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Generating Theory From Secondary Data: a Variation on Eisenhardt's Case Study Method.

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Abstract

The use of secondary data in business studies was generally associated to the field of Economics. More recently, organisational psychologists are entering the field profiting from the access to databases from well-known consultants. This paper is based on an example of a hybrid between both fields in that we use the principles of the event study method -used by Financers- to assess changes in organisational commitment after certain kinds of organisational change.

We follow Kathleen Eisenhardt's case study approach to generate theory from two sets of secondary data. We attempt to build upon subjectivism and objectivism with a research design that has an established protocol at the onset but is then adapted as the research unfolds. This is an engaged research that has emerged from the collaboration between academia and practitioners.

The obvious benefits of using secondary data can be overshadowed by its limitations. The present paper will try to show how to work around data that was originally collected for a different purpose and integrate it into a new model with highly reliable constructs; how to minimise the risk of inaccurate interpretations and how broadening the search for data to less conventional sources can enrich business studies.

The main purpose of this paper is to illustrate, following the empirical example of a pharmaceutical company, how secondary data can be creatively combined to build theory around the impact of certain kinds of change on organisational commitment. This study seems opportune at a time of shrinking budgets and economic upheaval that has caused a reduction in both the resources needed to collect primary data and the collaborative spirit of companies that are being forced to concentrate their efforts on survival, in many cases at the expense of academic collaborations.

Keywords: secondary data, case study, mixed methods.

Reference

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Introduction

According to Yin (2009), social science research should be approached with a view of using different methods in an “inclusive and pluralistic fashion” (p.80). Among the social science methods he includes surveys, epidemiology, case studies, experiments, history and economy (Yin, 2009).

This study follows that spirit of integration in designing a case study that takes from economy the idea of event study and from epidemiology the notion of exposure/impact, using secondary data from a survey and document analysis to uncover the relationship between organisational change and organisational commitment.

The paper is structured in two sections. Firstly, the theory building process followed by this study using the example of a multinational pharmaceutical company and secondly a section on the methodological foundations of the current research design. The main focus of section one is the process followed in the empirical study, therefore the outcomes have not been described in detail.

The case: Downsizing and organisational commitment.

1.1 Organisational setting.

PharmaTech is a multinational pharmaceutical company with around 60 thousand employees in over 100 countries. Anticipating the end of patent protection for some of its most profitable products, the company undertook a strategic review of its activities. As a result, it was decided to refocus the research efforts on the most promising areas and there was a company-wide cost-cutting exercise. Both decisions brought the threat of downsizing to the employees. This study is concerned with the effect of three of those downsizing events -closure of business units, divestments and layoffs-between 2007 and 2010, on organisational commitment.

1.2 Research design

Event study is a “methodology for determining the effects of an event on the distribution of security returns” (Boehmer et al., 1991). “The objective of an event study is to assess whether there are any abnormal or excess returns earned by security holders accompanying specific events (e.g., earnings announcements, merger announcements, stock splits) where an abnormal or excess return is the difference between observed return and that appropriate given a particular return generating model “(Peterson, 1989).

Resembling the event study methodology, we identify specific events likely to affect the psychological variable of interest and analyse what is the impact of either the announcement or the event in itself. Unlike the definitions above, we do not intend to compare the psychological variable after the events to a particular model of what could have been had the events not happened. Our focus is rather to analyse the differences in the terms of organisational commitment according to the levels of exposure to change events. For that, we created two independent variables *event* and *degree of exposure*.

The variable *event* was created from the content analysis of specialised analysts’ reports found through Factiva and Thomson Research (a total of 3893 documents were examined). We consider announced events which have an identifiable location and, in most cases, a reference to a functional specialism that will be directly involved in the change event. The announcements were made public between January 2007 and August 2010.

The variable *event* represents the nature of the change announced, namely: closure of units, job cuts, and divestments. Twelve announcements refer to closures of business units in that period, 19 announcements refer to job cuts and six announcements refer to divestments.

The second predictor variable was *degree of exposure* to each type of downsizing event. We follow an epidemiological approach within which people are classified according to their level of exposure to the downsizing event. The highest level of exposure (5) was for those in business units identified directly in the announcement (DA). We then used functional specialism and country to define groups which were exposed to lower levels of threat, the indirectly affected (IA). Three groups were created: the ones in the same country and the same functional specialism (4), those in the same specialism but a different country (3), and individuals in the same country but a different specialism (2). Finally, the lowest level of exposure (1) is given by groups who were neither directly nor indirectly exposed to the downsizing event.

The dependent variable, *affective organisational commitment*, was measured using a scale taken from the 2008, 2009 and 2010 employee opinion surveys conducted by a leading HR consultancy on behalf of PharmaTech. The scale consists of 4 items based on the affective commitment scale (Allen and Meyer, 1990) and the OCQ (Mowday, Steers and Porter, 1979). The items refer to being proud of working for the organisation, speaking well of it, feeling personally motivated to work towards organisational success and willingness to recommend the organisation as a good place to work. The response rate for the survey was over 80% in all three years.

The validity and reliability of the construct as well as model fit were assessed using confirmatory factor analysis (CFA). Given that we use different datasets, this assessment was conducted for each one independently. The results show that the construct measuring organisational commitment (Figure 1 and Table 1) produced an acceptable fit of the data.

(Insert figure 1 and table 1 about here)

Theoretical considerations informed the choice of research question and specific propositions that underpin this research. The former was formulated as: what is the impact of significant strategic events on organisational commitment? And the latter were outlined as comparisons between groups following a rationale of the greater the exposure the larger the effect on commitment. A one way independent analysis of variance using special contrasts was conducted. The results showed a significant effect of the three downsizing events on commitment, and the proportionality of exposure/outcome was confirmed.

Methodological foundations.

2.1 Kathleen Eisenhardt's approach to generating theory from case studies

Case study is "the empirical inquiry that investigates a contemporary phenomenon in depth and within its real life context, (especially when) the boundaries between the phenomenon and the context are not clearly evident" (Yin, 1989). It provides a flexible setting for multiple data collection techniques (Ritchie and Lewis, 2003).

Traditionally within the subjectivist school of thought (Lee, 1989), case studies have been shown to be suitable for objectivist and mixed methods research too (Yin, 2009, Eisenhardt, 1991).

Eisenhardt's vision of case study is a hybrid between constructionism and positivism aimed at theory generation (Eisenhardt, 1989). Cases can be single or multiple, involve various levels of analysis, combine data collection methods and have various aims (theory testing, theory generation, description). "The case study is a research strategy which focuses on understanding the dynamics present within single settings" (Eisenhardt, 1989).

Her perspective refers to establishing a design at the start of the research, but then modifying it accordingly as the research develops (Figure 2). She acknowledges the confusion that sometimes arises between the terms qualitative methods and case study, in her view, the latter can use the former or not. The main features of her conception are:

- flexibility,
- uncertainty, given that even the core concepts and aims of the research are tentative until the end is reached,
- and the use of what she calls "controlled opportunism in which researchers take advantage of the uniqueness of a specific case and the emergence of new themes to improve resultant theory" (Eisenhardt, 1989, p.539).

(Insert figure 2 about here)

Common criticisms to case studies include lack of representativeness, non-generalizability and lack of rigour (Hird, 2003, Keddle, 2006). However, the benefits of using case studies and the various strategies that can be used to minimise its limitations make case studies a particularly useful research strategy for business studies.

Firstly, they allow for studies of phenomena in the natural setting where it occurs. Secondly, they introduce real-life complexity and richness which permits holistic, integrative research. And finally, as a non-manipulative kind of study (Hird, 2003) they are ideal for situations where non-invasive research techniques are preferred.

Originally designed for research using primary data, Eisenhardt's process can be adapted to studies that rely on secondary data and in which the lead from data to theory is wider and deeper than in traditional empirical research. This process has the great advantage of developing theory that is grounded in empirical, real-world data.

Together with using secondary data, another novelty of this study is our conception of what constitutes a "contemporary phenomenon" as defined in the concept of case study (Yin, 1989). We elaborate on both features below.

2.2 Secondary data.

"Secondary data can be defined as data collected by others, not specifically for the research question at hand (Stewart, 1984; Frankfort Nachmias and Nachmias, 1992). Whatever the precise wording used, the essential point is that the researcher does not gather the data" (Cowton, 1998)

Using secondary data is advantageous in that (Smith, 2011):

- It is generally considered a time-efficient, cost-effective approach to research.
- It gives access to data otherwise impossible for a single researcher to collect in the same scale and scope.

- It is open to numerous ways of interpretation so it is possible to uncover relationships that were not observed before.
- It is “democratic” in its relative low cost, high quality, easy access and relative independence for the researcher to work.
- It has theoretical and technical values –depending on the source- because of the expertise and quality of the original designers which can make up for data with excellent quality.
- And finally it has the potential for "capacity building of research skills as well as in developing an early career researcher's theoretical and substantive interests (Smith, 2008 in Smith, 2011, p.2)."

However, there are several limitations inherent to this type of approach. There is a lack of control over the generation of data which can hinder fitting it into new models. There is a danger of misuse or inaccurate interpretations of the data because the researcher cannot account for the specific meanings and mental models among the respondents. It is impossible in some cases to assess biases (Cowton, 1998).

Finally, the quality of the data, the representativeness of the sample and the internal/external validity of the instrument and results could be questioned because of insufficient knowledge on how rigorous the original research design and collection process were.

Nevertheless, some of the disadvantages can have potentially positive consequences, for example if they force interpretations outside the box. Using secondary data can add fresh sources to a sometimes oversaturated set of sources that academics base their studies on (Hakim, 1982 in Cowton, 1998).

The reasons for using secondary data for this research are twofold. First, our interest on the impact of organisational change conditions the choice of organisations which are undergoing significant strategic events, which normally happen over a number of years. This requires a kind of access to such organisations and resources that are not usually within the scope of a doctoral project. Second, given that the practical considerations of collecting primary data rendered the project virtually impracticable, we were able to negotiate access to an internal survey from a multinational pharmaceutical company, which turned to be a unique opportunity to study the impact of change over a period of 3 years.

The internal survey –on its 2008, 2009 and 2010 editions- became the primary source for this research. This was later complemented, as described in the case above, with an extensive dataset of news and reports that informed about which areas and specialisms within the company were undergoing strategic change. Such areas were later identified in the survey and turned into the core of the study.

It is worth pointing out that although the company did not allow any form of primary data collection, once the project was underway they granted access to internal documents, such as the Intranet and archival data, and provided some informers to help make sense of the secondary data.

2.3 Case study: a contemporary phenomenon.

Yin (1989) makes a difference between case studies and historical analysis. He states that case studies are concerned with contemporary things as they happen and history deals with the past, therefore, events are not observable and relevant informers might not be available.

We question this timeframe distinction when studying the impact of change. Exactly what constitutes the “present” for a study on organisational change is a matter of further debate to which this research expects to contribute. We consider that the effects of a change event start at Time 1 – when the news is out-, and this is followed by the change process, which happens in Time 2 – a phase that can draw for a number of years. But the impact of said change can still be felt in Time 3, an undetermined period after Time 1.

Previous studies show that the impact of major strategic decisions can be perceived several years in the future (Burnes, 2009, Charissa et al., 2011). Therefore, we do not consider problematic designing a case study that focuses on the recent past of an organisation.

2.4 This research fitted into Eisenhardt’s case study model.

According to Hilliard (Hilliard, 1993) “the assessment of both quantitative and qualitative data within the same study has become characteristic of much of the research following a change process or change event perspective (...)”, which is the case in our design. There are numerous benefits of using both rationales such as high ecological and population validity, increased internal validity and reliability.

Kathleen Eisenhardt’s case study model is a paradigm that recognises both methodologies. However, her original process had to be adapted and modified to account for using secondary data. Figure 3 shows the four phases followed by this study.

(Insert figure 3 about here)

2.4.1 Phase I

As in the original process, we started by setting out research questions, aims and objectives which were modified as the research progressed. Because we used secondary data, there were data-driven, practical considerations at the onset of the study such as what constructs could be built with the data in hand and what kind of analyses had to follow.

Consequently, specifying instruments and protocols was done once the “field” had been entered. The process was more iterative and as such less linear. Entering the field was part of getting started, this facilitated discarding models and constructs that did not work with the data so we concentrated in the ones that were stronger.

Only the items that were found in all three databases were considered to build the measurement construct. As a result, and because we did not design the original scale, the process here involved a thorough search for the best fit between the theoretical soundness and the technical robustness, so every time a feasible construct emerged from theory, the items to build up a scale were identified and their statistical reliability and validity was thoroughly checked before they made it to the next step.

We worked simultaneously in creating the instruments with the survey and in coding the documental data gathered in addition to the survey. We used NVivo 10 to create as many nodes as single change events emerged from the documents. The Node Classifications helped produce a grid of features of the event (month, year, type, character). The list of types of change started with a few items from the literature (layoffs, closures, etc.) but continued to evolve with the analysis.

2.4.2 Phase II

Within Phase I we identified the kinds of change event to focus on and the measurement scale. This marked the transition to Phase II in which sampling took place. In our design, selecting the cases was only possible after the document analysis. Out of the 12 closures of units identified in the document analysis, only seven could be matched to the survey and those were the ones that became the case *closure of units*. All the announcements of job cuts were matched to the survey as well as three of the announced divestments. We decided for the case to be the change event instead of the business unit because we are more interested in the change process than in geographical or organisational factors.

There was a constant iteration between data analysis and literature review. Thus, we analysed the data under different perspectives and narrowed or broadened the search for literature depending on the results of the data analysis. There was at this stage an on-going adjustment of the instruments used, refining and dropping of constructs and measurement scales.

Once the cases (event kinds) were selected we had to go back to gathering more information (coding and analysing) in some instances where the initial document analysis proved insufficient. The search included pharmaceutical blogs, relevant social networks, published material or previous research on the company and documents on the company's intranet.

The first step of the analysis of within-case data was mainly descriptive. SPSS 20 was used to perform the statistical computations. After familiarising ourselves with each case we proceeded to a more complex statistical analysis.

Analysing and evaluating are constant features of this research. They happen at every stage through either statistical tests, cross-validating different sources or with the help of the informers who give insight on specific change events.

2.4.3 Phase III

The cross-case search for patterns is important given the propensity of jumping to conclusions based on limited data or under the influence of vivid experiences or respondents (Eisenhardt, 1989). Although being influenced by respondents is not an issue when using secondary data, being overly influenced by sources or evidence is a risk to consider.

Patterns were sought within the same case (e.g. each of the closing units) and by looking at the same event kind in three different years. Although this is still work in progress we have been able to outline various themes.

The perceived degree of control over the outcome of the change event does not influence commitment in the direction predicted by existing theory. Also, there seem to be two different kinds of change within downsizing: the ones where an entire unit is affected but leaves the surviving units

intact and the ones in which several units, job types and job families are affected. Both of these have distinctively different effects on commitment.

There is also an emerging pattern of influence of the event(s) according to the degree of exposure: the more exposed the more organisational commitment is affected.

Our shaping of hypothesis together with enfolding the literature happens throughout all phases but the first. Here, the researcher is encouraged to go back to the existing literature to try and find conflicting and matching theories which will sharpen the emerging theory and increase the internal validity and generalizability of the study (Eisenhardt, 1989). So far we have encountered both instances, for example, we have found evidence that closing sites impacts commitment negatively but –contrary to current theory- divestments have a positive impact.

2.4.4 Phase IV

The final phase of this process is concerned with reaching closure. Theoretical saturation is the criteria usually employed to decide when to stop adding cases (Glaser, 1967). However, there is a natural stop in our study because of the limited number of change events and organisational units. There is a risk of disappointment if the results fail to generate new theory; nonetheless, the partial results obtained thus far are encouraging.

One significant difference to the process of building theory as intended by Eisenhardt is that some of the limitations that she acknowledges are overcome with the current design. She refers to the lack of “quantitative gauges such as regression results or observations across multiple studies, (...) (being) unable to assess which are the most important relationships and which are simply idiosyncratic to a particular case” (Eisenhardt, 1989, p. 547). The reliance on quantitative techniques allows us to use statistical tools to test the nature of the results obtained and comes to highlight the advantage of using mixed methods.

Our evaluation of the results will use the qualitative assessment that she proposes in her process – theory that is parsimonious, testable and logically coherent (Pfeiffer, 1982) - but also the ones that she considers less likely in traditional case study research, such as statistical tests.

There are limitations to using Eisenhardt’s model, namely that it can result in overly complex theory, because the richness of the data is such that the resulting theory can be too complicated. And that the results can be narrow and idiosyncratic, not generalizable. Eisenhardt accepts that her method has limited potential for generating a grand theory.

Nevertheless, the benefits are many. There is increased “likelihood of generating novel theory” (Eisenhardt, 1989, p. 546) from the contradictory, paradoxical evidence. There is equally increased testability of the emergent theory (measurable constructs, falsifiable or verifiable hypotheses) that has been filtered several times in the process. Finally, it is high in empirical validity: theory comes from the evidence, therefore, it is likely to be consistent with it.

Conclusions and recommendations.

Making sense of secondary data requires a constant iteration between it and theory which gives different angles to approach the data. There is a process of taking ownership of the data which

involves a “customisation”, being it by creating variables or constructs, by adding categories or combining it in ways that adapt the data to the research goals.

The small number, or complete absence of informers, conditions the search for artefacts or documents that help interpreting the data. This search is as wide and creative as required; we found that social media and specialised pharmaceutical blogs were a rich source of insight which combined with more traditional sources allowed for comparison, contrast and complementation of the information to build a picture of the change events.

We also found that the unobtrusive nature of this project, which required very little time or resources from a company unwilling to allow primary data collection, made the organisation more open to collaborate in giving access to internal documents and ultimately provide some informers, which are being used to clarify issues with the secondary data already in hand and to discuss our interpretation of the results.

Although all the data remains secondary, whether it comes from the media or from the organisational archives or intranet, having some informers minimises the risks of misinterpretation of the data because of their knowledge of internal events. At the same time, we have found that discussing our findings with these informers gives a richer, more accurate, perspective to our interpretation of the results.

In the technical aspect of the analysis, preserving face and construct validity of our model was paramount. We tested multiple models and combined exploratory and confirmatory techniques until the construct was theoretically and statistically strong. The testing phase included dropping items, using different subsets of the sample, dropping constructs and combining scales (Farrell, 2010). An alternative to using measurement scales would have been keeping the analysis at an item level, which avoids some of the issues of using composite scales (e.g. (Lester et al., 2001)).

When working with real-life data, some discretion is advised in assessing the constructs (GRACE-MARTIN, 2012), therefore, we used several criteria, besides the traditional cut-off values to evaluate the model constructed. The issues that remain after the analysis will be discussed in the limitations of the final product and care will be taken to avoid over-extending the implications of the results.

Notwithstanding its limitations, Eisenhardt’s model was considered the most appropriate procedure for our study because of the richness that it brings to an otherwise reduced corpus of empirical studies on multiple kinds of change within the same organisation and the flexibility to combine several techniques. Although there is still a perception that case studies are mostly qualitative research (Hird, 2003), this study shows the applicability of both methodologies.

We followed a subjectivist paradigm in the overall design that is emergent, flexible and adaptable. However, we also adopt a more objectivist approach in using verification techniques and formulating and testing theoretical propositions. Both stages were not conflicting, they were complementary. A link between the two schools of thought was made by using each at different stages of the research. A purely objectivist case study would imply making controlled observations, which in social and individual contexts is not always possible. So a middle ground was sought by treating the sample as separate strata -where there was a segment of people “not exposed” to change- which is our interpretation of the rationale “treatment vs. control” -albeit not imposed but naturally occurring.

This paper has, hopefully, showed that archival analysis has the potential to enrich business studies, beyond the traditional financial or economical approach. The integration of multiple social sciences methods such as history, epidemiology and surveys within a case study structure brings about new tools to understand organisational change.

References

- BOEHMER, E., MASUMECI, J. & POULSEN, A. B. 1991. Event-study methodology under conditions of event-induced variance. *Journal of Financial Economics*, 30, 253-272.
- BURNES, B. 2009. *Managing change : a strategic approach to organisational dynamics*, Harlow, FT Prentice Hall.
- CHARISSA, F., RENE, S. & MARCEL, C. 2011. The impact of organizational changes on psychological contracts; A longitudinal study. *Personnel Review*, 40, 404-422.
- COWTON, C. 1998. The Use of Secondary Data in Business Ethics Research. *Journal of Business Ethics*, 17, 423-434.
- EISENHARDT, K. M. 1989. Building Theories from Case Study Research. *The Academy of Management Review*, 14, 532-550.
- EISENHARDT, K. M. 1991. BETTER STORIES AND BETTER CONSTRUCTS: THE CASE FOR RIGOR AND COMPARATIVE LOGIC. *Academy of Management Review*, 16, 620-627.
- FARRELL, A. M. 2010. Insufficient discriminant validity: A comment on Bove, Pervan, Beatty, and Shiu (2009). *Journal of Business Research*, 63, 324-327.
- GLASER, B. G. 1967. *The discovery of grounded theory : strategies for qualitative research / Barney G. Glaser and Anselm L. Strauss*, New York, New York : Aldine de Gruyter.
- GRACE-MARTIN, K. 2012. *When Assumptions of ANCOVA are Irrelevant* [Online]. Available: <http://www.theanalysisfactor.com/assumptions-of-ancova/> [Accessed August, 2013 2013].
- HILLIARD, R. B. 1993. Single-Case Methodology in Psychotherapy Process and Outcome Research. *Journal of Consulting & Clinical Psychology*, 61, 373-380.
- HIRD, M. J. 2003. Case study. In: MILLER , R. L. & BREWER, J. D. (eds.) *The A-Z of social research*. London: Sage Publications Ltd.
- KEDDLE, V. 2006. Case study method. In: JUPP, V. (ed.) *The Sage dictionary of social research methods*. London: Sage Publications Ltd.
- LEE, A. S. 1989. Case Studies as Natural Experiments. *Human Relations*, 42, 117-137.
- LESTER, S. W., CLAIRE, E. & KICKUL, J. 2001. Psychological Contracts in the 21st Century: What Employees Value Most and How Well Organizations Are Responding to These Expectations. *Human Resource Planning*, 24, 10-21.
- PETERSON, P. P. 1989. Event Studies: A Review Of Issues And Methodology. *Quarterly Journal of Business and Economics.*, 28, 36-66.
- RITCHIE, J. & LEWIS, J. (eds.) 2003. *Qualitative research practice. A guide for social science students and researchers.*, London.
- SMITH, E. 2011. Using numeric secondary data in education research. Available: <http://www.bera.ac.uk/resources/using-numeric-secondary-data-education-research> [Accessed 20/12/2013].
- YIN, R. K. 1989. *Case study research : design and methods*, Sage Publications.
- YIN, R. K. 2009. *Case study research : design and methods*, Sage Publications.

Tables and Figures

Figure 1. Factor loadings - variable organisational commitment 2008/09/10

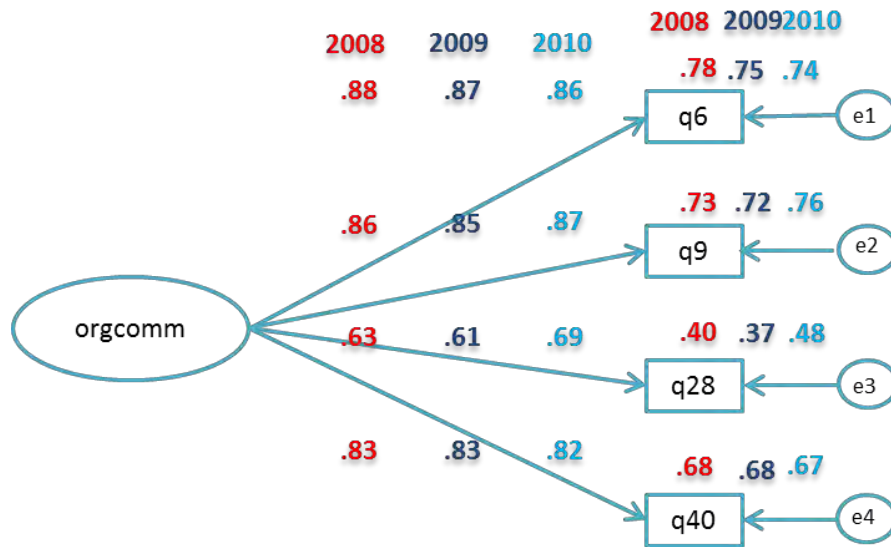


Table 1. Model fit, construct validity and reliability - organisational commitment

| | 2008 | 2009 | 2010 | Cut-off values (Hair et al., 2010) |
|---|------------|------------|------------|---|
| Chi-square | 105.929 | 36.021 | 435.142 | Sig. values expected with large samples and numerous observed variables |
| Degrees of freedom | 2 | 2 | 2 | |
| Probability level | .000 | .000 | .000 | |
| Normed chi-squared | 52.964 | 18.010 | 217.571 | |
| GFI | .999 | .998 | .995 | >.95 |
| RMSEA | .032 | .043 | .068 | <.07 |
| 90 per cent confidence interval for RMSEA | .027; .038 | .031; .056 | .063; .074 | |
| CFI | .999 | .998 | .996 | >.95 |
| Alpha | .87 | .87 | .88 | Alpha > .7 |
| CR | .88 | .87 | .89 | CR > .7 |
| AVE | .65 | .63 | .66 | AVE > .5 CR > AVE |

Figure 2. Eisenhardt's (1989) process for generating theory from case studies.

| Process of Building Theory from Case Study Research | | |
|---|---|---|
| Step | Activity | Reason |
| Getting started | Definition of research question | Focuses efforts |
| | Possibly a priori constructs | Provides better grounding of constructs measures |
| Selecting cases | Neither theory nor hypotheses | Retains theoretical flexibility |
| | Specified population | Constrains extraneous variation and sharpens external validity |
| | Theoretical, not random, sampling | Focuses efforts on theoretically useful cases –i.e., those that replicate or extend theory by filling conceptual categories |
| Crafting instruments and protocols | Multiple data collection methods | Strengthens grounding of theory by triangulation of evidence |
| | Qualitative and quantitative data combined | Synergistic view of evidence |
| | Multiple investigators | Fosters divergent perspectives and strengthens grounding |
| Entering the field | Overlap data collection and analysis, including field notes | Speeds analyses and reveals helpful adjustments to data collection |
| | Flexible and opportunistic data collection methods | Allows investigators to take advantage of emergent themes and unique case features |
| Analysing data | Within-case analysis | Gains familiarity with data and preliminary theory generation |
| | Cross-case pattern search using divergent techniques | Forces investigators to look beyond initial impressions and see evidence thru multiple lenses |
| Shaping hypotheses | Iterative tabulation of evidence for each construct | Sharpens construct definition, validity and measurability |
| | Replication, not sampling, logic across cases | Confirms, extends, and sharpens theory |
| | Search evidence for "why" behind relationships | Builds internal validity |
| Enfolding literature | Comparison with conflicting literature | Builds internal validity, raises theoretical level, and sharpens construct definitions |
| | Comparison with similar literature | Sharpens generalizability, improves construct definition, and raises theoretical level |
| Reaching closure | Theoretical saturation when possible | Ends process when marginal improvement becomes small |

Figure 3. Eisenhardt's case study process adapted to the current research project

