

Using case study methodology to research knowledge generation and transfer in international business networks

Leslie R Brown
Ronel Erwee
University of Southern Queensland

ABSTRACT

In this paper, the justification and application of a multiple case study approach in researching knowledge generation and transfer in international agribusiness networks, is explained and described. It is first argued that insights about knowledge generation in marketing networks of mandated multinational subsidiaries can emerge from the use of multiple case research into the subsidiaries of such firms. Next, the application of a 'three stage research activity map of the research' to address issues of validity and reliability in case study research, is outlined. This was seen as critical to capturing the complexity of knowledge management, especially in case research. The stages of the research are then outlined, first the literature review, secondly pilot interviews using a draft protocol, next, revisiting the literature in a more focussed manner to refine the protocol by encapsulating new insights from the pilot interviews and the second stage literature review. In the fourth stage, a series of convergent inter-company interviews preceded further and final refinement of the protocol before the planned inter and intra company interviews, the last stage before development of theoretical propositions about the research question. An interview matrix, designed to address issues of validity and reliability in such complex research, provides a systematic approach to showing how this research delineated the chosen agri-business sub-sets, networks, types and levels of mandates and levels of managerial responsibilities to provide data richness which maximises opportunities in enabling cross-case analysis at many levels of complexity.

INTRODUCTION

The focus in this paper is on the application of the case study method to develop propositions about knowledge management in international business. Knowledge has been recognised as a strategic asset and a source of competitive advantage especially in multinational enterprises and their subsidiaries (Nonaka & Takeuchi 1995). The difficulty with the management of organisational and individual knowledge is, that because of its intangibility, it is not readily measurable and as such cannot be readily quantified as a firm-specific strategic asset. The complexity of multinational companies with subsidiaries operating in dispersed locations each with diverse teams and part of international networks, adds to the difficulty in researching the knowledge creation process.

THE RESEARCH PROBLEM

The research question asked during this case study research program is '*How do corporate marketing mandates affect the strategic international marketing networks of Australian subsidiaries of international agribusiness firms?*'. International agribusiness is characterised by a dynamic environment, particularly in which issues of technology transfer, intellectual property rights and the use of production and distribution networks in differing regulatory regimes are often combined (Borch, & Arthur 1995; Brown & Erwee 1999; Carson & Coviello 1996, Dwyer & Mellor, 1992; Gronroos, 1993; Hakansson & Snehota, 1995).

Therefore, because of an apparent gap in the literature about marketing mandates in multi-national firms, and using international agribusiness a model, because the comparative advantage of the firms chosen is based on developing and protecting high levels of intellectual property, the main areas of investigation in the larger study are to develop propositions about :

- How international agri-business firms structure their international marketing activities?
- The extent to which corporate marketing mandates impact on the marketing activities of country-specific subsidiaries of such organisations?
- Whether or not subsidiaries of such firms utilise informal networks as a means of conducting their marketing activities?
- The way in which the knowledge gained from participation in such networks is managed and utilised most effectively ?

THE RESEARCH METHOD

The adoption of existing research methods for strategic analysis using existing objective research methods such as the quantitatively driven survey technique, across a large number of firms has been increasingly criticised because of the emergence of 'new' or previously unrecognised structural forms such as business 'nets' (Borch and Arthur 1995, Jarillo 1988, Johanson and Mattsson 1987). This problem has been compounded by the lack of a substantive body of research into such phenomena as international marketing networks, despite the emergence of research interest, particularly in Australia (Healy 1998).

Given the paucity of understanding of the phenomena, then it is apparent that generalisations cannot be drawn from populations however substantial, unless both the researcher and the population within the sampling frame understand the research issues (Sandelands and Drazin 1989, Pettigrew 1987-Borch and Arthur). Therefore, despite the possible apparent existence of external validity in such research, internal validity cannot be guaranteed. As Popper (Magee 1985) postulated, theory which purports to explain broad issues is poor theory.

A need to include social dimensions in networks research is an example of the complexity of the topic area. The inclusion of such '*social*' aspects into business research invites criticisms in relation to questions of methodological rigour (Borch and Arthur 1995). Such criticisms need to be addressed but at the same time any refutation needs to demonstrate, that, as previously mentioned, any exclusion of relevant aspects or dimensions of the research problem raises grave concerns over external validity (generalisability).

The need to include both a justification for the research methodology and the method adopted is the most appropriate means of both addressing such criticisms and simultaneously demonstrating the validity (both external and internal) of the research (Morgan and Smirich 1980). However, the purely positivist approach to researching complex phenomena such as industrial or marketing networks and the dearth of relevant research findings underlies the need in this instance particularly, to adopt a more subjective approach which avoids lack of scientific rigour and conceptual adequacy. However, the following caveats to the use of an objectivist approach still apply to this research:

1. A causal design demands a stringent of survey designs for descriptive studies and tests for valid tests for causality. Such surveys rely for statistical validity on the study of a large number of respondents. This makes it difficult to include a broader set of variables at different levels of analysis. We therefore have a problem in tracing the deeper aspects of networks as social constructions with multiple conflicting interpretations (Daft and Weick 1983).
2. The objectivist approach to a large extent builds upon studying organisations '*one piece at a time*', failing to address the organisational system as a whole with strong relationships between sets of variables at different levels and in

different contextual settings (Daft and Lewin 1990, Mintzberg 1977). Case based research is explanatory theory-building research which incorporates and explains ideas from outside the case rather than *'learning a little about a lot'* (Carson, Gilmore, Gronhaug and Perry 2001, p)

3. The objectivist approach fails to capture the important dynamic dimensions of strategy development , for example the process of strategic adaptation and organisational learning (Johanson and Mattsson 1987, Huff and Reger 1987). It is often seen as too much of a *'snapshot'* approach given that *'how'* and *'why'* questions *'in case-based research are....explanatory....such questions deal with operational links needing to be traced over time rather than mere frequencies or incidences'* (Carson et al. 2001, p.
4. An objectivist approach contributes to *'messy'* fragmented research leaving major *'soft'* behavioural issues unaddressed (Parkhe 1993)(Borch and Arthur 1995)

The case study approach is therefore the preferred strategy for this research, because it allows the researcher to examine the extent to which marketing mandates impacts on the networks of Australian subsidiaries involved in international trade (Healy 2000). Case study research also enables the researcher to examine *why* firms develop certain types of networks (Buttery & Buttery 1994) and furthermore, it permits closer examination of the ways in which these networks influence the performance of such firms (Perry 1997, 1998). This is the *'how'* aspect of the enquiry. Each of the following criteria for the selection of case study research, firstly, *the type(form) of research question posed*, secondly, *the extent of control the investigator has over actual behavioural events*, and thirdly, *the degree of focus on contemporary, as opposed to historical events*, are now addressed in turn.

First criteria: the type of research question posed. The research question of this study is a *'how'* and *'why'* question. Although any of the five strategies of experiment, survey, archival analysis, history and case study (table 1, column 3) would be suitable for first of these categories of exploratory or *'what'* questions, only case studies are considered suitable when two other criteria need to be satisfied (Perry 1997, 1998). This research has a focus on contemporary events (**i.e. international marketing networks and knowledge generation**) on the one hand whilst there is also an absence of any need to control behavioural events on the other. When considered jointly, these

needs exclude the all the four strategies (experiment, survey, archival analysis and history) other than case study method, from consideration. Given the type of research issues, case study research was therefore considered as a valid method (Yin 1994).

Table 1. Relevant situations for different research strategies

Strategy	Form of research question	Control required over behavioural events?	Focuses on contemporary events?	Application In this research
Experiment	how, why?	yes	yes	no
Survey	who, what, where, how many, how much?	no	yes	no
Archival analysis	who, what, where, how many, how much?	no	yes/no	to some extent
History	how, why?	no	No	to some extent
Case study	how, why?	no	yes	yes

Source: Yin (1994, p.6).

Second criteria: the extent of control the investigator has over actual behavioural events. The option of the *‘experimental’* method in which the researcher has direct, precise and systematic control over the behaviour of the variables under scrutiny (Yin 1994), is not available to the researcher in this instance. MNCs and subsidiaries are not open to ‘controlled’ experiments in knowledge generation over an extended period of time (Ghosal & Bartlett, 1993; Gemunden & Ritter, 1997).

Third criteria: the degree of focus on contemporary as opposed to historical events. The current research project examines current phenomena as it focuses on the types of networks developed by the managers of MNCs and subsidiaries operating within complex business environments. Although the case study method is closely allied to historical analysis (Perry, Alizadeh & Riege, 1997), histories are preferred when there is no access to contemporary events or when relevant participants are no longer alive. Given the contemporary nature of the current research and the availability of stakeholders for interview, again, the case study method appears the appropriate choice. Again, when the other two criteria, *the type of research question*, and *the extent of control the investigator has over actual historical events*, are considered in

conjunction with this third requirement, only the case study method is considered satisfactory (Perry and Coote 1994).

A criticism of case study research is that it is only concerned with dynamics within a single setting (Eisenhardt 1989) and therefore it lacks precision, objectivity and rigour. In this research, there are to be five interviews in each of nine separate cases, which clearly takes this research away from a single setting scenario because these nine case are from different industry subsets with individual firms in different stages of internationalisation and extent of marketing mandating.

Table 2. Comparison of realism and positivism research approaches

Dimension/item	Positivism approach	Realism approach	Constructivism/critical theory
Research position (goal of investigation)	prescriptive, causal, deductive, theory confirming, ungrounded	exploratory, descriptive, theory building, inductive, analytical	descriptive
Direction of research inquiry	measurement and analyses of causal relationships between variables that are generalisable across time and context	development of idiographic knowledge based social experiences such as human ideas, beliefs, perceptions, values, etc.	development of idiographic knowledge based social experiences such as human ideas, beliefs, perceptions, values, etc.
Research strategies	experiment, survey, etc.	case study, convergent interviewing, etc.	in-depth interviews, participant observation
Methodology	outcome-oriented, verification-oriented	process-oriented, discovery-oriented	observation, process oriented
Causality	cause-effect relations	causal tendencies/generative mechanisms	not addressed
Interview questions	mainly closed with limited probing	open with probing	very open
Judgement of research quality	external validity and reliability are critical	construct validity is important	Credibility, transferability, dependability and confirmability
Sample size	Large	small	very small
Data collection	Structured	semi-structured, unstructured	unstructured
Interaction of interviewer and phenomenon	independent and value-free - a one way mirror	mutually interactive but controlled by triangulating data - an open window	passionate participant/transformative intellectual
Respondent's perspective	emphasis on 'outsider's' perspective and being distanced from data	emphasis on the 'insider's' perspective'	emphasis on 'outsider's' perspective and being distanced from data
Information per respondent	varies (specific to question)	extensive (broader question)	extensive

Type of data gathered	replicable, discrete elements, statistical	information-rich, contextual, non-statistical, somewhat subjective reality	information-rich, contextual, non-statistical, somewhat subjective reality
Hardware, software	questionnaires, statistical programs, software	tape recorders, interview guides, qualitative programs, methods, transcripts, software, visual	tape recorders, interview guides, transcripts, qualitative software programs, visual methods
Type of data analysis	objective, value-free, statistical methods	non-statistical, triangulation	value-laden, non-statistical

Source: developed for this paper, from Perry and Coote (1994), Guba and Lincoln (1994), Bonoma (1985).

Therefore such of case studies aligns with comments such as those of Yin (1994) who considers that such an approach is no less deficient than the survey or the historical research method because the linkages between case studies and empirical reality, allows for the development of testable, relevant and valid theory (Glaser & Strauss 1967). Table 1 contrasts the realism approach with both positivism and constructivism and shows its relevance to theory building.

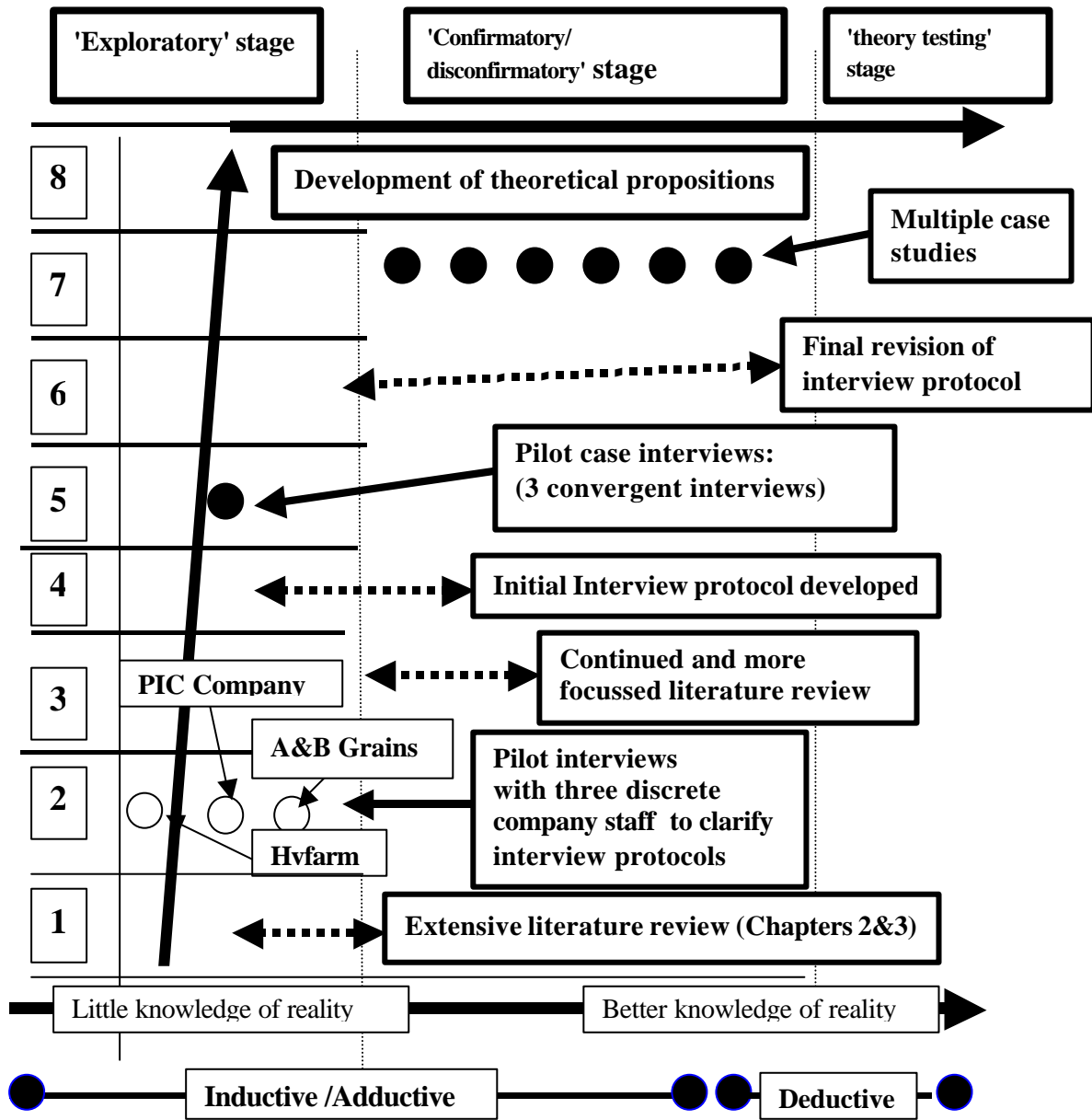
Addressing reliability and validity in research design

Four tests for judging the quality of any empirical research have been commonly applied. These are tests for construct validity, internal validity, external validity and reliability. As '*case studies are considered a form of empirical research*' (Yin 1994, p. 32), the same four tests are relevant in order to achieve construct validity, internal validity, external validity and reliability in the context of case study research.

The research activity map: A research activity map (figure 1) was constructed to meet the necessary requirements of reliability and validity in research design (see also Healy 2000). It also created a map to precisely map the sequence of processes and procedures during the research. It demonstrates how insight was gained of current situations; e.g. little knowledge of reality during the literature review stage. Increased knowledge of business networks, mandates and knowledge generation emerges during pilot interviews in stage 2 and so on. Each of the stages are now explained in detail.

Stage 1. Initial literature readings: Level one of figure 1 represents the starting point for this research which was the development of a research proposition from phenomena about subsidiary marketing mandates observed in Australian subsidiary of an international firm in prior research but not researched.

Figure 1 Eight level, three stage research activity map as used in this research



Legend:

- 1: initial literature readings (Chapters 2 & 3)
- 2: initial single informant interviews (3 cases)
- 3: continued and more focussed literature review
- 4: interview protocol developed and clarified
- 5: single pilot case interviews (convergent inter-company interviews)
- 6: final revision of interview protocol
- 7: multiple case studies of Australian subsidiaries of international firms
- 8: development of final theory with propositions for later testing

Source: developed for this research from Healy (2000), Perry (1998), Aronson & Riege (1996) and Perry & Coote (1994)

This idea was developed by reference to the literature on MNEs, international marketing and networks and knowledge management. From this review, several research propositions were developed.

Stage 2. Initial single informant interviews (3 cases): Further insights into the research issue addressed in this research, that of the effect of corporate marketing mandates on the international marketing network development of Australian subsidiaries of international firms, were gained through a series of **three single informant interviews** with senior personnel of three Australian subsidiaries of international agribusiness firms. This type of pilot case studies fulfils the role of testing the interview protocol discovering new research issues and familiarises the researcher with the industry or industry sub-set. These pilot case studies are seen as being first level only because later case interviews are seen as being at a higher level as the now refined research protocol allows the level of complexity of the interview to increase.

Stage 3. Continued and more focussed literature review: Consideration of these further insights was conducted with reference to the literature previously reviewed. This necessitated extending the literature search, particularly in the realm of knowledge and knowledge management within marketing networks, which had apparently not been addressed in much of the prior literature. Therefore the range of literatures was extended to address this phenomena, research into which, may in fact be seen as addressing a gap in current theory about international marketing networks. Such mining of the literature facilitates the exploration of complex linkages, e.g. in one interview, it was discovered that one network key player had established a set of criteria for partnership selection that was not evident in the literature.

Subsequently, the interview protocol was amended to include criteria for partnership selection; this then became an issue in the next pilot interview.

Stage 4. Interview protocol developed and clarified: The next step was to develop a test instrument for data collection. As the data was to be collected using multiple cases and multiple within case interviews, a preliminary interview protocol was developed. This interview protocol was designed to address the major constructs, organisational structure, marketing mandates and networking activities which underpin this research. However, as data was to be collected by in-depth, one-on-one interviews, the development of a protocol to guide these interviews was deemed essential in order

to ensure that there was consistency across interviews, given the diversity of firms selected for cross-case analysis as well as the varying levels and responsibilities of interviewees within each individual case.

Stage 5. Single pilot case interviews (convergent inter-company interviews):

After the initial development of the test instrument, the next step was to field test this interview protocol. To this end, an atypical Australian subsidiary of an international agribusiness firm was identified and a series of interviews with senior marketing and product and distribution managers within this firm was conducted in order to fulfil three objectives viz.

- to test the instrument for its suitability as a means of supporting personal interviews to yield appropriate data
- to gather data for later analysis if seen as appropriate
- to be able to modify the protocol if certain aspects were seen as inappropriate

Currently the research is at stage 5, with several preliminary interviews with marketing managers from different firms confirming main interview protocol whilst at the same time the selection of firms for further analysis is proceeding.

Stage 6. Final revision of interview protocol: Modification of interview protocol is envisaged after initial interview. Currently tautologies in certain questions have been edited out and final refinements are envisaged before the full set of interviews in industry sub-sets (see Fig. 1) are planned and conducted.

Stage 7 Multiple case studies of Australian subsidiaries of international firms: These are to be undertaken in two stages 'A' and 'B' as discussed below and as shown in Table 2.

(a) Initial analysis will focus on the anchor case. Then corresponding industry sub-set will be completed before proceeding to cross industry sub-set analysis. This compartmentalisation of interviews into specific industry subsets is designed to enhance the capacity of the researcher to identify and understand any idiosyncrasies about the research issue which may be specific to a particular sub-set.

(b) Completion of interview program both within firms and across industry sub-sets will then be conducted to address specific research issues.

Stage 8. Development of final theory with propositions for later testing.

Use of convergent interviewing; Convergent interviewing is a means of conducting exploratory research; it is particularly useful as a means of refining issues for later more detailed analysis. It has been more fully described as '*an interactive technique for collecting, analysing, and interpreting relatively large amounts of interview data in less researched and established areas of study*' (Nair & Riege 1995, p. 499). Convergent interviewing has also been described as a qualitative methodology which uses interviews to obtain information from (experts) to develop convergence of opinion on important issues (Perry, Alizadeh & Riege, 1997; Healy 2000). The appropriate number of interviews to establish a satisfactory level of convergence in order to address questions of validity is achieved. Convergent interviewing is used in stage 5 and again in stage 7 as its application can be justified with specific reference to the research topic at hand.

Proposed interview pattern.

The planned interview pattern is shown in Table 3 as follows:

- At the head of each column in the body of the table is shown the individual firm (though not all selected at this stage). Data collected from these variables will attempt to answer the research question 'How do international agri-business firms structure their international marketing activities?'
- The second row of each column the extent of to which each firm is mandated is shown. Data collected from this set of questions in the interview will inform the research question on 'To what extent do corporate marketing mandates impact on the marketing activities of country-specific subsidiaries of such organisations?'
- The base of the table shows the industry sub-set for each individual firm operates.
- Each row nominates the managerial level of the projected interviewees, ranging from CEO (subsidiary) through marketing manager, product development manager, information/network manager through to consultant (to provide an additional perspective). This dataset in the survey will provide information to answer the research questions 'Do subsidiaries utilise informal networks as a means of conducting their marketing activities?' and 'How is the knowledge

gained from participation in such networks managed and utilised most effectively ?”

The rationale for developing this matrix is to enable a range of intra-organisational and inter-organisational comparisons to be made at both individual and aggregate levels to address issues of literal and theoretical replicability (Perry & Coote 1994). Currently the research is in Stage 5 and convergent interviews are being conducted within an industry subset to test the instrument for its ability to yield appropriate data.

CONCLUSIONS

The use of multiple case studies in researching marketing mandates and business networks in international agribusiness was justified. This was done by firstly defining the research problem and issues. Next the research method was illustrated by the use of a ‘staged research activity map’ and an interview matrix. This staged approach to qualitative research yielded many insights during the early research phases that subsequently enriched the planning and design. It highlighted the critical role of knowledge management and sharing that was not emphasised in the early drafts of the literature review and interview protocol.

REFERENCES

- Bonoma, T.V. 1985, ‘Case study research in marketing: opportunities, problems and process’, *Journal of Marketing Research*, vol.12, pp. 199-208.
- Borch, O.J. and Arthur, M.B. 1995, ‘Strategic networks among small firms: implications for strategy research methodology’, *Journal of Management Studies*, vol. 32, no. 4, pp. 419-441.
- Brown, L and Erwee, 1999 ‘Key actors in networked international firms’ In Uncles, M, Patterson, M & Cadeaux, J (eds). *Marketing in the third millennium*, Proceedings of the ANZMEC conference, University of New South Wales, Sydney Nov 28 to Dec 1.
- Buttery, E. and Buttery, A. 1994, ‘*Business Networks*’, Longman Business and Professional, Melbourne.

- Carson, D. and Coviello, N. 1996, 'Qualitative research issues at the marketing/entrepreneurship interface', *Marketing Intelligence and Planning*, vol. 14, no. 6, pp. 51-58.
- Dwyer, L. and Mellor, R. 1992, 'Product Innovation strategies of Australian firms and their impact', *Academy of International Business, Southeast Asia Regional Conference* (1992: Brisbane, Qld). pp. 249-254.
- Easton, G., 1992, Industrial networks: a review in B. Axelsson and G. Easton (eds.) *Industrial Networks - A New View of Reality*, Routledge, London.
- Gemunden H.G., Ritter, T. 1997, 'Managing technological networks: the concept of network competence' in Gemunden H.G., Ritter, T. and Walter, A. (eds.) *Relationships and Networks in International Markets*, Elsevier Science Ltd. Great Britain (Pergamon) pp. 294-304.
- Ghoshal, S. and Bartlett, C., 1993, 'The multinational corporation as an interorganisational network' in S. Ghoshal and D.E. Wesny (eds.) *Organisation Theory and Multinational Corporation*, St. Martins Press, New York.
- Glaser, B. G. and Strauss, A. L. 1967, *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Aldine Publishing Company, Chicago.
- Gronroos, C., 1993, 'From marketing mix to relationship marketing: towards a paradigm shift in marketing', *Asia-Australia Marketing Journal*, vol. 2, no. 3, pp. 9-29.
- Guba, E. G. and Lincoln, Y.S. 1994, 'Competing paradigms in qualitative research' Denzin, N.K. and Lincoln, Y.S. 1994, '*Handbook of Qualitative Research*', Sage Publications, Thousand Oaks. pp. 105-117.
- Healy, M 2000 'Structures and processes of the international networks of Australian small business' PhD thesis University of Southern Queensland.
- Gummerson, C. 1993, 'From marketing mix to relationship marketing: towards a paradigm shift in marketing', *Asia- Australia Marketing Journal*, vol. 2 no. 1, pp. 9- 29.
- Hakansson, H. and Snehota, I. (eds.) 1995, *Developing Relationships in Business Networks*, Routledge & Co. London.

- Nair, G. & Reige, A. 1995, 'Using convergent interviewing to develop the research problem of a postgraduate thesis', Proceedings, Marketing Educators and Researchers International Conference, Griffith University, Gold Coast.
- Nonaka, I. and Takeuchi, H. 1995, *The knowing creating company – How Japanese companies create the dynamics of innovation*, Oxford University Press, New York.
- Perry, C. 1998, 'Processes of a case study methodology for postgraduate research in marketing', *European Journal of Marketing*, vol. 32, no. 9/10, pp. 785-802.
- Perry, C. 1997, 'Structured processes of a case study methodology for postgraduate research: advice from a supervisor', in O. Zuber-Skerritt, (ed.), *Supervising Postgraduates From a Non-English Speaking Background*, Southern Cross University Press, Lismore.
- Perry, C. Alizadeh, Y. and Riege, A. 1997, 'Qualitative Methods in Entrepreneurship Research', proceedings of the Small Enterprise Association of Australia & New Zealand 1997 Annual Conference, Novatel Opal Cove Resort, Coffs Harbour, 21-24 September, pp. 547-567.
- Perry, C. and Coote, L. 1994, '*Processes of Case Study Research Methodology: Tool for Management Development?*' paper presented at the Australian and New Zealand Association ANZAM '94 Conference, December, Victoria University of Wellington, Wellington, New Zealand.
- Yin, R.K. 1994, *Case Study Research Design and Methods (Second Edition)*, Sage Publications, Thousand Oaks.

Appendix T-3

Table 3 Proposed interview pattern showing both cross-case and within-case dimensions

Cases
Interviews

	Pacific seeds	Pioneer Seeds	Dutch company	P.I.C	Hyfarm		Better blends	Ridleys	
	sub-set 1 Case 1 (little/ no mandating of markets)	sub-set 1 Case 2 (markets mandated)	sub-set 1 Case 3 (markets strictly mandated)	sub-set 2 Case 1 (little / no mandating of markets)	sub-set 2 Case 2 (markets mandated)	sub-set 2 Case 3	sub-set 3 Case 1 (little/ no mandating of markets)	sub-set 3 Case 2 (markets mandated)	sub-set 3 Case 3 (markets strictly mandated)
Interview 1 Mandator	CEO (Industry Networks)	CEO	CEO	CEO	CEO	CEO	CEO	CEO	CEO
Interview 2 Networker	Marketing Manager (Mkt & Ind networks)	Marketing manager	Marketing manager	Marketing manager	Marketing manager	Marketing manager	Marketing manager	Marketing manager	Marketing manager
Interview 3 Networker	Product development Manager (Market networks)	Product development manager	Product development manager	Product development manager	Product development manager	Product development manager	Product development manager	Product development manager	Product development manager
Interview 4 Networker	K.I.N. Manager (global networks)	manager	manager	manager	manager	manager	manager	manager	manger
Interview 5 Consultants		consultant	consultant	consultant	consultant	consultant	consultant	consultant	consultant