

Association for Information Systems

AIS Electronic Library (AISeL)

UK Academy for Information Systems
Conference Proceedings 2020

UK Academy for Information Systems

Spring 4-29-2020

Employing constructivist grounded theory coding to analyse data from a qualitative case study: Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

James Holohan

Limerick Institute of Technology, Ireland, Jim.Holohan@lit.ie

Mohammad Sarhan

King Abdulaziz University, Jeddah, Saudi Arabia, mysarhan@kau.edu.sa

Follow this and additional works at: <https://aisel.aisnet.org/ukais2020>

Recommended Citation

Holohan, James and Sarhan, Mohammad, "Employing constructivist grounded theory coding to analyse data from a qualitative case study: Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens" (2020). *UK Academy for Information Systems Conference Proceedings 2020*. 8. <https://aisel.aisnet.org/ukais2020/8>

This material is brought to you by the UK Academy for Information Systems at AIS Electronic Library (AISeL). It has been accepted for inclusion in UK Academy for Information Systems Conference Proceedings 2020 by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

Employing constructivist grounded theory coding to analyse data from a qualitative case study: Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

Dr James Holohan

*Department of Information Technology
Limerick Institute of Technology
Limerick
Ireland*

Email: jim.holohan@lit.ie

Dr Mohammad Sarhan

*Department of Management Information Systems
King Abdulaziz University
Jeddah
Saudi Arabia*

Email: mysarhan@kau.edu.sa

Abstract

This paper demonstrates how constructivist grounded theory coding can be availed of as a qualitative data analysis tool to help overcome the risk of an unformulated form of analysis from qualitative case study. Two of Ireland's Institutes of Technology are chosen as the cases, with a focus on how the alignment of business and information systems strategies is practiced by information systems managers in Ireland's Institutes of Technology. With the emphasis on the practices of information systems managers, the study is underpinned by a strategy-as-practice lens from which the initial codes are constructed. The findings show the information systems manager to be a functional manager in receipt of a sector wide information systems strategy, whose main concern is to obtain optimum efficiencies from information systems at lowest possible cost.

Keywords: qualitative data analysis, constructivist grounded theory, qualitative case study, strategy-as-practice, information systems strategy, strategic alignment.

1.0 Introduction

Grounded Theory (GT) is defined as to “consist of systematic, yet flexible guidelines for analysing qualitative data to construct theories 'grounded' in the data themselves” (Charmaz 2014:2). Intriguingly, GT is comparable to case methodology in that they are both employed for theory building purposes (Rowlands 2005, Halaweh, Fidler et al. 2008). Unlike in case methodology, the emphasis within GT is on the systematic set of data analytical procedures which are employed with a view to developing theory relevant to the substantive area under consideration (Charmaz 2014, Davis and McDonagh 2015). In this sense, GT overcomes the limitations associated with lack of guidance on theory generation from case studies (Miles, Huberman et al. 2014). Hence, it is not surprising to see the integration of GT into case design becoming increasingly common among case study researchers (Darke, Shanks et al. 1998, Fernandez 2005, Andrade 2009, Muller and Olbrich 2011, Halaweh 2012).

The degree of GT usage in the case design varies based on the objective of the research question (Fook 2002, Kawulich 2004). As exercised within the information systems (IS) domain, GT has been used as a methodology to guide the entire research process, or as a method to merely instruct data analysis. Following their review of IS papers published across eight journals, Muller and Olbrich (2011) selected a set of 27 exemplary articles that claimed to have drawn upon GT. They found that 15 out of the 27 papers pursued GT as a coding method for data analysis rather than a methodology to drive the entire research process for generating theory. Similarly, Matavire and Brown (2013) reviewed a set of IS articles, across eight journal outlets through the period 1985-2008 that claimed to have followed a GT approach. They indicated that the application of GT techniques, typically for data analysis purposes, was discernible in 34 out of 76 papers and thus GT as a method represented the most common approach within IS case research practice. Indeed, there is nothing wrong per se with either practices in IS research. On the one hand, as a method, GT acts to “complement other approaches ... rather than stand in opposition to them” (Charmaz, 2014:9). As a methodology, on the other hand, GT takes root in its origins as an approach for theory building from evidence existing in the data (Martin and Turner 1986, Andrade 2009). However, the criticism levelled at IS researchers who use GT as a method or methodology was that they do not soundly and logically demonstrate and justify their use of GT for either of those purposes (Hekkala 2007, Halaweh 2012, O'Connor 2012).

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

Numerous studies avail of a grounded theory coding method as a qualitative data analysis tool to supplement other qualitative research methodologies (Urquhart, Lehmann et al. 2010, Seidel and Urquhart 2013, Goldkuhl and Cronholm 2019). While this may appear limited, it is perfectly suited to cases where theory building via the full application of grounded theory methods is not the primary purpose. Therefore, to guard against case study methodology's lack of a formalised coding technique, our methodology draws on Charmaz (2014) constructivist GT coding method as a means to help analyse data from our qualitative case study that is underpinned by a strategy-as-practice (SaP) lens. The case study centres on the practices carried out by the IS managers in two of Ireland's Institutes of Technology (IIT), as they endeavour to align business and IS strategies (i.e. strategic alignment) within their respective organisation. To this end, the paper is organised into four sections. In 2.0, we elucidate the SaP perspective by emphasising ingredients to be considered during the course of integrating constructivist GT coding with case study methodology. In 3.0, we illustrate the compatibility of constructivist GT coding with the interpretivist view taken in our case based inquiry. In 4.0, we demonstrate the application of constructivist GT coding to the analysis of strategic alignment (SA) quest within the wider IS strategy literature. The findings from our study are presented in 5.0. Finally, in 6.0, we draw the paper to a close by offering concluding remarks on the integration of constructivist GT coding as an analysis tool within case based methodology.

2.0 Perspective on Strategy-as-Practice research

Researchers with an interest in the SaP perspective hold the philosophical belief that to truly understand what practitioners do would require researchers to “go out and look” (Johnson, Langley et al. 2007:52), engaging with practitioners (Johnson, Balogun et al. 2010), and finding ways to capture their doings as they occur in real settings (Johnson, Melin et al. 2003, Johnson, Langley et al. 2007). Indeed, researchers need to draw practitioners in, by interacting with them through observations, interviews and conversations; as they can share their practices, provide an understanding of knowing how to do, and eventually aid sufficient interpretations of the context within which their actions are enacted (Balogun, Huff et al. 2003, Johnson, Langley et al. 2007, Splitter and Seidl 2011). This focus on engaging with practitioners could eventually lead to the exclusion of methodologies that do not give real access to practitioners and their practices (Rouleau 2013). This is to say that quantitative questionnaires, for instance, with their prior categories, are not up to task, at least not the sole use thereof (Johnson, Melin et al. 2003),

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

since they may go some way to diluting what the SaP perspective aims to capture (Balogun, Huff et al. 2003, Johnson, Langley et al. 2007). In this vein, case study, in its qualitative form, represents a methodology that is ideally suited for research questions underpinned by SaP lens that are connected to context and situation (Farquhar 2012).

The fact remains, however, that the case study methodology in itself is overarching. Thus, for the purpose of our research, the methodology is exposed to adaption for which the SaP lens acts as a sharpening tool to provide precision on how the case study methodology is employed in a manner that is tied to SaP principles for empirical research. In this vein, we have drawn upon Whittington's (2006a) integrative framework for SaP as a honing tool to bring precision to the overarching case methodology which in turn facilitates answering the research question in a manner that fits with what SaP endeavours to do. It is a methodological approach that is distinctive and contributes to answering the calls of Ciborra (1997), Renaud and Walsh (2010), Hiekkanen, Helenius et al. (2013), Karpovsky and Galliers (2015) and Holohan and McDonagh (2017) for SA studies with strong links to practice.

SaP concentrates on studying the practitioners, the practices and the praxis. Practitioners are those who do the work of strategy (Jarzabkowski and Spee 2009). These people include people both within the organisation and people external to the organisation such as consultants and regulators (Jarzabkowski, Balogun et al. 2007). Practices are the shared routines of behaviour and represent the done thing "routinised types of behaviour", while praxis represents what is actually done involving the formulation and implementation of strategy "the whole of human action" (Reckwitz 2002:249). The difference between practice and praxis is the difference between the routine that guides activity and the actual activity carried out (Reckwitz 2002, Balogun, Best et al. 2015). Therefore, while praxis is informed and guided by practices, it is unique in that it exists only in the present and includes the routine as well as the non-routine (Whittington 2006a, Suddaby, Seidl et al. 2013). In addition, the integrated nature of the framework helps to explain the importance of connecting practices from within the organisation (intra-organisational field i.e. micro and meso levels) with practices external to the organisation (extra-organisational field i.e. macro level), therefore allowing for the recognition of multilevel implications.

3.0 Particular characteristics of constructivist GT approach

The general principles underpinning the GT method is that data analysis is undertaken through a coding procedure (Charmaz 1996, Mills, Bonner et al. 2006, Hekkala 2007). In this sense, coding within the GT method is an exercise that is closely tied to data while these data are not forced into any pre-existing categories, and no part of it is overlooked due to incompatibility with a pre-determined theoretical model (Hekkala 2007, Urquhart 2007, Charmaz 2008, Charmaz 2014). Coding in practice, however, can be varied depending on the underlying epistemological standpoint (positivism vs. interpretivism) held by individual GT theorists while elucidating their different coding guidelines (Urquhart 2007, Matavire and Brown 2013, Davis and McDonagh 2015).

The positivist stream in GT is reflected in the works of its original authors, namely, Glaser and Strauss (1967) and Corbin and Strauss (2008). In this approach, researchers remain distant from research participants, assuming that data exists objectively in the world, and researchers find them and discover theory from them through careful application of and adherence to GT steps (Mills, Bonner et al. 2006, Davis and McDonagh 2015). In contrast, the interpretivist standpoint is reflected in the constructivist approach to GT as developed in the work of Charmaz (1996, 2008, 2014). In this stream, constructivist GT fosters the view that neither data nor theories are discovered. Rather, constructivists construct meanings and actions in specific situations from the data, where “both researchers and research participants interpret [those] meanings and actions” (Charmaz 2014:131). This constructivist approach on GT is prescribed so as to serve audiences in multiple disciplines, including IS, because it combines attention to context, action, and interpretation in its coding procedures, thus producing a dense analysis with explanatory power that is suitable to answer ‘how’ type questions (Matavire and Brown 2013).

In our case design, the constructivist approach as reflected in the work of Charmaz (1996, 2008, 2014) is congruent with the phenomena under investigation in our study, lying squarely in the interpretive tradition. In addition, such analytical guidelines are appealing for the SaP lens to the extent that the constructivist approach directs its coding procedures towards the embeddedness of actions and context, thus serving as a toolbox to analyse SaP-based data, paying attention to what practitioners do within their micro, meso and macro organisational levels.

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

4.0 The application of constructivist GT coding to analyse strategic alignment practices through a Strategy-as-Practice lens

In this section we presents a case application that employs the constructivist GT coding method espoused by Charmaz (2014) as a means to help analyse data from an empirical study aimed at gaining reliable insight into how the alignment of business and IS strategies is practiced by IS managers in two of IIT. This section is organised into four sub-sections. In 4.1, we provide a high level overview on the research background that underpins our research question with a succinct account of the methodology we applied to gain an answer to our research question i.e. “how is the alignment of business and IS strategies practiced by IS managers in IIT?” In 4.2 we provide an overview of the two cases and the environment in which they operate. This is followed by sub-section 4.3 where we elucidate how we collected the data. In sub-section 4.4 we depict how we executed data analysis.

4.1 Research background

SA research is experiencing a ‘practice turn’ from a focus on what SA can do for organisational level performance to a newer focus on what practices constitute SA (Galliers 2011, Sarhan and McDonagh 2014). Underlying this turn are impulses to move the field beyond gathering evidence on what-to-align to gathering evidence on how-to-align, that is, SA enactment as an activity carried out by practitioners (Ciborra 1997, Campbell 2005). From its inception, by leveraging the theory of practice, the pragmatist conception of what practitioners do is enjoying a renaissance in the SaP perspective within the strategic management field (Whittington 2006b, Golsorkhi, Rouleau et al. 2015). As such, a SaP perspective has been taken in our research as an alternative theoretical lens to facilitate inquiring into the SA activities of IS managers. In light of these considerations, we undertook to synthesise SA literature through a systematic literature review (Holohan and McDonagh 2014), from which the following research question was formed and pursued: How is the alignment of business and IS strategies practiced by IS managers in IIT?

As alluded to previously, and relative to the questioned posed in our research, it is of paramount importance to emphasise that the SaP perspective concentrates on the integrated nature of practitioners, practices and praxis to affirm the importance of connecting practices from within the organisation (intra-organisational field i.e. micro and meso levels) with practices external to the organisation (extra-organisational field i.e. macro level), therefore allowing for the

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

recognition of multilevel implications (Whittington 2006a). To deliver on what the SaP lens endeavours to do, the qualitative case methodology lends itself well to our study in that it captures what goes on in the setting and deals with the phenomenon being investigated in its real life context (Gibbert, Ruigrok et al. 2008). It does so by allowing researchers dig deep into many details within each case and gain an understanding of the phenomena through multiple data sources (Farquhar 2012). By simultaneously examining the detail of each case and the surrounding situation, case studies present an opportunity to link the individuals' actions to the micro, meso and macro organisational levels (Neuman 2011).

4.2 Case background

Remaining true to a SaP perspective, the macro level comprises the Department of Finance (DoF), the Department of Education and Science (DES) from 2004 to 2010, the Department of Public Expenditure and Reform (DPER), the Department of Education and Skills (DoES) from 2011 to mid-2015, the Irish higher education sector with a specific focus on the Higher Education Authority (HEA) and the IIT as represented by the Institute of Technology Ireland (IoTI) from 2005 to mid-2015. The HEA is the statutory planning and development body for higher education and research in Ireland and is also the funding authority for Ireland's higher education institutions (including IoTs) (Department of Education and Skills 2015). The thirteen IoTs are represented by IoTI which is a non-profit organisation comprising the thirteen Presidents of Ireland's IoTs. Its primary roles are to coordinate the work of the IOT sector, help advance common positions on the development of higher education, and advise the government on higher education policy (Institute of Technology Ireland 2015). An Chéim caters for all core IS future development and on-going implementation. Its board of directors is made up of senior executives from the IoTs and DES. HEAnet is Ireland's National Education and Research Network, providing Internet, associated ICT and e-Infrastructure services to Ireland's higher education institutions (HEIs), research organisations, and all primary and post-primary schools (HEAnet 2015). HEAnet provides all IoTs with their e-infrastructure (including Internet), except for what is inside the buildings of each IoT. Each IoT is responsible for its own internal e-infrastructure. Each IoT is also responsible for the provision of IS services to staff and students, apart from those provided by An Chéim and HEAnet.

The meso level consists of Case X and Case Y. Case X is a multi-campus institute with locations in one of Ireland's main cities and surrounding provincial towns. The institute offers

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

a broad range of over 120 programmes, offering qualifications at different levels from higher certificates to degrees and postgraduate level. Currently there are over 6,000 students registered with the institute (Case X 2011). Case Y is a multi-campus institute with locations in one of Ireland's main cities and surrounding provincial towns. The institute offers a broad range of over 115 programmes, offering qualifications at different levels from higher certificates to degrees and postgraduate level. Currently there are approximately 7,000 students registered with the institute (Case Y 2010, Case Y 2013).

At the micro level the Academic Council Regulations and Procedures for both cases sets out the procedures for the operation of schools, departments, and programmes. The top management team (TMT) of each institute is headed up by the President and is responsible for the development and implementation of the institute's strategic plan. Other members of the TMT include Heads of School, Secretary/Financial Controller, Registrar and Head of Development. The Heads of School report to the President and are responsible for the strategic and operational management of their school within the overall strategic plan of the institute. The school is the management unit within which each of its allocated departments operate. Each department is the operational academic unit responsible for delivering the day to day teaching programmes, timetabling of classes, ensuring the quality of each teaching programme and development of its programmes. Programmes consist of apprentice, level 6, level 7, level 8, masters and Ph.D. Each Head of Department reports to a Head of School and is responsible for the provision of the most appropriate and effective learning services to students within their department, given the resources and budget available. The Head of Department is also responsible for staff development planning, programme delivery and in conjunction with lecturers, the quality assurance of each programme. A number of central services exist within each of the cases that support the on-going running of each institute. The Secretary/Financial Controller has executive responsibility for finance, human resources, estates and IS services. The Registrar has executive responsibility for student affairs, quality assurance and library services. The Head of Development has executive responsibility for research, enterprise and development of the international student base.

4.3 Data collection

Case methodology encompasses a variety of data sources, i.e. interviews, documentations, archival data, survey data, observation and participations (Yin 2014). However, researchers

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

need to maintain coherence between the objective of the research question and data collection strategy (Farquhar 2012). To this end, we developed an organising framework informed by a SaP lens (Table 1 below) to aid data collection with the view to provide an explicit report on how data was collected in the manner that reflects the multi-levels nature of SaP-based inquiry, i.e. macro, meso and micro (Jarzabkowski and Spee 2009).

MACRO		
<u>GOVERNMENT</u> DoF, DES, DPER & DoES	<u>HIGHER EDUCATION</u> HEA & HEAnet	<u>IIT</u> IoTI & An Chéim
MESO		
<u>SELECTED CASES</u> CASE X & CASE Y		
MICRO		
<u>INDIVIDUAL CASE</u> SCHOOLS, DEPARTMENTS & CENTRAL SERVICES		

Table 1. Boundaries of the study

Based on the organising framework, data collection proceeded to use a combination of semi-structured interviews, passive observer at meetings and internal/external sets of documentation at the macro, meso and micro levels, to encapsulate the multi-levels nature of this study. We conducted in-depth case studies of Case X for the periods 2006 to 2010 and 2011 to mid-2014, and in-depth case studies of Case Y for the periods 2004 to 2009 and 2010 to mid-2015, thus reflecting the two strategising periods of each case. We reviewed background material relevant to both cases which provided an overview of the Irish Higher Education sector and in particular, an overview of the IoT sector. We availed of this material to help compile interview guides for Case X and Case Y, by writing memos to capture the pertinent points and identify interviewees. We searched the websites of Case X and Case Y for relevant background material and we also received additional background material from the Presidents of Case X and Case Y. This material was used to provide an overview of Case X from 2006 to mid-2014 and Case Y from 2004 to mid-2015, their strategic activities and the context in which they operated. In addition, we received permission to attend meetings as passive observers. Altogether we conducted twelve interviews in Case X and thirteen interviews in Case Y. As passive observers, we

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

attended three strategic level meetings across both cases. Taken together, the background material, the interviews and the meetings we attended as passive observers, provided a rich source of data and enriched the validity of the results for both Case X and Case Y, due to triangulation of findings (Eisenhardt 1989, Walsham 1995).

4.4 Data analysis - constructivist grounded theory coding in practice

Writing memos was core to analysing the full set of data we gathered. It was this explicit act of writing that helped us to develop our conceptual ideas, explore and refine them (Klag and Langley 2013). Our approach to coding is to build the code syntax based on the primary elements within Whittington's (2006a) integrative framework for SaP. Therefore, the syntax for initial codes is as follows: *Gerund-level-practitioner-prct/prx-int/ext*

The gerund reflects the practice. The level is the level at which the practice takes place (micro, meso or macro). The practitioner is the person who carries out the practice. The prct/prx reflects whether it is a routinised practice or not, and the int/ext reflects whether the practice has been established within the organisation or has come from outside.

The process of analysing our case data commenced by writing memos to distil the pertinent data relating to strategising, from documentation at the macro, meso and micro levels, and from notes we compiled as passive observers at meetings at the macro and meso levels. These memos (sixty eight in total) and the twenty five interview transcripts were then coded in accordance with the constructivist grounded theory coding method espoused by Charmaz (2014). The data contained in the full set of initial, focused and theoretical codes was availed of to write our case narratives and to structure a set of forty six analytical memos. These analytical memos formed the content and structure for the case analysis. The coding and analysis of our case data are depicted in figures 1 and 2 respectively.

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

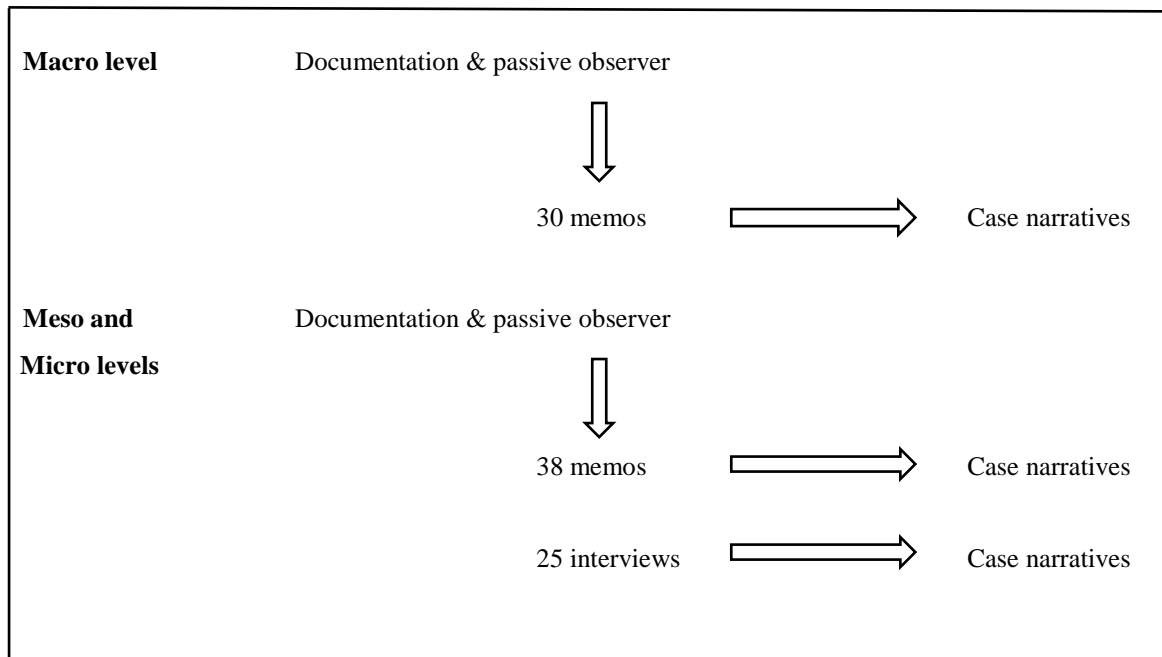


Figure 1. Coding of case data.

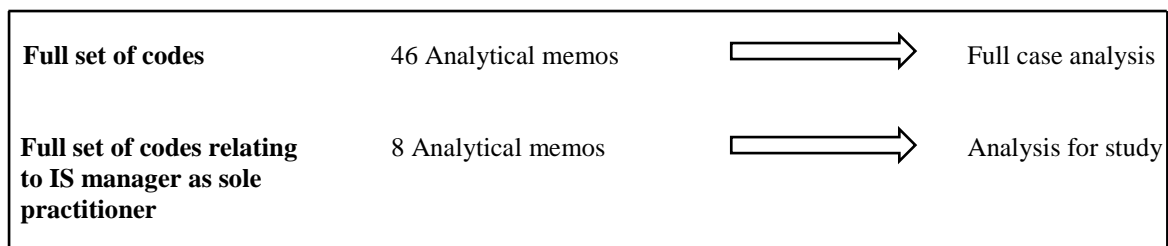


Figure 2. Analysis of case data.

Our case narrative at the macro level is based on the data we gathered from macro level documentation and passive observer status. We wrote thirty memos on the data and coded the content of these memos in accordance with our code syntax. Data pertaining to the meso and micro levels for Case X is based on the data we gathered from Case X documentation, passive observer status and the twelve Case X interviews. We wrote twenty one memos on the data gathered from the documentation and passive observer status, and coded the content in accordance with our code syntax. We also coded the twelve interviews in accordance with our code syntax. Data pertaining to the meso and micro levels for Case Y is based on the data we gathered from Case Y documentation, passive observer status and the thirteen Case Y interviews. We wrote seventeen memos on the data gathered from the documentation and passive observer status, and coded the content in accordance with our code syntax. We also

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

coded the thirteen interviews in accordance with our code syntax. Overall, our coding process resulted in 240 initial codes, 18 focused codes and 3 theoretical codes. The code book displays each code name, a description of each code, the number of sources (i.e. interviews, documentation and passive observer status meetings) to which the code is attributed, and the number of times the code is referenced.

To analyse the data, we undertook a second round of memo writing consisting of two sets of analytical memos. Writing analytical memos enabled us to carry out analysis on our ideas about the codes, the data behind the codes, and helped clarify exactly what was taking place in the area under study (Charmaz 2014). From the data behind each of the 240 initial codes, we developed forty six analytical memos from which we were able to develop the content and structure (macro, meso and micro) for the full case analysis. From the 240 initial codes we selected all codes with the IS manager as the practitioner, because our study is focused on the practices of the IS manager. There were 72 initial codes in total that had the IS manager as the sole practitioner. From the data behind each of the 72 initial codes, we developed eight analytical memos from which we were able to develop the content and structure (macro, meso and micro) to present our findings as to how the alignment of business and IS strategies is practiced by IS managers in IIT.

5.0 Findings

While it is clearly beyond the scope of this paper to present the full set of findings, it is suffice to say that the major findings from our study are conveyed in this section, structured in accordance with each of the three levels explored i.e. macro, meso and micro. The full set of findings can be examined in Holohan (2018).

5.1 Case X analysis

Case X analysis is structured in accordance with the praxis carried out by the IS manager that contribute to the alignment of business and IS strategies within case X at the macro, meso and micro levels.

Macro level

Without dealing directly with many of the practitioners at the macro level, the IS manager does exert influence over what they do in terms of aligning business and IS strategies, based on the

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

praxis he carries out at the meso and micro levels. The IS manager of Case X can influence national IS. Such an occurrence took place when the IS manager recommended to members of his TMT that a particular module be included in a release of the student registration system. This resulted in a member of Case X TMT submitting the request to the national development group (the steering group to whom An Chéim reports) that the module be included, albeit at a major cost. The praxis of the IS manager making a recommendation to his TMT, helped achieve this change to national IS. Through representative user groups, An Chéim obtains user input for upgrades to national IS. One such group was the national design group for the modularisation module of the student registration IS. The IS manager seconded one of his technicians to the group, who had Case X's design for a new coding system implemented. Therefore by making available an IS technician who had expertise in developing a coding system, the IS manager contributed to the development of a core module contained within a national IS, that meets the specific business needs of Case X.

Registrar: *“We operate as a sector, IS strategy is driven at national level. We're recipients of IS strategy, from a national perspective. We have our business strategy, we do develop that ourselves in-house.”*

In other cases the IS manager does deal directly with many of the practitioners at the macro level. Case X is part of a regional consortium that arranges hardware purchasing deals for its members. The IS manager represents Case X on this consortium and avails of its influence to obtain the best hardware deals it can for the institute. Through the National IS Managers' Group, the IS manager has the opportunity to provide feedback to HEAnet and An Chéim. Representatives from both bodies attend National IS Managers' Group meetings to update IS managers on what is planned and to receive feedback from members of the group itself. In addition, the IS manager is a member of the services evaluation group for HEAnet and consequently is part of the evaluation team for new services.

Meso level

The IS manager is responsible for the day-to-day running and maintenance of IS. The IS manager's regulatory role is limited to supporting the President in meeting the institute's regulatory requirements. Such support is in the form of helping with the provision of data from the various IS within the institute and the development and compliance with institute IS

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

policies. This results in the IS manager focusing on what he perceives as “best practice”, in his efforts to align IS with business strategy.

President: *“The IS manager role is a middle management role and isn’t part of the top management team.”*

At the meso level, the Secretary/Financial Controller has full control over funding for local IS. On an annual basis, with input from the IS manager, the IS budget is formulated based on agreed capital expenditure and the funding required to maintain current IS. By reporting to the Secretary/Financial Controller, the IS manager has an advantageous communication channel to explain IS funding requirements. The extent of this advantage is reflected in the fact that the IS manager receives sufficient funding to maintain and improve current IS.

While the IS manager is not a member of the TMT, he does support the team through operating IS that provide the data utilised for monitoring progress of strategy implementation. In addition, through his own initiative and praxis, the IS manager supports the implementation of strategy, albeit that such initiatives and praxis are concentrated at the operational level. One way he does this is by attending international conferences focused on new technologies that support teaching and learning, and then implements some of these new technologies within Case X thus supporting the educational philosophy contained within both strategic plans. Unlike national IS supplied by An Chéim, Case X, through its IS manager and in conjunction with user management, decides on the local IS it provides to students and staff. This comprises hardware and software, including applications that are not provided nationally by An Chéim, such as the timetabling system, the student hotel system and the system used for student placement. In doing so, the IS manager is always cognisant of “best practice” which he strives to implement within budgetary constraints. The IS manager can carry out work on national IS that does not impact on the core code and design, and does not compromise the integrity of the data. An example of this was in 2010, when the President tasked the IS manager with developing a prototype to measure KPIs for one of the institute’s schools. Although the development went no further than a prototype, the work undertaken by the IS manager contributed to the institute’s strategic planning process.

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

While core IS are provided by An Chéim, the IS manager plays an important operational role in helping to solve user related problems for Case X, particularly with the student registration system. Not all of these problems are IS problems and have more to do with the IS manager finding ways for end users to work with and work around the IS, by providing advice through dialogue and negotiation. In addition, the IS manager leads a team that provides training for end users in the use of national IS. Most IS innovations within Case X are driven by the IS manager. The IS manager has a strong sounding board amongst a range of academics who provide him with feedback on what does and does not work, but it is the IS manager who comes up with new ideas, many of which he obtains from the outside by attending conferences and visiting other HEIs. The IS manager has played a major role in the success of the virtual learning environment. He cannot force academic staff to use it, but by providing the system on every desktop and by providing training in its use, most academic staff now use the virtual learning environment to some degree or other. This is a prime example of a praxis supported by the IS manager becoming an institute wide practice.

Micro level

Many of the IS meet end user data processing needs at the micro levels. However, these IS are not integrated in a manner that provides management information required. For this reason, one of the IS manager's technicians is allocated on a full time basis to extracting data from the system for end users. It is through the allocation of this staff member that the IS manager helps obtain data required for management information. This support is crucial to running the business and reporting to external bodies. Indeed, the TMT no longer question the validity of financial data, rather they focus on what the data as presented, is telling them. The TMT have confidence in the data sourced from the various IS.

Secretary/Financial Controller: *"A critical component of that evolution has been the leadership provided by the IS manager"*.

Another example of the IS manager's willingness to support the end user at the micro level was the introduction of on-line leave sheets. This was driven by the IS manager who knew of its availability and resulted in saving a great deal of administrative time within the human resource department that was previously spent operating a manual system. The same drive to improve processes and gain greater efficiencies has occurred with other IS modules, underpinned by the

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

knowledge contained within IS services and the IS manager's willingness to support the end users. The IS manager played a crucial supporting role in the implementation of the human resource and finance IS. This support was in the form of managing data migration from the old IS to the new IS, carrying out system testing and managing the provision of end user training.

5.2 Case Y analysis

Like Case X, Case Y analysis is structured in accordance with the praxis carried out by the IS manager that contribute to the alignment of business and IS strategies within case Y at the macro, meso and micro levels.

Macro level

The institute's IS manager was central to the development of sector wide IS policies. He was a member of a committee within Case Y that drafted a set of generic IS policies for the sector. Recommendations from the committee were provided to a management consultant, who in conjunction with the IS manager and IS managers of other institutes via the National IS Managers' Group, developed a suite of generic IS policies for the sector. Each IoT can tailor the IS policies to their individual requirements once they conform to industry standard ISO 27002. This national focus has brought a structure and proactive approach to IS policy development, which when carried out at the meso level tended to be ad-hoc and resulted in much duplication nationally.

Having been a member of the national group that designed the common standard design for the student registration IS, the IS manager has an in-depth understanding of the system. Case Y has benefited in that the IS manager provides support for projects that require his expertise.

The IS manager did try to develop a management reporting module with assistance from an external consultant. The project reached the stage where prototypes were built and then funding was sought from the TMT to develop the full module. The funding was not approved on the basis that this was an area for An Chéim and not the IS manager. The problem was exacerbated by politics, with the President and Secretary/Financial Controller of Case Y being board members of An Chéim.

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

Registrar: *“When you realise the institute is a very strong advocate with the President and the Secretary/Financial Controller on the board of An Chéim, there isn’t a lot you can do yourself to go outside of that, nor can the IS manager”*.

IS Manager: *“We are tied into this national IS strategy and have to work with it”*.

Meso level

The IS manager is responsible for the day-to-day running and maintenance of IS. The IS manager and his team are directly responsible for the provision of all IS services to the institute except for the core IS supplied by An Chéim. The services provided by the IS manager and his team include network support, application support, provision and support of servers, desktops and associated software for students and staff, including support for the institute’s website and virtual learning environment. The IS manager’s regulatory role is limited to supporting the President in meeting the institute’s regulatory requirements. Such support is in the form of helping with the provision of data from the various IS within the institute, and the development and compliance with institute IS policies.

Head of School of Science: *“There’s a big focus on making sure that the day-to-day services run, and that’s what’s expected of the IS manager”*.

Within the institute, IS services is not considered strategic. The IS manager does sit on the institute’s management group which is chaired by the Head of School of Business. The reporting line for the IS manager has always been to the Secretary/Financial Controller. By reporting to the Secretary/Financial Controller, the IS manager has an advantageous communication channel to help explain IS funding requirements. For IS projects of a large nature the IS manager makes presentations to the TMT. These presentations are supported by a business case which often contains outcomes specified within the strategic plan, as a means to strengthen the argument for funding.

Due to his technical knowledge of core IS and how to mine the data within, the IS manager and some of his technicians play a supportive role in constructing the required metrics for the TMT. Such metrics include student retention and completion statistics, all of which go to the HEA

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

and other external groups. Prior to the publication of these metrics, formal metrics for measuring the performance of Case Y were not in place.

Most IS innovations within Case Y are driven by the IS manager. The IS manager obtains ideas from outside Case Y by attending the National IS Managers' Group, conferences and visiting other HEIs. Indeed it was from his visit to a Scottish university that he obtained the idea to build the IS centre in the library. The IS centre is perceived as a major success among the student and academic communities, which came about by assigning the IS manager the task of chairing a group to acquire the best solution. When the IS manager comes across an IS (which may come from an end user) he feels may benefit Case Y, because of limited resources he will organise a pilot. This has been his praxis since 2004 and has resulted in the establishment of a community of practice, which the IS manager avails of as a sounding board for feedback. One such example was how the end users drove the proliferation of the virtual learning environment. In this instance, the IS manager put together a team of six academic staff and two IS technicians, who ran a pilot. The academic staff then sold it to the academic community, with the IS manager and the IS technicians providing the infrastructure. The students now drive the development of the system, with IS services hosting it and the academic community providing the content. This is an example of where the IS manager introduced an IS to the institute, for the end users to avail of as they saw fit.

Micro level

When a school has a business need to purchase hardware and software that falls outside the standard offering of the institute, and if the IS manager supports such a purchase, he assists in putting together a business case. Without such support, the likelihood is that the request would be turned down, as the TMT does respect and rely on, the views and expertise of the IS manager when it comes to matters of an IS nature.

Through his in-depth understanding of national IS, the IS manager and his technicians provide data retrieval assistance to users. To help reduce replication of their efforts, the IS manager and his technicians will where practicable, write report templates to facilitate regular user requests. In addition, the IS manager and his technicians provide first line technical support for these national IS, by diagnosing if it is an issue that can be resolved locally or if it has to be referred to An Chéim. Other end user support provided by the IS manager and his technicians includes

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

network support, hardware and software support for servers, hosting the institute's websites, assisting users in choosing IS for needs that are not covered by national IS, specifying computer laboratories, preparation of tenders and negotiating with suppliers, and technical support for academic/student IS such as the virtual learning environment and classroom facilities. With such a wide range of support services in place, they need to be managed centrally. This central management is provided through the IS help desk located within the IS centre.

The IS manager formally communicates with functional managers on IS operational issues via the institute's management group. At this group he informs and seeks agreement from members for IS services plans and also receives feedback on IS operational issues within the institute. Much communication undertaken by the IS manager also takes place at an informal level, through conversations with end users. If there is a need to seek additional funding outside of what is in the budget, a formal meeting will take place between the users and the IS manager. If the meeting results in agreement to seek additional funding, user management with the support of the IS manager, submit a proposal to the Secretary/Financial Controller.

Secretary/Financial Controller: *"In this organisation, individuals make the role. They all bring their own strengths and our IS manager's interpersonal skills and his knowledge of the business, enables him to play a role in the business".*

6.0 Conclusion

By applying constructivist grounded theory coding as a means to help analyse the data from a qualitative case study, we overcame the lack of a formalised coding technique within case study. We found the IS manager to be a functional manager in receipt of a sector wide IS strategy, whose main concern is to obtain optimum efficiencies from IS at lowest possible cost. Being excluded from dealing directly with the principal shared services provider and having to implement a predefined IS strategy, the IS manager very much depends on successfully applying both his personable attributes (social dimension) and intellectual knowledge, at all three levels of macro, meso and micro, in his efforts to align business and IS strategies.

With regards to the approach outlined in this paper, the novelty and distinctiveness associated with data analysis is captured by the manner in which the primary elements within Whittington's (2006a) integrative framework for SaP are availed of to construct the code syntax

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

for the initial codes, that were then applied in accordance with the coding system for the constructivist grounded theory method espoused by Charmaz (2014).

References

- Andrade, A. D. (2009). "Interpretive Research Aiming at Theory Building: Adopting and Adapting the Case Study Design." The Qualitative Report **14**(1): 42-60.
- Balogun, J., K. Best and J. Lê (2015). "Selling the Object of Strategy: How Frontline Workers Realize Strategy through their Daily Work." Organization Studies **36**(10): 1285-1313.
- Balogun, J., A. S. Huff and P. Johnson (2003). "Three Responses to the Methodological Challenges of Studying Strategizing*." Journal of Management Studies **40**(1): 197-224.
- Campbell, B. (2005). Alignment: Resolving ambiguity within bounded choices. 9th Pacific Asia Conference on Information Systems, Bangkok, Thailand.
- Case X (2011). Strategic Plan 2011-2020.
- Case Y (2010). Institutional Review 2010 Self Evaluation Report.
- Case Y (2013). Strategic Plan Revision 2013-2016: Strategic Pillars Summary.
- Charmaz, K. (1996). Grounded Theory. Rethinking Methods in Psychology. J. Smith, R. Harre and L. Langenhove. London, Sage.
- Charmaz, K. (2008). Constructionism and the Grounded Theory Method. Handbook of Constructionist Research. J. Holstein and J. Gubrium. New York, The Guilford Press: 397-412.
- Charmaz, K. (2014). Constructing Grounded Theory. Thousand Oaks, CA, Sage.
- Ciborra, C. (1997). "De Profundis? Deconstructing the concept of strategic alignment." Scandinavian Journal of Information Systems **9**(1): 67-82.
- Corbin, J. and A. L. Strauss (2008). Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory. Thousand Oaks, CA, Sage Publications.
- Darke, P., G. Shanks and M. Broadbent (1998). "Successfully completing case study research: combining rigour, relevance and pragmatism." Information Systems Journal **8**(4): 273 - 289.
- Davis, B. and J. McDonagh (2015). Applying Grounded Theory to a Qualitative Study of CIO Interactions with External Peer Networks. Enhancing Qualitative and Mixed Methods Research with Technology. S. Hai-Jew. Hershey, PA, IGI Global: 450-474.
- Department of Education and Skills. (2015). "Higher Education." Retrieved 02/06/2015, from <http://www.education.ie/en/the-education-system/higher-education/>.
- Eisenhardt, K. M. (1989). "Building theories from case study research." The Academy of Management Review **14**(4): 532-550.
- Farquhar, J. (2012). Case Study Research for Business. London, England, Sage.
- Fernandez, W. (2005). The Grounded Theory Method and Case Study Data in IS Research: Issues and Design. Canberra, Australia, ANU EPress.
- Fook, J. (2002). "Theorizing from Practice: Towards an Inclusive Approach for Social Work Research." Qualitative Social Work **1**(1): 79-95.
- Galliers, B. (2011). Further Developments in Information Systems Strategizing: Unpacking the Concept. Oxford, England, Oxford University Press.
- Gibbert, M., W. Ruigrok and B. Wicki (2008). "What Passes as a Rigorous Case Study?" Strategic Management Journal **29**(13): 1465-1474.
- Glaser, B. G. and A. L. Strauss (1967). The discovery of grounded theory: Strategies for qualitative research. New York, Aldine de Gruyter.

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

- Goldkuhl, G. and S. Cronholm (2019). Grounded Theory in Information Systems Research - from Themes in IS Discourse to Possible Developments 40th International Conference on Information Systems, Munich, Germany.
- Golsorkhi, D., L. Rouleau, D. Seidl and E. Vaara (2015). Introduction: What is Strategy as Practice? Cambridge, UK, Cambridge University Press.
- Halaweh, M. (2012). "Integration of Grounded Theory and Case Study: An Exemplary Application from e-Commerce Security Perception Research." JITTA : Journal of Information Technology Theory and Application **13**(1): 31-50.
- Halaweh, M., C. Fidler and S. McRobb (2008). Integrating the Grounded Theory Method and Case Study Research Methodology Within IS Research: A Possible "Road Map". 29th International Conference of Information Systems, Paris, France.
- HEAnet. (2015). "HEAnet Ireland's National Education and Research Network." Retrieved 11/06/2015, from <http://www.heanaet.ie>.
- Hekkala, R. (2007). Grounded Theory: The Two Faces of the Methodology and their Manifestation in IS Research. 30th Information Systems Research Seminar in Scandinavia, Murikka, Tampere, Finland.
- Hiekkanen, K., M. Helenius, J. Korhonen and E. Patricio (2013). Aligning Alignment with Strategic Context: A Literature Review. 1st International Conference on Digital Enterprise Design and Management 2013, Paris, France, Springer Berlin Heidelberg.
- Holohan, J. (2018). An exploration of how the alignment of business and information systems strategies is practiced by information systems managers in Ireland's Institutes of Technology. Ph.D., Trinity College Dublin.
- Holohan, J. and J. McDonagh (2014). Towards a Systematic Approach to Reviewing the Strategic Alignment Literature 19th UKAIS Conference on Information Systems, St. Catherine's College, University of Oxford, England.
- Holohan, J. and J. McDonagh (2017). How Information Systems Managers Align Business and Information Systems Strategies in Public Service Organisations: A Practice-Based Taxonomy 17th European Academy of Management Conference, University of Strathclyde, Glasgow, Scotland.
- Institute of Technology Ireland. (2015). "Institute of Technology Ireland." Retrieved 10/06/2015, from <http://www.ioti.ie>.
- Jarzabkowski, P., J. Balogun and D. Seidl (2007). "Strategizing: The challenges of a practice perspective." Human Relations **60**(1): 5-27.
- Jarzabkowski, P. and A. Spee (2009). "Strategy-as-practice: A review and future directions for the field." International Journal of Management Reviews **11**(1): 69-95.
- Johnson, G., A. Langley, L. Melin and R. Whittington (2007). Strategy as Practice: Research Directions and Resources. Cambridge, UK, Cambridge University Press.
- Johnson, G., L. Melin and R. Whittington (2003). "Micro Strategy and Strategizing: Towards an Activity-Based View." Journal of Management Studies **40**(1): 3-22.
- Johnson, P., J. Balogun and N. Beech (2010). Researching Strategists and Their Identity in Practice: Building "Close With" Relationship Cambridge Handbook of Strategy as Practice. D. Golsorkhi, L. Rouleau, D. Seidl and E. Vaara. Cambridge, UK, Cambridge University Press.
- Karpovsky, A. and R. D. Galliers (2015). "Aligning in practice: from current cases to a new agenda." Journal of Information Technology **30**(2): 136-160.
- Kawulich, B. (2004). "Data Analysis Techniques in Qualitative Research." Journal of Research in Education **14**(1): 96-113.
- Klag, M. and A. Langley (2013). "Approaching the Conceptual Leap in Qualitative Research." International Journal of Management Reviews **15**: 149-166.

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

- Martin, P. Y. and B. A. Turner (1986). "Grounded Theory and Organizational Research." The Journal of Applied Behavioral Science **22**(2): 141.
- Mataivire, R. and I. Brown (2013). "Profiling grounded theory approaches in information systems research." European Journal of Information Systems **22**(1): 119-129.
- Miles, M., B., M. Huberman and J. Saldana (2014). Qualitative Data Analysis: A Methods Sourcebook. Thousand Oaks, CA, Sage Publications.
- Mills, J., A. Bonner and K. Francis (2006). "Adopting a constructivist approach to grounded theory: implications for research design [corrected] [published erratum appears in International Journal of Nursing Practice 2006 Apr;12(2):119]." International Journal of Nursing Practice **12**(1): 8-13.
- Muller, B. and S. Olbrich (2011). The Artifact's Theory: A Grounded Theory Perspective on Design Science Research. Internationale Tagung Wirtschaftsinformatik, Zurich, Switzerland, Association for Information Systems.
- Neuman, W. (2011). Social Research Methods: Qualitative and Quantitative Approaches. Boston, Massachusetts, USA, Pearson.
- O'Connor, R. (2012). Using Grounded Theory Coding Mechanisms to Analyze Case Study and Focus Group Data in the Context of Software Process Research. Research Methodologies, Innovations and Philosophies in Software Systems Engineering and Information Systems M. Mora, O. Gelman, A. Steenkamp and M. Raisinghani. Hershey, PA, IGI Global: 256-270.
- Reckwitz, A. (2002). "Toward a Theory of Social Practices: A Development in Culturalist Theorizing." European Journal of Social Theory **5**(2): 243-263.
- Renaud, A. and I. Walsh (2010). The Lost Dimension of Strategic Alignment. 5th Mediterranean Conference on Information Systems, Tel Aviv, Israel.
- Rouleau, L. (2013). "Strategy-as-practice research at a crossroads." M@n@gement **16**(5): 547-565.
- Rowlands, B. (2005). "Grounded in Practice: Using Interpretive Research to Build Theory." The Electronic Journal of Business Research Methodology **3**(1): 81-92.
- Sarhan, M. and J. McDonagh (2014). Rekindling Strategic Alignment Research: The Lure of a Practice-Based Perspective British Academy of Management, Belfast, Northern Ireland.
- Seidel, S. and C. Urquhart (2013). "On emergence and forcing in information systems grounded theory studies: the case of Strauss and Corbin." Journal of Information Technology **28**(3): 237-260.
- Splitter, V. and D. Seidl (2011). "Does Practice-Based Research on Strategy Lead to Practically Relevant Knowledge? Implications of a Bourdieusian Perspective." The Journal of Applied Behavioral Science **47**(1): 98-120.
- Suddaby, R., D. Seidl and J. K. Lê (2013). "Strategy-as-practice meets neo-institutional theory." Strategic Organization **11**(3): 329-344.
- Urquhart, C. (2007). The Evolving Nature of Grounded Theory Method: The Case of the Information Systems Discipline. The Sage Handbook of Grounded Theory. London, Sage Publications Ltd.
- Urquhart, C., H. Lehmann and M. D. Myers (2010). "Putting the "theory" back into grounded theory: guidelines for grounded theory studies in information systems." Information Systems Journal **20**(4): 357-381.
- Walsham, G. (1995). "Interpretive case studies in IS research: nature and method." European Journal of Information Systems **4**(2): 74 - 81.
- Whittington, R. (2006a). "Completing the Practice Turn in Strategy Research." Organization Studies **27**(5): 613-634.

Employing constructivist grounded theory coding to analyse data from a qualitative case study:
Methodological scaffolding to study strategic alignment through a Strategy-as-Practice lens

Whittington, R. (2006b). "Learning More from Failure: Practice and Process." Organization Studies **27**(12): 1903-1906.

Yin, R. K. (2014). Case Study Research: Design and Methods. Thousand Oaks, Sage Publications.