation management in an Irish subsidiary of APC by Schneider Electric. Ireland's economy has grown considerably over the past two decades and much of this growth is due to foreign direct investment (FDI) from North American and European MNCs (multi-national corporations). Many MNCs initially set up manufacturing bases in Ireland because the country was a low cost economy. However, this is no longer the case. As a result, Irish enterprises face the necessity of building new sources of competitive advantage to sustain employment and standards of living. Ireland is now entering a new era which requires a transition to an innovation economy (Porter, 2003). The primary objective of the paper is to answer the following research question: how does dialogical action research provide a milieu for engaged scholarship between researchers and practitioners. The work seeks to make a contribution by: testing out a novel form of action research, providing an empirical study of researcher-practitioner engagement, and suggesting improvements to the methodology. As a result the study should be pertinent to scholars who are interested in exploring approaches that facilitate real-world collaboration while also contributing to academic discourse. The layout of the paper is as follows. Firstly an overview is presented of action research with its aim of combining theory and practice. Next dialogical action research is explained as it is relatively new to the IS discipline and has not had widespread dissemination thus far. After this the concept of engaged scholarship will be examined. Then the action research study is presented followed by the research approach. Finally the findings and implications of the approach are discussed together with the conclusions of the study.

Action Research

Action Research (AR) originated from the work of Kurt Lewin during the 1940s and has been summarised as an approach that "combines theory and practice (and researchers and practitioners) through change and reflection in an immediate problematic situation within a mutually acceptable ethical framework" (Avison et al., 1999 p 94). The application of AR has not been without controversy particularly in debates with positivist science on the justification and generation of knowledge. These arguments were addressed by Susman & Evered (1978) in their influential description of AR as consisting of a cyclical process involving five phases: diagnosing, action planning, action taking, evaluating, and specifying learning. The focus of AR is to address real-life problems through intervention together with the research objective of making a contribution to knowledge. Coghlan and Brannick (2005 p 125) emphasise the importance of the social and academic context in which action research is carried out.

Dick (1993) , an academic working in the field of psychology, proposes that the AR methodology has the twofold aim of action and research:

- *action* designed to bring about change in some community, organization or program
- *research* to increase understanding on the part of the researcher or the client, or both – and in many cases some wider community

Reason and Bradbury aim to "draw together some of the main threads that form the diverse practices of action research" and propose an almost lofty vision of AR contributing to the world's wellbeing and sustainability; in areas ranging from the economic and political to the psychological and spiritual. The following quotation with its emphasis on understanding and reflection is of particular relevance to this study (Reason & Bradbury, 2001 p 2).

> So action research is about working towards practical outcomes, and also about creating new forms of understanding, since action without reflection and understanding is blind, just as theory without action is meaningless.

Now a recent addition to the action research portfolio which was tested in this study will be presented.

Dialogical Action Research

Mårtensson and Lee (2004) have suggested and described a new form of action research called *dialogical* AR. Here is a brief description of their approach.

In dialogical action research, the scientific researcher does not "speak science" or otherwise attempt to teach scientific theory to the real-world practitioner, but instead attempts to speak the language of the practitioner and accepts him as the expert on his organization and its problems.

In their paper Mårtensson and Lee propose that "reflective one-to-one dialogues" between the practitioner and the researcher; that take place at regular intervals in a location removed from the organisation; can help the manager to "reflect on, learn from, and remedy managerial problems in the organization". In their schema the role of the researcher consists in suggesting actions based on one or more theories taken from their discipline. The implementation of these suggestions is left to the judgment of the practitioner based on his experience, expertise and tacit knowledge together with his reading of the organisational situation that confronts him. Furthermore the ongoing dialogue is presented as an *interface* between the scientific world of the researcher, marked by *theoria* and everyday world of the practitioner which is marked by *praxis*. The overall aim of dialogical AR is to bring about some improvement to the real-world problem of the practitioner while at the same time contributing to the development, confirmation or disconfirmation of theory by the researcher. Mårtensson & Lee draw heavily on Schön's model of professional inquiry (p.510) consisting of a pattern of five features: situation requiring attention; a surprising response; reflection-in-action; critical examination and restructuring; and an "on-the-spot experiment". They make a fundamental distinction between traditional forms of consulting and dialogical action research in that the latter always involved reflection and learning. Furthermore action research-unlike consulting- involves someone who has academic expertise rooted in some scientific discipline; where teamwork takes place between researcher and practitioner and where "negative feedback" is seriously taken on board.

It is incumbent on the researcher, according to Mårtensson & Lee (2004 p. 514) to "explicitly and intentionally acquire an understanding of the social and historical context of the organization and its problems". This was carried out in the first year of the study undertaken in this work. Mårtensson & Lee take two concepts: the *scientific attitude* and the *natural attitude of everyday life* to form four features which differentiate dialogical AR from existing forms of action research. They are: adopting the scientific attitude; adopting the natural attitude of everyday life; accepting the role played by social and historical context; understanding the role played by social and historical context. As regards the philosophical underpinnings, they classify dialogical AR as viewing reality through social constructionist lens and the phenomenology of Schutz (1962) in Mårtensson & Lee (2004 p 514). In their vision of dialogical AR, the scientist makes suggestions to the practitioner but the practitioner remain the "agent of action" using his or her explicit and tacit knowledge (p. 515). Furthermore they see the role of the researcher having the following attributes in the one-on-one dialogues: firstly to listen in order to identify the problem that requires some action, secondly to gather the facts to form the basis of deciding what suitable theory can be applied to the problem area and thirdly to suggest and monitor appropriate actions to the practitioner. Interestingly for this study they use the analogy of an anthropologist spending a year-long ethnography to understand the world of the natives i.e. the practitioner. Mårtensson & Lee insist on the distinction between the practitioner and the scientific researcher and posit that ultimately it is up to the practitioner to decide an the effectiveness of the action in solving or remedying the problem while it is up to the researcher to decide if the theory been tested is conformed or not. Importantly the authors contend that the theoria of the researcher and the praxis of the practitioner are "simply different forms of knowledge" and cannot be labelled as better of worse. (p. 517). The dialogical action research process is presented in figure 1.

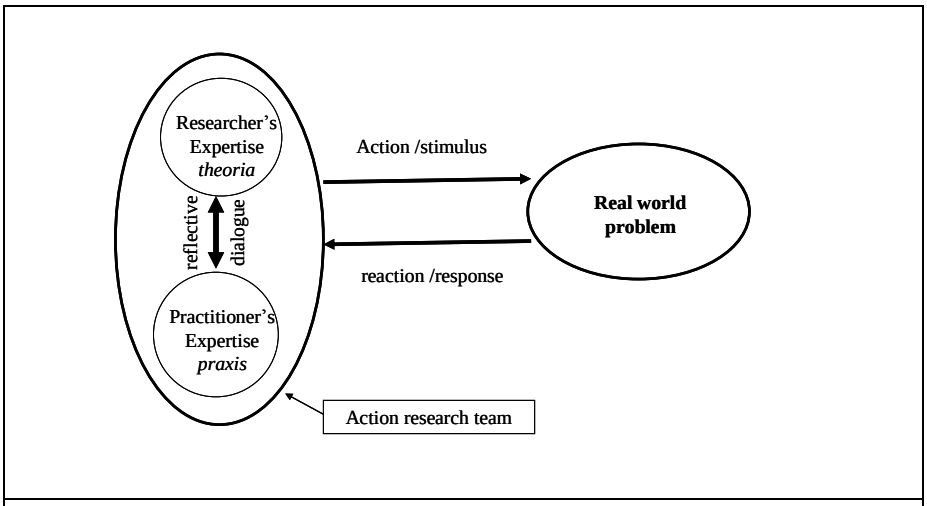

Figure 1. dialogical action research -adapted from Mårtensson & Lee (2004)

In order to evaluate dialogical AR they suggest three criteria that are outlined in figure 2 (p. 519):

- The practitioner considers the real world problem to be solved or remedied satisfactorily
- There had been an improvement in the practitioner's expertise
- There has been an improvement in the researcher's expertise

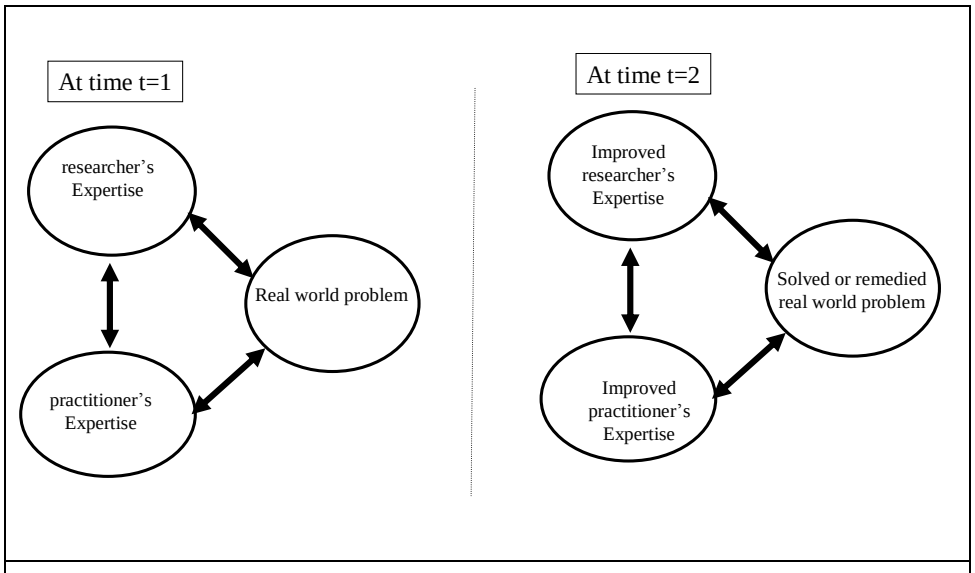

Figure 2. Improvements over time -adapted from Mårtensson & Lee (2004)

Having outlined the methodology of dialogical action research we will now proceed to locate it within the broader framework of engaged scholarship recently presented by Van de Ven. In particular figure 4 indicates how action research is located within the framework.

Engaged Scholarship

The discipline of information systems has been considered to have certain failings in its effort to impact on practice (Kawalek, 2008). There have been numerous research studies identifying failures in IS in its attempts to achieve desired outcomes and disappointments in assessments of return on investment (Lam and Chua 2005; Pan 2005). The analyses in these studies often yield recommendations that operate at a high level of abstraction and lack the detail and specificity to lead to action-oriented solutions. Examples of such recommendations include (Public Accounts Committee Report, 2000):

- "Commitment of senior management is critical"
- "End-user must be identified and involved in the development process"
- "Lack of clarity in the project specification can lead to lead to expensive misunderstandings subsequently"
- "Organizations must learn lessons from previous projects undertaken"
- "Training must address the needs of users, as well as those operating and maintaining the system"

Such findings, while offered in a constructive spirit of helpfulness and concern for continuous improvement, do little to advance either (i) the capability of practitioners to achieve their goals or (ii) the theoretical knowledge underpinning Information System academic research. One of the requirements for a more helpful approach is a greater sensitivity to the contextual complexity of the organizational problem-solving environment where IS practitioners work.

Van de Ven describes engaged scholarship as a participative form of research for obtaining the views of key stakeholders to understand a complex problem (Van de Ven A.H., 2007; Van de Ven A.H., 2010). By exploiting differences between these viewpoints, he argues that engaged scholarship produces knowledge that is more penetrating and insightful than when researchers work alone. Engaged scholarship has a number of facets; a ***form of inquiry*** where researchers involve others and leverage their different perspectives to learn about a problem domain; a ***relationship*** involving negotiation, mutual respect, and collaboration to produce a learning community and an ***identity*** of how scholars view their relationships with their communities and their subject matter. In Van de Ven's view, you can increase the likelihood of advancing knowledge for science and practice by engaging with practitioners and other stakeholders in four steps;

- Ground problem/question in reality up close and from afar.;
- Develop alternative theories to address the question;
- Collect evidence to compare models of theories and
- Communicate and apply findings to address the problem/question.

Figure 3 shows Van de Ven's conceptualization of Engaged Scholarship (Van de Ven, 2007, p.10-11). According to this schema there are four stages in an Engaged Scholarship project. The stages can happen in any sequence. The stages are:

1. Problem formulation – situate, ground, diagnose, and infer the research problem by determining who, what, where, when, why, and how the problem exists up close and from afar.
2. Theory building – create, elaborate, and justify a theory by abductive, deductive, and inductive reasoning.
3. Research design – develop a variance or process model for empirically examining the alternative theories.
4. Problem solving – communicate, interpret, and apply the empirical findings on which alternative models better answer the research question about the problem.

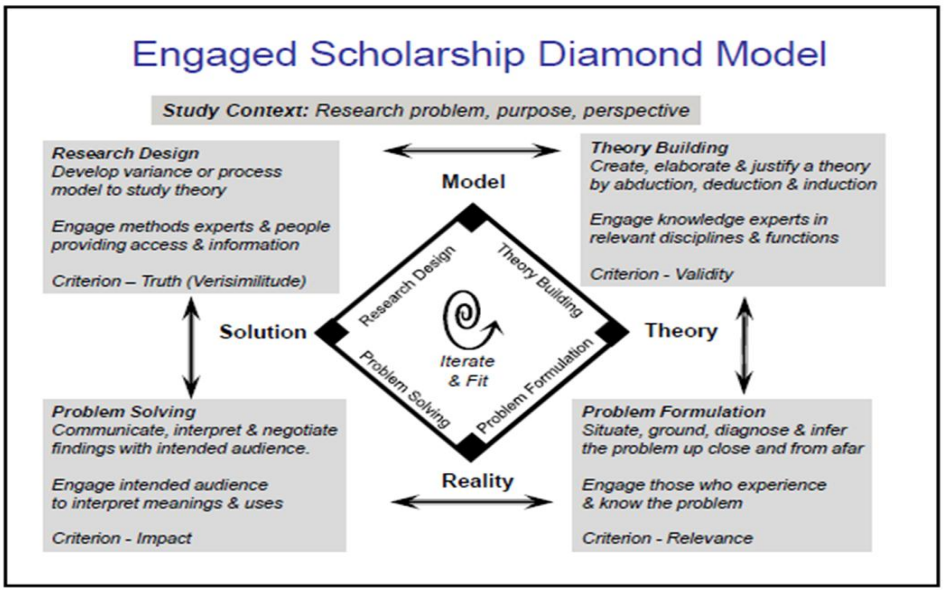

Figure 3. Engaged Scholarship Diamond Model

Mathiessan and Nielsen (2008) see engaged scholarship as a grand opportunity to address key challenges within the IS discipline in a novel and constructive way. They applied the principles of engaged scholarship to analyze Scandinavian IS research through the lens of Scandinavian Journal of Information Systems (SJIS). After reviewing all the research papers published in SJIS over the past 20 years; they advocated a role for engaged scholarship in shaping the future of Scandinavian IS research and IS research and practice in general.

Figure 4 shows how Van de Ven locates Action Research within the scope of Engaged Scholarship (Van de Ven, 2007 p.27)

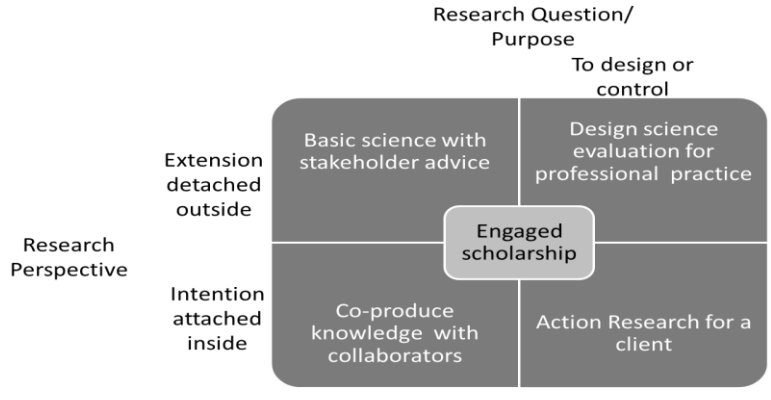

Figure 4. Alternative Forms of Engaged Scholarship

He identifies four forms of engaged scholarship:

1. Informed basic research is undertaken to describe, explain, or predict social phenomenon.
2. Collaborative basic research entails a greater sharing of power and activities among researchers and stakeholders than informed research.
3. Design and evaluation research is undertaken to examine normative questions dealing with the design and evaluation of policies, programs, or models for solving practical problems of a profession in question.
4. Action/intervention research takes a clinical intervention approach to diagnose and treat a problem for a specific client.

Now we will provide an overview of the empirical study carried out in this research.

Study Overview

Lewin is famous for his assertion that "there is nothing as practical as a good theory". However we will take the aphorism of his student Bronfenbrenner (2005 p 48) who reversed the classical Lewinian maxim to read: "There is nothing like the practical to build a good theory" (p 48). This is part of a tradition that goes back to Aristotle "who made frequent reference to concrete example to illustrate his theoretical points" (Kenny, 2010). Consequently we will outline the empirical study as we grappled with the topic of innovation in a multinational company and reflected on the role of the practitioner and researcher in the process. This study is based in APC Ireland, formerly a subsidiary of the American Power Conversion (APC) Corporation. APC entered a major period of transition in the first quarter of 2007 with completion of its acquisition by Schneider Electric and the formation of a new subsidiary called APC (by Schneider Electric). The strength of the MIS function in APC was viewed as an important advantage by Schneider in their acquisition analysis and APC's "intimacy with information technology" was identified as central to the creation of synergies with Schneider's power solutions subsidiary MGE. As the main part of this study was developed before the acquisition, this section will focus on providing a background to the APC context in which the work was carried out (APC, 2011). APC designs, manufactures and markets back-up products and services that protect hardware and data from power disturbances. The explosive growth of the Internet has resulted in the company broadening its product offerings from uninterruptible power supplies (UPS) to the high-end InfraStruXure™ architecture in order to meet the critical availability requirements of internet service providers (ISP) and data-centers. This modular design integrates power, cooling, rack, management and services, which allows customers to select standardized modular components using a web-based configuration tool. The Corporation reported sales of $2 billion in 2005, globally employs approximately seven thousand people and is a Fortune 1000 company. APC aims to set itself apart from the competition in three areas: financial strength, innovative product offerings and efficient manufacturing. However, recent financial reports have stressed that the company needs to implement significant improvements in manufacturing and the supply chain (Results APCC 2005; Results APCC 2006). According to these published reports, the company must work to develop a "lean, customer-centric, ambidextrous organization" in order to reach "optimal efficiencies in our processes". APC had two locations in the West of Ireland that serve EMEA region. The Manufacturing Operations site, based in Castlebar, employed approximately 100 people; and a number of functions including sales, information technology, business support and R&D are situated in Galway with workforce of approximately 300. The widening of a focus from the manufacturing of discrete products, such as UPS, to the delivery of customized InfraStruXure™ solutions provides both challenges and opportunities for the Operations function. Responding to the supply chain challenge, a Lean Transformation Project was set up in the Castlebar campus in February 2006 with a cross-functional team of twelve members drawn from Management, Engineering, Manufacturing, Materials Planning, Quality and Logistics functions. The Lean Project team set an objective to quickly deliver the message that Ireland is responding to, and leading, the corporate initiative and to provide a platform for the Irish subsidiary to obtain a reputation as an innovative location. An initial corporate feedback is that this project is "ahead of the curve" in terms of the

other regions. A major requirement from corporate executives was that any innovations resulting from the initiative could be replicated in other regions.

APC Ireland is keen to take the leadership role in enhancing its global competitiveness by becoming a knowledge leader in the area of supply chain expertise. The manufacturing practices and processes used within the corporation have come under increased pressure from global competition. In addition, building up a lean enterprise is treated as a corporate-wide task. Now we will outline the research approach undertaken in the study.

Research Methodology

The research approach utilized in the longitudinal study of innovation management in the Irish subsidiary is now presented.

Research Approach

The conclusions by Benbasat & Zmud (1999) concerning the lack of relevance in management research were, to put it mildly, a criticism of the discipline. Consequently the initial approach to the case study was closely related to the following recommendation in their paper:

> Researchers should look to practice to identify research topics and look to the literature only after a commitment has been made to a specific topic.

However, the linear nature of their recommendation does not sufficiently accommodate the dynamics of a real-world corporate environment so this study adopted a more iterative approach, going from practice to literature in a continuous cycle. The study is presented from the perspectives of a researcher undertaking a longitudinal study of innovation management in the Irish subsidiary with the back-up of colleagues in the research area. Slappendel (1996) recommends using a research team approach to overcome limitations when examining innovation in organizations from the interactive process perspective.

The innovation project consisted of two main phases outlined below: an ethnographic study during 2006 followed by dialogical Action Research in 2007. It is notable that Mårtensson and Lee (p 515) advocate that the researcher, akin to an anthropologist, spends a year-long ethnography to understand the world of the practitioner.

Phase 1: Interpretive study – January to December 2006

Data collection methods during this phase involved: maintaining a log book, reviewing documents and information systems, records, interviews, observations (direct and participant), artifacts and surveys in order to develop a database and body of evidence (Yin, 1994; Gillham, 2000). A total of 29 unstructured or open interviews were undertaken that involved approximately 60 hours of interview time and 24 days spent in the company sites. The interviews were conducted across a wide area of the organization that included: Senior Managers with global, EMEA (Europe, Middle East and Africa) and site responsibilities, Middle-Managers, Team Leaders, Engineers and a number of people in general planning roles. Furthermore the researcher had the status of a temporary employee with his own email address and intranet access.

Phase 2: Dialogical Action Research - January 2007 to April 2007

One persistent bone of contention has been the "paucity of methodological guidance" for conducting and evaluating AR studies which resulted in a number of principles being proposed by Davison, Martinsons, & Kock, (2004). These were utilized in the course of the research: the Principle of the Researcher–Client Agreement (RCA), the Principle of the Cyclical Process Model (CPM), the Principle of Theory, the Principle of Change through Action, and the Principle of Learning through Reflection.

Data Collection

There was an agreement in January 2007 to move forward using dialogical Action Research with meetings every two weeks. In their paper Mårtensson & Lee propose that "reflective dialogues outside the organization can help the manager to reflect on, learn from, and remedy managerial problems in the organization". In particular, the discipline of having to take regular timeout in a time-pressured manufacturing environment was a major incentive for the Plant Manager to agree to this approach. The Plant Manager also considered the framework advantageous since it allowed him to retain control and responsibility for all decisions, implementations and communications. However there are a number of practical risks with this type of longitudinal research in a dynamically changing corporate environment, not pointed out by Mårtensson & Lee. These include occurrences such as:

- Reorganization of subsidiary that would involve personnel engaged in the study
- Transfer of the main contact to other job or location
- Rationalization or expansion of subsidiary
- Transfer of the business function to another subsidiary

In addition to the above there were 11 meetings with the main point of contact for the project which totalled seventeen hours in duration. These meetings became the basis for the dialogical AR approach during the second phase of the project. Data collection during the dialogical AR period involved recording of the meetings which were subsequently transcribed verbatim by the researcher. Given the rich nature of the data, this was considered the optimum way of capturing the reflective meaning and ensuring consistent interpretation. Analysis was done manually through the examination of each meeting transcript and providing a summary of the topics discussed in the transcripts. This then was sent to the plant manager for evaluation and agreement that it was an accurate portrayal of the meeting. In total these transcripts ran to over 60,000 words. A profile of the interviews is set out in the table below.

Table 1. Data Collection Summary

Number of Formal Interviews	22
Estimated hours	34.5
Meetings with main point of contact (additional to above)	11
Estimated Hours	17
Dialogical Action Research Meetings	16
Estimated Hours	22.5
TOTAL INTERVIEW HOURS	74
TOTAL DAYS ON SITE	42
Additional detailed discussions	8
Estimated Hours	18.5

Data Analysis

Qualitative data focuses on words rather than the numbers of quantitative data and there has been a major expansion of qualitative enquiry over the last twenty years (Miles & Huberman, 1994). Furthermore it is having an increased influence on the management discipline (Myers, 1997a; Kaplan & Duchon, 1988; Myers, 1997b; Lee, 2001; Trauth, 2001). A number of different methods can be adopted to analyse interviews such as "content, narrative and semiotic strategies" (Denzin & Lincoln, 2008 p 34) while Myers and Newman (2007) caution that the interview has remained a relatively "unexamined craft" (p 2).

As Gummesson (2000) points out deductive research "primarily tests existing theory" while inductive research "primarily generates new theory" (p 64). Glaser and Strauss' development of grounded theory was part of a significant growth in qualitative analysis during the 1960s and 1970s. Indeed Locke (2000) concurs that grounded theory was one of a number of methods that "attempted to bring more formalization and systematization to qualitative methods" (p 12). In grounded theory the theory emerges during the research study and is "the product of continuous interaction between analysis and data collection" (Goulding, 2002 p 42). Charmaz (2004) describes the fundamental premise of grounded theory as letting the "key issues emerge rather than to force them into pre-conceived categories" (p 516). Also the approach in grounded theory is to let the "codes emerge as you study your data" (p 506). Robson (2002) (p 59) describes qualitative analysis as being much closer to "codified common sense" than to the "complexities of statistical analysis" associated with quantitative data and provides the following typology from the work of Crabtree and Miller (1992 p 457):

(a) quasi-statistical methods

(b) template approaches

(c) editing approaches; and

(d) immersion approaches.

This follows a progression from a more structured approach to a less formal approach. In fact there is a debate whether the immersion approach can be classified as a scientific method *per se*. The editing approach which is closest to the method employed in this study is characterised by being interpretive and flexible with no or few *a priori* codes. In this method "codes are based on the researcher's interpretation of the meanings or patterns in the texts" (p 458) and it is typified in grounded theory approaches.

The analysis techniques adopted in this research consisted in a number of mechanisms that dovetail with the following methods described by Miles and Huberman (1994 p 51):

- contact summary sheet
- memoing ; and
- interim case summary

However the basic approach of phenomenology, as these authors point out (p 8), involves working with the entire interview transcripts, where coding is not normally used, in order to reach the "*Lebenswelt*" or life-world of the interviewee.

A *contact summary sheet* is "a single sheet focusing or summarising questions about a particular field contact" in order to develop a synopsis "of the main points in the contact" (p 51). In this study it involved the transcription of the interview with the practitioner and then summarising the main themes by placing them in the following "bins": *purpose of the meeting, summary of the main points of the meeting, actions arising out of the meeting and finally the agreed agenda for the next meeting*. The direct tape recordings of the field events were transcribed into text and then the process involved making "notes, selecting excerpts and making judgements" (p. 51). The contact summary sheet was placed as the cover sheet of each transcribed interview so the information was available for review. In the action research report, the excerpts from the dialogical research were presented in terms of the topics that emerged from the analysis.

Memoing is a method that took a classic form in the work of Glaser (1978) and involves attempting to stand back and to "make deeper and more conceptually coherent sense of what is happening". They are "primarily conceptual in intent" and strive to "tie together different pieces of data into a recognisable cluster" (Miles and Huberman 1994 p. 72). In this study the researcher used "memoing" to gather together some of the concepts that were emerging from the interviews. These conceptual memos were of the more "elaborate variety" (p. 74) and formed the basis for writing the data into academic papers that involved crystallising of ideas emanating from the research.

An *Interim Case Summary* "provides a synthesis of what the researcher knows about the case" and "also indicates what needs to be found out". It involves pulling together what is known about the case (p 79). This was done at various stages of the study – during and after the pilot study, during the various phases

of the action research cycles- and together with the memoing discussed above became the basis for academic papers reporting the research.

Findings

This section will outline the findings of the study.

Main Finding: short interval management (SIM) as an information system

A significant and new process innovation, short interval management (SIM) was introduced during the study and this became the focus of the practitioner and researcher attention during phase 2 of the project. Using a broad definition of an IS it is argued that the SIM is a *de facto* information system which acts as the human interface to the ERP (enterprise resource planning) system and other supply chain information sources. Furthermore this transformation was likened to a digital to analogue conversion process by the plant manager. Figure 5 is an attempt to capture this conceptualization. "Digital" information is extracted from the ERP and other systems and placed on the SIM board, in an "analogue" format by the relevant people in the organization. The human activity results in the ERP information being prioritized and acted on. In this case the ERP forecasts were transformed into daily build plans and takt[1] times. After the work is completed, the updated information is then placed into the ERP systems for further processing. In this conceptualization presented in the figure below, the SIM becomes an interface and a transformation location; between the digital world where the information resides and an analogue world where the information is acted on and implemented.

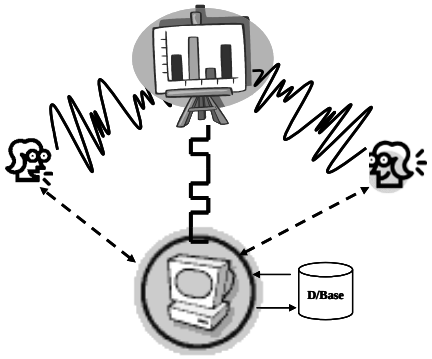

Figure 5. SIM as a real-time information system.

Other findings from this study include the following:

- Dialogical action research provides a new approach to the challenge of engaged scholarship. It is especially suitable when the practitioner seeks to retain control of the implementation of the project. However dialogical AR is relatively untested and this study is intended to contribute to debate on the approach.
- When comparing this action research study to the engaged scholarship diamond model of figure 3, it can be argued that it meets the criteria:

[1] The maximum time allowed in order to make the product to meet the demand.

  - Problem formulation: The year long ethnographic study (advocated by Mårtensson and Lee) ensured there was adequate engagement and diagnosing of the problem.
  - Theory Building: The theoretical framework of Tidd *et al.* was employed at the beginning of the research. In the final analysis a new theory was developed which is outside the scope of this paper to elaborate.
  - Research Design: A robust research design was adopted that, albeit new, was taken from a highly regarded recent research publication.
  - Problem Solving: The research engaged the intended audience (APC by Schnieder Electric) and findings was disseminated through direct engagement and publications.

- Referring to Van de Vens alternative forms of engaged scholarship in figure 4, this research fits the quadrant "action research for a client". It can also be argued due to the publications that arose from the study that it also fits the quadrant "co-produce knowledge with collaborators".
- The dialogical AR provided an interpretive space for the practitioner. The importance of this factor for innovation has been emphasised by Lester and Piore (2004) to compliment the analysis dimension of innovation.
- There has been few longitudinal case studies carried out that have been embedded in a single MNC subsidiary located in Ireland . The study addresses this gap and provides groundwork for further explorations in the area.
- One characteristic stressed by Mårtensson and Lee is that the researcher must be interested in and have the ability to "facilitate the reflective dialogues" (2004 p 533). In this research study, the experience of the researcher of an MNC operations environment was of particular benefit. Furthermore the year spent doing an ethnographic study before undertaking the dialogical AR was crucial to understanding the nuances of the context and situation.
- In this project the practitioner found it very beneficial that the researcher had summarised academic literature that he thought would be of value to the situation under review. This would be in-line with a dyadic view; that is when one member of a dyad develops then the other develops as well.
- One of the feedback items was that the project and interactions provided an intellectual stimulation for the practitioner that would not normally be associated with the world of praxis.
- Van de Ven (2010) highlights the need for *humility* when carrying out Engaged Scholarship. The authors would at this stage broaden this point by adding the concept of *humbling*. The enthusiasm, openness and accessibility of the interviewees were a genuine humbling experience for the researcher.
- Van de Ven also makes the point that engagement is a *relationship* where practitioners and scholars co-produce knowledge. The researcher built up a "friendship" with many of the interviewees which as remained long after the research was completed.
- A number of academic papers were published during the ongoing research. The practitioners were included as co-authors in order to do justice to their input. This was also a source of motivation and satisfaction for the practitioners who saw their worked recognised and included in the academic discourse.
- The authors provide a number of suggestions to enhance the dialogical AR methodology in terms of its engagement. This includes adoption of Davison et al.'s principles of canonical action research and not being reticent to "speak science" with the practitioner especially if he or she has a strong scientific background.
- There is wide agreement in the literature that *reflection* is critical to meeting the dual mandate of action research (AR): addressing a real-life problem through intervention together with the research objective of making a contribution to knowledge (Avison et al., 1999; Baskerville & Myers, 2004; Coghlan & Brannick, 2005; Davison et al., 2004). One persistent bone of contention has been the "paucity of methodological guidance" for conducting and evaluating AR studies. The study proposed an addition to Davison *et al.*'s "Principle of Learning through Reflection" through modifying a set of

questions which were based on engagement with the psychology literature (Dick, 2002). The advantage of dialogical AR was that the reflective one-to-one dialogues inherent in the approach involved regular opportunities to engage with; and reflect on; the *process of reflection*. A key result from the scheduled evaluations at the end of each stage of three AR cycles was that when the reflection was carried out in an *ad hoc* manner it had little impact on the practitioner. However, when a structured questionnaire was used that was designed to stimulate the reflective process; the practitioner described it as being very beneficial to his process of learning.

- Swanson (2004) called for IS researchers to engage with the psychological literature due to the cognitive nature of the innovation process. The engagement with the work of Bob Dick is we contend, in-line with this general point.

Now we will seek to place these findings into the context of the study which was an examination of innovation in a corporate subsidiary.

Discussion

Innovation is now a major focus for organizations, regions and economies and the subject is increasingly seen as being crucial not only to success but to survival. According to Brynjolfsson and Saunders (2009 p ix) the fundamentals of the world economy indicate that there will be a continuation of innovation in technology "through the booms and busts of the financial markets and of business investments" (p ix). However, Wolfe (1994) concludes that the abundant growth in innovation literature has made little contribution to the understanding of innovative behaviors in organizations. After almost half a century of intense research and theorizing, the academic contribution to elucidating the innovation phenomenon is less than convincing (Fagerberg, 2005). Meanwhile, Avgerou (2002) comes to the surprising conclusion that the term innovation is not extensively used in the information systems literature. Recent major technological disruptions, such as the diffusion of self-service technology (SST), have altered the innovation landscape (Costello & Donnellan, 2007). Importantly, the conclusion of the WEF Global IT Report 2007-2008 is that ICT "matters a lot" for innovation (Osorio-Urzúa, 2008). The management of technological innovation is seen as one of the biggest challenges facing business at the moment (Almirall & Casadesus-Masanell, 2010; Dodgson et al., 2008).

Using four broad categories, the "4Ps" of innovation proposed by Tidd *et al.* (2005) the corporate division can be regarded as being an innovative company in the area of product innovation (for example the success of InfraStruXure™) and of position innovation (the relatively new markets of data centers and server farms). But there is a need for improvements in process innovation (delivery of products and services) and paradigm innovation (organizational models). This provides both challenges and opportunities for the Ireland Operations function, especially in the context of the acquisition by Schneider Electric. The setting-up of the local Lean Transformation Project and the embracing of Lean methodologies and techniques to support the corporate strategy were seen to be globally "ahead of the curve". However, the location must be cognizant of the current movements in Lean thinking from a focus on production to the area of solutions and the process of consumption. Also, the review of the supply chain management literature suggests that Lean is one among a number of strategies and is particularly suitable for the customer segment that is focused on efficiency and consistency. Prior to the acquisition, APC's large systems have shown impressive growth of 30% year over year driven by the demand for network-critical ICT infrastructures. However these complex installations suggest the need for different supply chain strategies, particularly due to the impact on the gross margin of the SG&A expenses to support this growth with the resulting adverse affect on profitability. The merger business case proposes to deploy best practices in large systems and services and to "streamline and rebalance [the] supply chain" while capitalizing on small systems success.

The strategy of creating an innovative culture in the supply chain has a sound basis for two reasons: developing a sustainable and competitive advantage for the Irish location and contributing to the focus on innovation that was emphasized by both APC and Schneider in the merger value proposition. However, a review of the copious literature on innovation results in the conclusion that there is no silver-bullet or neat positivistic formula to achieve this aim. Putting in place a culture or climate that allows innovation to flourish is a major test of the art of management and involves the "tuning" of many logics with opposing frequencies and unpredictable oscillations. However, therein lies an opportunity especially now that many

organizations, in the wake of project failures, are revisiting the previous conventional wisdom that offshoring to the lowest cost location is automatically the best business decision (Ciborra, 2000 p 33) . Porter contends that innovation is the ingredient that allows a firm to lower cost while at the same time enhancing differentiation and thus realize two competitive strategies that can be in conflict (Porter, 1998).

The practitioner was motivated to learn about and implement innovation which he saw as crucial for the future of the location. This dovetailed with the researcher's interest in exploring how IS could contribute to the practitioner's vision. In terms of information systems this study fits into the broader category of the definition of an information system as taken from Buckingham *et al.* (1987) cited also by Fitzgerald *et al.* (2002) .

> **An information system** is a system which assembles, stores, processes and delivers information relevant to an organisation (or to society), in such a way that the information is accessible and useful to those who wish to use it, including managers, staff, clients and citizens. An information system is a human activity (social) system which may or may not involve the use of computer systems.

The following definition of information is given in the early work of Whitten, Bentley and Ho (1986) also fits into the broader category.

> **An information system** is an arrangement of components that interact to support the operations, management, and decision -making information needs of an organisation

The main finding of the study (short interval management) has challenged us to view information systems as not primarily being the IT artifact but pertaining first and foremost to human activity as its very core. This is what Ciborra termed as an "alternative centre of gravity: human existence in everyday life" and is particularly relevant to the theme of innovation. As a result it is argued that a return to the early and broad definitions of IS (e.g. Buckingham *et al.* above) can help us grapple with the difficult conceptualization of innovation and its relationship to information systems. Furthermore in the area of information systems development there is recently an increasing interest and study of Agile development (Conboy, 2006). This includes the subject of how agile is related to innovation. Perhaps we need to look to the "storyboard" as the place where innovation is facilitated rather than in processes or systems. Our study demonstrated that the analogue and visible milieu where innovation takes place is through the human social information system rather than through the mediation of the IT artifact. A suggestion would be to further investigate how ISD storyboards could be designed to accommodate the capturing and diffusion of innovations.

Conclusion

This paper seeks to contribute to the debate on engaged scholarship by presenting a novel form of action research that creates an environment for sustained and comprehensive interaction between a researcher and practitioner. The study initially provided an overview of dialogical action research in the context of the development of AR. Then the nascent area of engaged scholarship was outlined. The empirical study based in APC by Schneider Electric was presented followed by the research approach. Lastly the findings of the research vis-à-vis engaged scholarship was discussed. The research is limited in that is it is based on a single case and is subject to the customary critiques regarding the ability to generalize findings (Lee, 2001; Mintzberg, 1979). Future work includes developing a strong philosophical foundation for engaged scholarship. For example, we believe that going to the "origins of phenomenology" (Ciborra, 2002) can provide a philosophical basis for this work. In this respect it is interesting to note that Susman & Evered (1978 p.594) argue that phenomenology provides an underpinning to legitimate action research. Furthermore Donald Schön's (1983) seminal work on the benefits of *reflection* for practice and research is worth pursuing. In his book he criticizes the prevailing academic epistemology as having nothing to offer either practitioners "who wish to gain a better understanding of the practical uses and limits of research-based knowledge" or scholars "who wish to take a new view of professional action". This research, we argue, offers evidence that the novel approach of dialogical AR can help to address the perennial call for more relevant and rigorous collaboration between academics and practitioners and is a pertinent example of engaged scholarship.

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