Implementation of Realism in Case Study Research Methodology

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Abstract

There is a significant gap in the understanding of internal management operations within regional development boards. The deficiency has implications for research methods in this area. The current debate on realism in case study research has examined the selection of an appropriate research methodology. The circumstances to be researched (Eisenhardt 1989; Glasser & Strauss 1967; Yin 1989) and the theoretical paradigm adopted by the researcher (Guba & Lincoln 1994; Layder 1993; Outhwaite 1983) determine the research methodology in case study research. This paper builds on contributions to this debate by Perry, Alizadeh and Riege (1997) and Perry (1998) that describe the circumstances and paradigm that best argue for the use of case study method. Further, this paper adds to this debate and sets out an example of a case study approach for the analysis of the qualitative data to ensure methodological rigor. In turn, it outlines outlines an approach for the analysis of qualitative data through multi-level analysis.

Keywords: qualitative research, case study, theoretical paradigm, methodology, multi-level analysis
Introduction

There is no consensus about the best theoretical approach to be used to study a regional development board’s (RDB) perception and execution of management processes and roles. Regional development studies are at an early stage of development regarding the internal management operations of a RDB (Anderson 1990; Blakely 1994; Hayton 1989; Hodgkinson 1993; Lazerson 1988). This paper’s summary of a comprehensive analysis of the literature identifies a significant gap in the understanding of a RDB. The deficiency has implications for research methods in this area. In brief, this paper’s aims are twofold. First, it contribute to our understanding of RDB’s. Secondly, it examines an appropriate research method for building a causal explanation of the execution of management processes and roles.

The regional development studies literature on boards

Historically, Australian governments have relied on macro- and micro-economic policies to solve regional problems. In contrast, Canada and the United Kingdom have faced the economic disparity between regions by relying not only on macro- and micro-economic policies to support regional problems but also by implementing regional development policies (Higgins & Savoie 1995; Yuill et al. 1980).

Australian focus for singular reliance on these macro- and micro- economic policies results in successive governments dealing with regional development through a series of superficial initiatives (Higgins & Savoie 1995). Consequently, governments have not dealt in any depth with the many troubled sectors, industries or businesses in specific regions. Therefore there have been ‘quite dramatic structural and spatial shifts in Australian society’ (Maher 1993, pp. 28). The consequence of this fragmented approach is that management expertise in a regional development board (RDB) has been under resourced (Higgins & Savoie 1995). A RDB provides a means to deal with the complexity of economic development and to coordinate activities across different types of stakeholder groups. A RDB that can mobilise support within its regional community and
develop successful networks requires a high range of management expertise, though not all achieve this (Blakely 1994; Danson et al. 1989).

Internal management expertise within a RDB at the board level is of particular importance in this post-Fordist period (Amin & Thrift 1994) which can be characterised as a period of economic history during which large public and private bureaucracies are consolidating (Amin & Thrift 1994; Cooke & Morgan 1994). Specifically, public bureaucracies operate with diminished resources, limiting their direct capability for immediate involvement in regions. Moreover, large private bureaucracies (large corporations) are contracting from regional locations within Western economies, thus diminishing regional resources, and reducing employment.

Examples of the contraction of private bureaucracies can be found in ‘rust belts’ (Allen 1989; Hansen et al. 1990), decay of urban areas (Haubermann & Siebel 1990; Keating 1993) and the rationalisation of the welfare state (Pierson 1991; Saul 1996; Shapiro 1990; Tower 1995) in Australia, North America and Europe. In contrast, the advance of regional economies is occurring 'in regions like Silicon Valley and northern Italy' (Amin & Thrift 1994; Weinstein et al. 1985). In these examples of the retreat or expansion of regions, there is an increased complexity in the management of regional economic development and public bureaucracies are operating with diminished resources. As a consequence, a RDB provides through devolution by central government an alternate structural mechanism. This alternate structural mechanism of a RDB allows for greater regionally controlled partnering and coordination of complex regional economic development issues (Cox & Mair 1988; Department of Industry, Science and Technology 1995; Dicken & Tickell 1992; Hassink 1999). This research of RDBs in Queensland provides for comparison of different types of partnering and coordination of regional economic development activities.

The changing roles of public and private bureaucracies in regions may provide an opportunity for a RDB. Therefore, it is important to understand how a RDB perceives and executes management processes and roles with specific reference to filling this gap. The
research problem is: How does an RDB perceive and execute management processes and roles?

The deficiency in understanding raised by this research problem has implications for research methods in this area. An appropriate research method for building a causal explanation of the execution of management processes and roles is now introduced.

Selection of a theoretical paradigm

A theoretical paradigm is the identification of the underlying basis that is used to construct a scientific investigation. That is, it is “a loose collection of logically held-together assumptions, concepts, and propositions that orientates thinking and research” (Bogdan & Biklan 1982, p. 30). Likewise, a paradigm can be defined as the “basic belief system or world view that guides the investigation” (Guba & Lincoln 1994, p. 105). Below we discuss four different paradigms and locate case studies as a research methodology within one of them (Bhaskar 1978; Gabriel 1990; Guba & Lincoln 1994; Hunt 1992; Perry et al. 1997; Riege 1997). The discussion focuses on limitations of each paradigm for the current study on RDB’s.

Positivism: The positivist paradigm does not fit well with the research problem at the heart of this work. A positivist paradigm may create problems if respondents are considered to be autonomous objects for this ‘ignores their ability to reflect on problem situations, and act upon this’ (Robson 1993, pp. 60). Positivism deems that natural and social sciences measure autonomous facts about an individual perception of reality (Gabriel 1990). This reality is composed of discrete elements whose character can be recognized and classified (Guba & Lincoln 1994; Hirschman 1986, Tsoukas 1989). The primary mode of the research inquiry of positivism is theory-testing based on deduction (Layder 1993). The use of this hypothetico-deduction allows for statistical generalisation to be tested, with replaceable findings being true (Guba & Lincoln 1994; Tsoukas 1989). The principal data collection techniques include experiments and sample surveys that are outcome-oriented and assume natural laws and mechanisms. Data collection for positivism is carried out with the researcher being remote from the phenomena under
investigation. That is, the researcher operates in a one-way positivism and she/he is the discoverer of truth is of an undeniable character (Anderson 1986).

In contrast to the positivist paradigm, the three other paradigms are more suitable for exploring complex social phenomena that require working with people and real life experiences and where the researcher seeks to understand the research problem by reflecting, probing, understanding and revising meanings, structures and issues (Hirschman 1986; Orlikowski & Baroudi 1991). In other words, not all research issues allow an entirely value-free, one-way mirror between phenomena and the researcher. This investigation of a RDB is an examination of stakeholders’ perceptions of the execution of a board’s internal operations.

Thus this investigation of a RDB does not seek to identify causal relationships as a positivist would but instead considers the complex nature of the research problem. The researcher seeks to understand the research problem by reflecting, probing, understanding and revising meanings, structures and issues of the managerial experiences of a RDB. How the research problems appeared to the stakeholders of a RDB may not necessarily be captured by positivist research methods (Hirschman 1986; Orlikowski & Baroudi 1991). In other words, to build an entirely value-free, one-way mirror between phenomena and the researcher is not possible in this research.

**Critical theory:** The RDB study is interested in understanding how RDB members go about executing their management processes and roles, not in ‘liberating’ them from inappropriate mind sets. In contrast, the critical theory paradigm is perhaps most appropriate when the study is attempting to intervene in the transformation of the respondents from their mental, emotional and social structures (Guba & Lincoln 1994). That is, in ‘liberating’ them from inappropriate mind sets. Critical theory assumes comprehensible social realities that incorporate structures over time. Critical theory researchers critique and transform social, political, economic, ethnic, and gender values. Research inquiries can entail long-term ethnographic and historical research of organizational processes and structures. Critical theory accepts that there are multiple
social realities, which are constructed by groups involved in the research. Thus, truth is only known within a particular social group’s constructed reality (Easton 1982).

**Constructivism:** The RDB study assumes that respondent perception of actions and activities is a reality. In contrast, constructivism provides a methodology for investigating the beliefs of individual respondents rather than investigating an external reality, such as the tangible and comprehensible economic and technological dimensions of management (Hunt 1991). Thus within the constructivist paradigm, perception by itself is not reality, for reality is a blend of perceptions and external reality. Perceptions are important for they assist in examining complex reality, but perceptions or multiple realities cannot be the focus of constructivist research. Similar to critical theory, constructivism is interested in the values which are beneath the findings. Thus it uses inductive methods. The inductive methods of constructivism require the researcher to be a ‘passionate participant’ (Guba & Lincoln 1994, p. 112) during the fieldwork. Like critical theory, the data depends on the interaction between the interviewer and respondent (Anderson 1986). Both critical theory and constructivism require the researcher to be subjective to develop knowledge in this interaction (Anderson 1986, Guba & Lincoln 1994).

In contrast, researchers of a phenomenon like the execution of the internal operations of an RDB require a paradigm that can deal with multiple realities, that has the elements of both positivism and constructivism (Perry et al. 1997). This paradigm is realism, also known as critical realism (Hunt 1991), postpositivism (Denzin & Lincoln 1994; Guba & Lincoln 1994) or neo-postpositivism (Huberman & Miles 1985; Manicas & Secord 1983).

**Realism:** The fourth paradigm, realism, has elements of both positivism and constructivism (Perry et al. 1997). This paradigm, is also known as critical realism (Hunt 1991) or postpositivism (Denzin & Lincoln 1994; Guba & Lincoln 1994) or neo-postpositivism (Huberman & Miles 1985; Manicas & Secord 1982). Realism provides a world view in which an actual social phenomenon can be ascertained even though it is imperfect and probabilistically comprehensible (Guba & Lincoln 1994; Merriam 1988;
Perry & Coote 1994; Perry et al. 1997; Tsoukas 1989). That is, for realists the means to
determine the reality of a social phenomenon is through the triangulation of cognition
processes. Indeed, ‘a perception for realists is a window on to reality from which a picture
of reality can be triangulated with other perceptions’ (Perry et al. 1997, p. 554).

This investigation examines a RDB as a social phenomena through the realism's
triangulation of perceptions.

Bhaskar (1978) argued that realism interprets the world, that is, mechanisms, events and
experiences, in three domains of reality as shown in Table 1. The domains are: first, the
real domain that consists of the processes that produce events, in which generative
mechanisms or causal powers exist independently with a tendency to produce patterns of
observable events under contingent conditions. Next is the actual domain, in which
patterns of events occur, whether they are observed or not. Finally, there is the empirical
domain, in which experiences can be obtained by direct observation (Bhaskar 1978;
Outhwaite 1983; Tsoukas 1989).

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<tr>
<td><strong>Onotological assumptions of realism</strong></td>
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<tr>
<td><strong>Real domain</strong></td>
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<td>Mechanisms</td>
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Source: adapted from Bhaskar 1978 p. 13

Within this framework, the discovery of observable and non-observable structures and
mechanisms, independent of the events they generate, is the goal of realism research
(Outhwaite 1983; Tsoukas 1989). In other words, realism researchers observe the
empirical domain to discover by a ‘mixture of theoretical reasoning and experimentation’
(Outhwaite 1983 p. 332) a knowledge of the real world, by naming and describing the
generative mechanisms that operate in the world and result in the events that may be
observed. Given this complexity of the social science world, reality ‘is considered real
but fallible’ (Wollin 1995 p. 80).
The purpose of this investigation of an RDB is to discover, identify, describe and analyse the variables of the structures and generative mechanisms of a board’s internal operations. The goal of this investigation is the development of idiographic knowledge affixed to natural and social science experience (Outhwaite 1987) so as to comprehend the deeper structures and meanings of the internal management operations of an RDB.

The philosophical assumptions that support these theoretical paradigms relate to ontology, epistemology and methodology, which are summarized in Table 2. Ontology is the essential assumptions that are made regarding the basic elements of reality (Parkhe 1993), that is, the configuration and character of reality (Guba & Lincoln 1994). If ontology deals with reality, epistemology examines the character and basis of knowledge or the characteristics of the relationship between reality and the researcher (Parkhe 1993). Methodology is the procedure carried out by a researcher to explore that reality (Guba & Lincoln 1994; Parkhe 1993).

Table 2

<table>
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<tr>
<th>Item</th>
<th>Positivism</th>
<th>Critical theory</th>
<th>Constructivism</th>
<th>Realism</th>
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<tr>
<td>Ontology</td>
<td>naïve realism: reality is ‘real’ and apprehensible</td>
<td>historical realism: ‘virtual’ reality shaped by social economic, ethnic political, cultural and gender values, crystallized over time</td>
<td>critical relativism: multiple local and specific ‘constructed’ realities</td>
<td>Critical realism: reality is ‘real’ but only imperfectly and probabilistically apprehensible and so triangulation from many sources is required to know it</td>
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<tr>
<td>Epistemology</td>
<td>objectivist: findings true</td>
<td>subjectivist: value mediated findings</td>
<td>subjectivist: findings created</td>
<td>modified objectivist: findings probably true with awareness of values between them</td>
</tr>
<tr>
<td>Common methodologies</td>
<td>experiments/ surveys: verification of hypothesis; chiefly quantitative methods</td>
<td>dialogic/ dialectical: researcher is a transformative intellectual who changes the social world within which participants live</td>
<td>hermeunetical/ dialectical: researcher is a ‘passionate participant’ with the world being investigated</td>
<td>Case studies/ convergent interviewing: triangulation, interpretation of research issues by qualitative and/or quantitative methods (such as structural equation modelling)</td>
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</table>

The realist research methodology of qualitative case studies is process orientated and does not deal with cause and effect relations, but with underlying causal tendencies (Bhaskar 1978; Tsoukas 1989). Consequently, data analysis for realism is usually summarised in a manner that is necessarily value-laden because it cannot be a process that minimises bias with proximity of those values. If the purpose of a piece of research is to discover, identify, describe and analyze the variables of a complex social situation, if the goal of an investigation is the development of idiographic knowledge affixed to natural and social science experience, a realism methodology may be most appropriate (Outhwaite 1983).

A second situation in which realism is a more appropriate paradigm is when the area of investigation is pre-paradigmatic in nature. Realism attempts to define and predict social phenomena through idiographic research that is relevant when a phenomenon has not been fully discovered and comprehended. For example, case study research may lead to a more informed basis for theory development (Bonoma 1985; Eisenhardt 1989; Yin 1989) in a newly developing area of research. The early stages of development or preparadigmatic, are when the researcher’s interests, phenomena requirements and/or existing theory seems inadequate and when these types of circumstances decree theory building rather than theory testing (Bonoma 1985; Deshpande 1983; Eisenhardt 1989; Gilmore & Carson 1996). A case study strategy provides data for building theory (Glasser & Strauss 1967) that contributes to existing knowledge by analysis from another perspective using the self as a research instrument. Model building is the logical stage in scientific discovery when it is critical to illuminate and raise the possibility of new perceptions (Bhaskar 1978).

In general, within the realism paradigm, a case study methodology should be chosen when:

(i) There are particular events that are focused on a situation or context and have specificity (particularistic) (Eisenhardt 1989; Merriam 1988);

(ii) The social organisational settings are intricate (Kaplan 1986; Morgan & Smircich 1980; Orlikowski & Baroudi 1991; Parkhe 1993);
(iii) The researcher seeks contextual meaning within a bounded system (Bonoma 1985; Stake 1978; Yin 1989); and

(iv) The research enterprise is inductive theory building (Gilmore & Carson 1996; Hirschman 1986; Merriam 1988).

**Particular events that are focused on a situation or context:** The focus on the richness and depth of the situation or event of case study methodology allows for the ‘opening up’ of new ideas and the interpretations of the phenomena being researched or new perceptions. In particular, the case study is appropriate when investigators desire to define topics broadly and not narrowly (Yin 1993). As little previous research has been carried out on the execution of management processes and roles by a RDB within their context, there is a gap in the research examining this situation (Bonoma 1985; Yin 1989).

**Intricate social organisational settings:** The current deductive theory-testing nomothetic research methods of positivism do not necessarily sufficiently capture the intricacy of social organisational settings (Kaplan 1986; Morgan & Smircich 1980; Parkhe 1993). Case study research deals with these intricacies, processes, roles and changes of organisation (Marshall & Rossman 1990). Case studies are particularly useful when the focus of the research is on the relationship between the person [or group] and the setting, so that it is significant to detach one from the other (Foster 1991). This investigation deals with a RDB in a dynamic organisational setting that deals with the action of a group of managers in their management of processes and roles. In brief, case studies are particularly useful when the focus of the research is on the relationship between the person [or group] and the setting, so that it is significant to detach one from the other (Weick 1968) as is the case in this investigation.

**Contextual meaning within a bounded system:** This provides a way to understand the ‘bounded system’ in its own habitat (Stake 1978). Case study research reveals a particular event in a real life context (Eisenhardt 1989; Merriam 1988). The examination of a particular event is significant when boundaries between phenomenon and context are not clear (Yin 1981). Examination of a particular event has the additional advantage of examining a contemporary phenomenon that has a real life context (Yin 1981).
Qualitative case study research establishes a research area for clarifying greater insight into boundaries and phenomena while empirical research requires experimental data (Emory & Cooper 1991; Yin 1989). In this investigation, the focus is on the influence of [p--a particular bounded contemporary event in the management execution of an RDB’s internal operations. The context of this investigation is that Queensland RDBs differ from other types of regional boards in Australia in that the state government does not make appointments. Rather, appointments to a RDB involve a range of regional stakeholders through a combination of elections and local government appointments. Qualitative case study research establishes a research area for clarifying greater insight into boundaries and phenomena while empirical research requires survey research/quasi-experimental data (Emory & Cooper 1991; Yin 1989).

**Inductive theory building:** The final factor of the research situation is the understanding that emerges from the data and the impression (inductive) that is provided through a rich description of a management situation (Bononma 1985; Merriam 1988). On the one hand, deduction attempts to identify causal construction of the managerial experience. In contrast, case study research attempts to understand the nature of the research problem, reflecting, forming and revising meanings and structures of the phenomena being studied. Thus, the case method is well suited for inductively building a rich, deep understanding of new phenomena. In this research, the case study method provided a rich analysis of the dynamics present in the execution of management processes and roles on a RDB for theory building based on prior theory.

A three-stage research process was undertaken, as shown in figure 1. The stages concerned the development of prior theory and a literature review that identified an initial research problem. In addition, issues were further refined through three pilot case studies (Nair & Riege 1995; Robson 1993). Stage two concerned the main data collection and stage three the final theory development. This activity recognises the importance of prior theory to the research design (Miles & Huberman 1994; Neuman 1994; Perry & Coote 1994; Yin 1993).
Research methodology in the development and confirmation of the conceptual framework for an RDB’s execution of management processes and roles

Stage I: Literature review and pilot studies - Development
- research problem
- research issues
- research variables
- conceptual framework
- interview questions

Stage II: Case studies and evaluation
- case analysis
- cross-case analysis
- aggregate analysis
- confirmation of conceptual framework
- peer evaluation by international experts

Stage III: Building
- theory construction
- future testing of research findings
- model for the execution of management processes and roles of RDBs

Source: developed for this research

In brief, this case study investigation was based on a well-defined methodology to provide the means to scientifically answer these broader questions. Prior theory contributes in this investigation by the provision of a foundation and a means to refine the conceptual framework collection (Lincoln & Guba 1985; Miles & Huberman 1984; Yin 1993). Additionally, prior theory in this investigation focused the literature review and assisted in developing the research issues and interview schedule, along with a suitable research design and system of data collection (Lincoln & Guba 1985; Miles & Huberman 1984; Yin 1993).

Definition of case study research

Case study is a research methodology that focuses on understanding the dynamics present in a management situation (Eisenhardt 1989). There are many definitions of case research and these definitions encompass a wide range of definitional components. These are shown in Table 3 to highlight the range of definitions associated with case study research.
### Table 3

**Definitions for case study research**

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<td>Boundaries between phenomena and context are not clearly defined</td>
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<td>Are descriptive, qualitative, exploratory and explanatory</td>
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<td>Have a heuristic value</td>
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<td>Unit chosen was temporally and spatially bound</td>
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Source: developed from Hakim (1994); King (1985); McKinney (1966); Patton (1990); Sanders (1981); Smith (1988); Stake (1995); Yin (1989).
Applying the Case Method

Beer (1988, p.168) argued that qualitative research is well suited to asking the broader questions of science, unlike ‘normal science, which attempts to answer little questions precisely. Instead we should do broader ... studies which answer more questions less precisely’. Qualitative research based on a well defined methodology can provide the means to scientifically answer these broader questions that provide for new insight. The following are suggestions for carrying out case study research in a methodologically sound way.

Identification of Prior Theory: Prior theory in the area of research interest should be identified through a literature review. The outcome of the review should be an initial statement of the research problem and issues that might be further refined through pilot case studies (Nair & Riege 1995; Robson 1993). This approach recognises the importance of prior theory to the research design (Lincoln & Guba 1985, Miles & Huberman 1994; Neuman 1994; Perry & Coote 1994; Yin 1994).

Single vs multiple case study research: Single case study research is applicable when the case is:
- critical or unique or where the researcher is able to access a previously remote phenomenon;
- critical for testing a well formulated theory;
- an exploratory study or pilot study; shown to be representative of a large population (McKinney 1966; Smith 1988; Yin 1989).

Multiple case studies provide a purposive sample and the potential for generalizability of findings (Miles & Huberman 1994, Patton 1990). Additionally, including multiple sites increases the scope of the investigation and the degrees of freedom (Bonoma 1985; Eisenhardt 1989; Miles & Huberman 1984; Parkhe 1993; Patton 1990). Multiple case studies provide a more rigorous and complete approach than single case study research due to the triangulation of evidence (Bonoma 1985; Eisenhardt 1989; Herriott & Firestone 1983; Neuman 1994; Stake 1994; Yin 1994). Additionally, triangulation of data in the context of multiple case studies provides differing research sites and data sources
to satisfy theory generation and verification (Denzin 1978; Deshpande 1983; Patton 1990). Finally, multiple case studies are appropriate as they provide for a rigorous methodology for replication logic (Parkhe 1993; Tsoukas 1989; Yin 1993).

Multiple case studies provide for theory confirmation through literal and theoretical replication (Anderson 1986; Bonoma 1985).

**Integrity of case study research**

This section examines the integrity of case study research in terms of validity and reliability. Careful design can avoid or at least reduce the criticisms directed at case study research for the lack of methodological rigour and possibility of bias (Billingsley & Poole 1986; Patton 1990; Smith 1988, Yin 1989). In dealing with these criticisms, case study researchers have developed a number of different approaches for increasing the integrity of qualitative research (Reiger & Nair 1996). Tests for validity have overlaps in meaning, as do tests for reliability. These approaches tend to have similar meaning though differing in the terminology of the tests used to determine the integrity of case study research. Case study research can achieve integrity or rigour of validity through five approaches: construct validity; confirmability; internal validity/credibility; external validity/transferability and finally, reliability/dependability (Miles & Huberman 1994; Yin 1989).

**Construct validity:** First, construct validity ensures adequate operational measures for the concepts under investigation (Emory & Cooper 1991, McDaniel & Gates 1991). That is, it “testifies to how well the results obtained from the use of the measure fit the theories around which the test is designed” (Sekaran 1992, p. 173). Case study research can achieve construct validity by developing its constructs through a literature review, use of multiple sources of evidence, establishing a chain of evidence, and having key external informants review draft case study reports. Multiple sources or triangulation of evidence is also recommended as a technique for construct validity by such researchers as Burgess (1984), Denzin (1978), Jorgensen (1989), Marshall and Rossman (1990), and Patton (1990). Triangulation allows for a stronger substantiation of constructs and hypotheses that assists in generalisability of the research findings (Bonoma 1985). Also, a study
protocol or interview guide can be developed to provide for a systematic process in the interviews (Yin 1994). The subjectivity inherent in the case study method can be reduced through prudent selection of the case study interviewees, a structured interview process, and a structured process for recording, transcribing and interpreting the data (Dick 1990; Lincoln & Guba 1985). Thus, a chain of evidence can be established from the beginning of the research questions through data collection to the final conclusions (Yin 1994).

Confirmability: Confirmability is defined as ability of others to satisfy themselves that the research was carried out in the way it is described by the researcher (Lincoln & Guba 1985; Miles & Huberman 1994; Riege & Nair 1996). The basic technique for ensuring confirmability is developing a record of data collected (such as recorded cassette tapes, transcriptions, interview notes, secondary sources) to allow other researchers to observe a chain of evidence. This audit trail would allow an external observer to trace the logical progression of reasoning from the evidence presented to the conclusions drawn. In addition, opportunities might be provided for key informants to review draft case study reports and the findings of the research (Miles & Huberman 1994; Yin 1994).

Internal validity/credibility: Internal validity/credibility in quantitative research is defined as the identification of causal relationships whereby certain variables may influence other variables in the research study (Emory & Cooper 1991; McDaniel & Gates 1991; Miles & Huberman 1994; Zikmund 1991). In contrast, qualitative research does not necessarily deal with cause and effect relationships of independent and dependent variables but rather with establishing a phenomenon in a credible manner, that is ‘generative mechanisms’ or ‘causal powers’ (Guba & Lincoln 1994; Miles & Huberman 1994; Tsoukas 1989; Yin 1993). That is, case study research aims to locate generative mechanisms that assist in determining inferences about real-life experiences (Bhaskar 1978; Merriam 1988; Sykes 1990 and 1991, Tsoukas 1989).

In case study research, internal validity/credibility can be established by the use of case analysis, cross case analysis, pattern matching, assurance of internal coherence of findings, expert peer review, and the development of diagrams, illustration and data matrices to demonstrate the internal consistency of the information collected. Further
activities to demonstrate internal validity include precisely distinguishing the unit of analysis, linking of the analysis to prior theory identified in a literature review, and presentation and analysis of pilot case studies (Yin 1993).

Parallel to internal validity, the techniques for credibility in the case method include triangulation, peer debriefing, discussion of the results and conclusions with other academic researchers (Lincoln and Guba 1985; Hirschman 1986), and making clear the researchers’ assumptions about his world view and his theoretical orientation (Merriam 1988). Other techniques include prolonged engagement (multiple contacts) by the researcher with the respondents.

**External validity/transferability:** External validity/transferability is defined as the scope to which the research findings can be replicated beyond the proximate research case studies or generalizability (Emory & Cooper 1991; Lincoln & Guba 1985; McDaniel & Gates 1991; Miles & Huberman 1994; Yin 1989). Positivist research carries out statistical generalisation (Eisenhardt 1989; Miles & Huberman 1984; Yin 1994). In contrast, case study research carries out analytical generalization in which particular findings are generalized into a broader theory (Perry et al. 1997; Tsoukas 1989; Yin 1994). This can be achieved through the use of a multiple case studies methodology and by comparison of evidence (Lincoln & Guba 1985; Miles & Huberman 1984). Multiple case studies can be used to develop analytic generalization through replication logic and/or corroboration of findings to achieve external validity (Eisenhardt 1989; Parkhe 1993; Yin 1994). Other techniques that can be used include ‘thick’ descriptions for a case study data base, cross-cluster and cross-case analysis, intended interview protocol, and the use of procedures for coding and analysis (Lincoln & Guba 1985; Miles & Huberman 1994).

**Reliability/dependability:** Finally, the test of reliability/dependability deals with the ability of other researchers to carry out the same study and achieve similar results (Cassell & Symon 1994; Emory & Cooper 1991; King et al. 1994; McDaniel & Gates 1991; Miles & Huberman 1994; Singleton et al. 1993). Reliability in realism research is based on the assumption that there is a single reality which is studied repeatedly.
(Merriam 1988). However, data in qualitative research on the same real life situation can be collected by different researchers, who use differing methods, and at different times. Hence the different data sets may not come together into one conforming picture (Neuman 1994). Therefore, to achieve reliability/dependability in case study research demands the enactment of case study procedures so as to identify a documentation trail. The approved case study techniques for reliability tests are to establish the case study protocol during data collection, the execution of an interview protocol and the establishment of a case study data base (Eisenhardt 1989; Merriam 1988; Parkhe 1993). Finally, formation of a case study data base allows for other researchers to access the files (Yin 1994). These techniques of reliability increase the general integrity of case study research, but reliability still may be limited by the creativity of the researcher. For ‘creativity makes confirmability path dependent and irreversible’ (Wollin 1995 p. 27).

Employing the techniques noted above for improving dependability provides for greater cohesion of explanation. This results in a more dependable understanding of the nature of the phenomenon under investigation (Hirschman 1986).

**Developing a Research Plan**

The research plan is the overall program of research being undertaken, and involves the procedures the researcher will carry out for the study (Emory & Cooper 1991). The research plan provides procedural sign posts to keep the researcher going in the right direction.

Some qualitative theoreticians such as (Maykut and Morehouse (1994) and Miles and Huberman (1994) argue that historically there has been lack of documentation in qualitative research and techniques and state that, ‘qualitative researchers shared no cannons, decision rules, algorithms, or even any agreed-upon heuristics to indicate whether findings were valid and procedures robust’ (Miles and Huberman 1994 p. 262). In credible case research it is important to document the methodologies and techniques used in order to demonstrate validity and robustness (Eisenhardt 1989; Miles and Huberman 1994; Patton 1990; Yin 1989).
Example of a case study method

A problem of qualitative research is the complexity of comparative case studies. This analysis examines the activity of the ten case studies. The research issue addressed the internal management processes of RDBs. The case method offered in this paper is an approach in which large volume and complex data can be analyzed systematically.

A call for greater systemization of qualitative data analysis (Miles & Huberman 1994; Yin 1994) has been addressed by a number of researchers (Pawson & Tilley 1997; Perry 1998). This research builds on the cases and examples provided by these researchers of the use of multi-level analysis of qualitative data in comparative case study research (Pettigrew 1990). This section of the paper will focus on how qualitative can be summated under the realism paradigm (Pawson & Tilley 1997; Perry 1998).

This research proceeded in three stages, as shown in figure 1. Stage one involved the development of a conceptual framework, where research issues and interview questions were developed through pilot case studies and attention to the literature. The conceptual framework deals with the role of board, board structure and management practices based on the literature review and three pilot case studies (Christie 1999). It provides a comprehensive and focused basis to analyze the variables explaining the internal operations of an RDB and these variables. This paper will examine stage two of case study analysis (Patton 1990; Yin 1989). Confirmation of the conceptual framework and the relevant research variables is undertaken in stage two, involving case study interviews. Separate to this paper, in the third and final stage there was theory building to explain the execution of the internal operations of an RDB.

The conceptual framework for the execution of management processes and roles of a RDB is a prototype of the research issues and variables. The conceptual framework is the basis of data collection through face to face interviews developed from pilot case studies and the literature (Guba & Lincoln 1994; Parkhe 1993; Patton 1990). Data collection was carried out at 10 RDBs. The selection of these 10 was based on the criteria of the general analytical framework. Personal interviews were carried out with RDB members, general managers and essential external stakeholders of the agency concerned. Analysis of these
data was achieved through tools and techniques such as data reduction, data matrices, pattern identification and explanation (Miles & Huberman 1994; Patton 1990; Yin 1989). The final model developed through the case study method provides a basis upon which to examine a RDB as a whole. The final model permits the analysis of important events, decisions and actions of a RDB, and their effect on the execution of management processes and roles.
Analysis of interview data

Analysis of interview data commenced after interview notes and tape recorded interviews were fully transcribed. First, for each of the 21 variables of the conceptual framework, an interview question probed the complexity and range of activities. Second, for eight of the variables a further question probed the perceived importance of the variable for a case (Perry 1998). Third, the individual Likert scales were totalled to provide a summation of the frequency of events (Yin 1993).

In the analysis of the data, interviewee's ratings were triangulated with other data collected by the researcher to settle on a final grading. Throughout the discussion, quotations are shown in direct quotation marks. Bias has been dealt with through the triangulation of respondents' comments with other data sources (Yin 1993).

In the analysis of the data, five levels of analysis were carried out to identify patterns within the data, as graphically represented in figure 2 and shown in table 4. The first three levels consisted of analysis of individual cases, comparison of cases and then grouping of cases with similar patterns. The fourth level was a summation of all interview questions by cases. Level five was a set analysis of the comparison of individual cases with the summation of cases that provided the final level of analysis of case patterns.
The raw data was examined qualitatively for meaning. The data matrices assisted in presenting the reduced data in a methodical way and assisted the researcher to centre and establish the data harmoniously (Miles & Huberman 1994). These matrices are presented graphically and in tabular form in this chapter to organise ideas and methodically investigate relations in the data, as well as to communicate the results (Neuman 1994). In the graphical representation, the x-axis indicates a nominal scale with categories based on ex-post theoretical replication. The y-axis, an ordinal scale, indicates a Likert scale from 1 to 7 used in the interview protocol. The y-axis is an interval type scale but is not accurate as it is based on multiple triangulations of the data.

A seven-point Likert scale was finally determined after initially experimenting with other scales. It was found to provide a level of discrimination that usefully and graphically represented the transformation of qualitative data into a quantitative measure. The scale consisted of highest (7); high (6); moderately high (5); moderate (4); moderately low (3); low (2); and lowest (1). However, the scale rank was not meant to be exact, as the interview data was part of an examination for meaning. The type of graph used is a scatter diagram and different symbols have been used to differentiate the types of cases.
Level one is an individual case analysis, between interviewees, of patterns for a specific interview question, as noted in table 4 and shown in figure 3. Level 1 identified the similarities and differences of the activities of an individual case. The data matrix represented this level of analysis with an initial Likert score. The Likert scale quantified the complexity and range of activities within the cases.

Table 4
**Levels in the analysis of the data**

<table>
<thead>
<tr>
<th>Level</th>
<th>Individual interview question</th>
<th>All questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Set analysis:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Comparison of group and cluster analysis. Specifically, a comparison of case averages for overall activity of all cases and for all questions with individual interview question as represented in the data matrices</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Cluster analysis:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Cases are clustered by summation of Likert scores of all cases and all questions (as represented in figure 4).</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Group analysis:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Similar cases are grouped together and these groups are compared for differences (see figure 3) and represented in data matrices</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Cross-case analysis:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Patterns of similarities and differences for specific interview question across all cases represented by data matrices</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Within case analysis:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Patterns of similarities and differences within a case for a specific interview question and was represented by data matrix</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operational measure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Individual scales of the indexes</td>
<td>The sum of individual indexes</td>
</tr>
<tr>
<td></td>
<td>Comparison of the individual scales of the indexes with the sum of individual indexes</td>
<td></td>
</tr>
</tbody>
</table>

Source: developed for this research

Level two was a cross-case analysis in which cases from level one were compared for similarities and differences, as noted in table 4 and shown in figure 3. Thus the activities of questions within specific interview questions across all cases were compared for patterns and represented on the data matrix. This second Likert scale quantified the complexity and range of activities between cases. It applied the same scale as level 1.
Figure 3

Formula for group analysis for one case (levels one and two of analysis)

Specific interview question for one case

Variable

Interview question

Activities of case

Compared with

Cases 1-9

Level 1

Level 2

Source: developed for this research

Level three formed the group analysis that grouped together similar cases of the cross-case analysis, as shown in figure 4 (and noted in table 4). Similar cases were grouped based on the similar patterns of activities within a specific question. Comparative analysis of the resultant groupings was carried out.

A group is defined as those cases that have similar patterns of activity for a specific interview question. Activity is defined as the actions undertaken by RDB to execute their management processes and roles. Patterns are examined within each case and between cases to form case groups (Miles & Huberman 1994). Group and cross-case analysis is carried out to discern similarities and differences. These patterns are systematically examined through the data by searching for key dimensions and emerging themes. Through the cross-case analysis the actions of the different boards are compared and ranked.
Figure 4

Formula for cluster analysis for all cases (levels three and four of analysis)

<table>
<thead>
<tr>
<th>Formula for cluster analysis of individual case</th>
<th>All cases</th>
</tr>
</thead>
</table>
| Sum of 29 group scales from stage 3  
\[ \frac{29}{29} \] = Case average | Case average X 10 |
| Low (3 on Likert scale) | Medium (5 on Likert scale) | High (6 on Likert scale) |

Source: developed for this research

Level four was a summation of all level three Likert scales for all cases and all 29 questions, as shown in figure 4 (and noted in table 4). Once the 29 Likert scores were totalled for all the interview questions, an average for all cases was determined. A pattern emerged of three clusters in this summation. The clusters consisted of a rating of high, medium and low, as shown in table 4. In the analysis of the cases, the seven-point Likert score average for high was six, for medium five and for low three.

A cluster is defined as a summation of all questions for an individual case. Specific interview question are then compared to the cluster. The result is known as a set. During the set analysis, comparison of the similarities and differences for a specific interview question is undertaken.

In level five, the set analysis was a comparison of the case patterns of levels three and four of the cluster and group analysis as shown in figure 5 (and noted in table 4). Level 5 consisted of three steps in the analysis. Step 1 identified the group analysis Likert score out of seven for individual cases and questions. Step 2 identified the cluster rating of high, low and medium. Step 3 then compared the group and cluster analysis. Specifically, comparison occurred between an individual case with the overall activity of all questions for that board. The outcome of this was that either the patterns were the same or different. If patterns were different they were represented either above or below the Likert score.
Patterns were then examined to explain the differences between the group and cluster analysis.

**Figure 5**

**Level five set analysis**

Step 1: Specific question - identify level three group Likert score (range = 1 to 7) of each of the 29 questions per case

Step 2: Overall activity - identify level four of board (low, medium, high)

Step 3: Compare analysis of difference between levels three and four

| Level 5 analysis | = | Step 1 = Results for level three of analysis | Step 2 = Results of level four of analysis | Step 3 = Comparison |
|------------------|--|--|---------------------------------------------|--|------------------|

Source: developed for this research

Additionally, eight of the questions probed the perceived importance of the variable for the case. The data for this question is presented in a graphic form using numbers, symbols and weighted scores for ranking. The scale of 1 to 7 in the figures was used to indicate the degree of importance of the variables under investigation for a case. Interviewees were asked to indicate the importance of these factors based on their experience using a seven point Likert scale. The scale quantified the activities for a case and the importance consisted of: 1 = very strongly disagree; 2 = strongly disagree; 3 = disagree; 4 = unsure; 5 = agree; 6 = strongly agree; 7 = very strongly agree.

The research are analysed based on the data drawn from responses of the 29 interview questions. The findings from each of the interview questions have been summarised with a figure for each interview question. The Y-axes represent a range of significance for board activities on a seven-point Likert scale. As noted above, group analysis of each interview question is carried out where common patterns between cases exist. Then further analysis of the groups is carried out by a cluster analysis.

Cluster analysis was carried out after all the interview questions were analysed in level four of the analysis. In level five, the set analysis, cases in each group in figures were
compared with the overall ratings of all questions developed in level three and four. Thus, level five insights were gained from the variations in the cluster analysis.

**Conclusions**

Although qualitative research has sometimes been viewed as somehow inferior to quantitative research (Perry 1998), at least in terms of methodological rigour, we have argued that qualitative research, as exemplified by the case method, can be fully appropriate in a number of research situations and can be used with rigorous attention to methodological integrity. The importance of careful design of case study research cannot be overstated. More specifically, steps should be taken to ensure construct validity, confirmability, internal validity and credibility, external validity and transferability, and reliability and dependability.

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