

Buying Behavior and Long-term Relationships in the Metal Mining Industry



Case Studies of Capital Equipment Buying


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The Research Process



1. *Formulate and clarify your research topic*
2. *Critically review the literature*
3. *Understand your philosophy and approach*
4. *Formulate your research design*
5. *Negotiate access and address ethical issues*
6. *Plan and collect data*
7. *Analyze the data*

Formulate and clarify your research topic (Chapter 2)

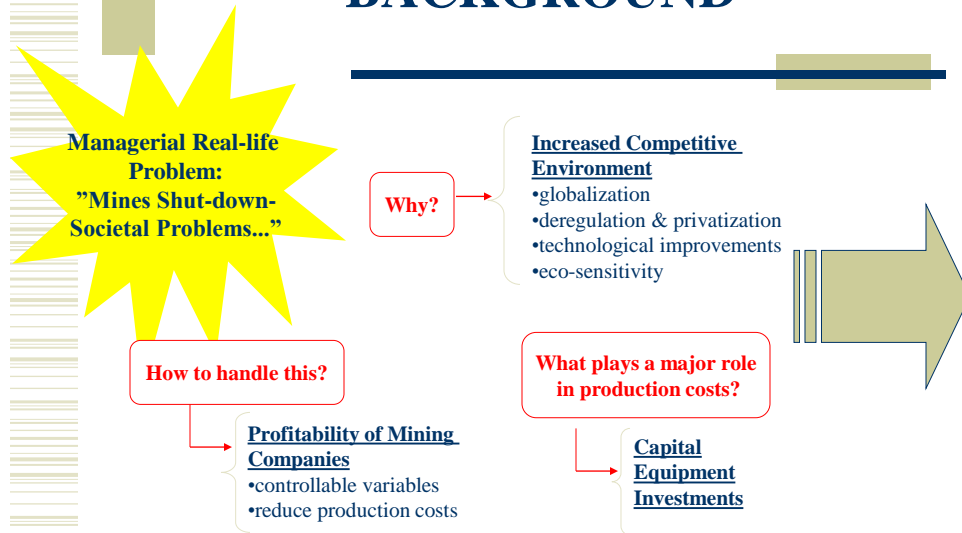
Rational Thinking	Creative Thinking
<ul style="list-style-type: none"> Examining your own strengths and interests  	<ul style="list-style-type: none"> Keeping a notebook of ideas
<ul style="list-style-type: none"> Looking at past project titles 	<ul style="list-style-type: none"> Exploring personal preferences using past projects
<ul style="list-style-type: none"> Discussion 	<ul style="list-style-type: none"> Relevance trees
<ul style="list-style-type: none"> Searching the literature 	<ul style="list-style-type: none"> Brainstorming
<ul style="list-style-type: none"> Scanning the media 	

Turning research ideas into research projects

- Specify the Research Area (theoretical realm)
- Specify the Research Setting
- Writing the *Research Problem* and eventual *Research Questions*
- *“The pitfall that you must avoid at all costs is asking research questions that will not generate new insights”*



BACKGROUND



PURPOSE

"to study the IBB and development of the relationships established between the customers and suppliers of capital equipment in the metal mining industry"

"Buying Behavior and Long-term Relationships in the Metal Mining Industry" -Case Studies of Capital Equipment Buying-

Theoretical Bases of the Thesis

Industrial Buying Behavior
(*transactional-based perspective*) ⇒
Study One ⇒ Research Problem:

"How can the industrial buying behavior of metal mining companies be characterized concerning the buying of capital equipment?"

The Interaction Approach to Business Relationships
(*relationship-based perspective*)

⇒ Study Two ⇒ Research Problem:

"How can the development of long-term relationships between buyers and sellers of capital equipment in the metal mining industry be described?"

Structure and Layout of the Doctoral Thesis

PART ONE: INTRODUCTORY AND SCOPE

Overall Purpose of the Doctoral Thesis:

"To study the buying of metal mining companies concerning the buying of capital equipment"

PART TWO: STUDY ONE

Research Problem:

How can the industrial buying behavior of metal mining companies be characterized, concerning the buying of capital equipment?

The Empirical Investigation:

- Case studies in Sweden (four)
- Case Study in Poland (one)

PART THREE: STUDY TWO

Research Problem:

How can the development of long-term relationships between buyers and sellers of capital equipment in the metal mining industry be described?

The Empirical Investigation:

- Case studies in Portugal (four)

CONCLUDING CHAPTER

"General findings from both studies and final reflections regarding the buying of capital equipment by metal mining companies"

Main Results "Study One"

"IBB of Metal Mining Companies"

- ♦ *Buying process is viewed as a series of buying activities that are handled subsequently (Negotiation is core buying activity).*
- ♦ *Scope of maintenance and repair agreement is determinant to supplier selection.*
- ♦ *Metal mining companies are highly production-oriented and this underlies the dominance of production regarding: the involvement, roles, and influence in the buying center (Swedish cases).*
 - *In the Polish case, the technical services department exerted comparable influence.*
- ♦ *High-perceived product importance together with an interdependent domesticated market leads to the establishment of long-term relationships between buyers and sellers.*

INTRODUCTION – *Study Two*
RESEARCH PROBLEM AND
SCOPE OF THE INVESTIGATION

1. Background
2. The Development of Long-term Buyer-seller Relationships
– *The Phenomenon*
3. The Metal Mining Industry – *The Setting*
4. Research Problem and Focus on the Research Questions
5. The Study's Limitations and Delimitations
6. Structure of the Study

Study Two

”Development of Long-Term Dyadic Relationships in the Metal Mining Industry”

⇒”How can the *development* of the long-term relationships between buyers and sellers of capital equipment in the metal mining industry be described?

- How can the *interaction processes* that occur between buyers and sellers of capital equipment in the metal mining industry be described?
- What are the *factors that most aid or hinder* the development of the relationships established between buyers and sellers of capital equipment in the metal mining industry?

Critically reviewing the literature ([Chapter 3](#))

- *Purposes:*
 - Help you refine your research questions and objectives;
 - Highlight research possibilities that have been overlooked implicitly in research to date;
 - Discover explicit recommendations for further research;
 - Avoid simply repeating work that has been done already;
 - Sample current opinions in newspapers, professional and trade journals, gaining insights into the aspects of the research questions and objectives that are considered newsworthy;
 - Discover and provide an insight into research approaches, strategies and techniques that may be appropriate to your own research questions and objectives.

Critically reviewing the literature

- ***Content:***
 - Include the key academic theories within the chosen area of research;
 - Demonstrate that your knowledge of the area is up to date;
 - Through clear referencing, enable those reading your thesis to find the original publications that are cited;

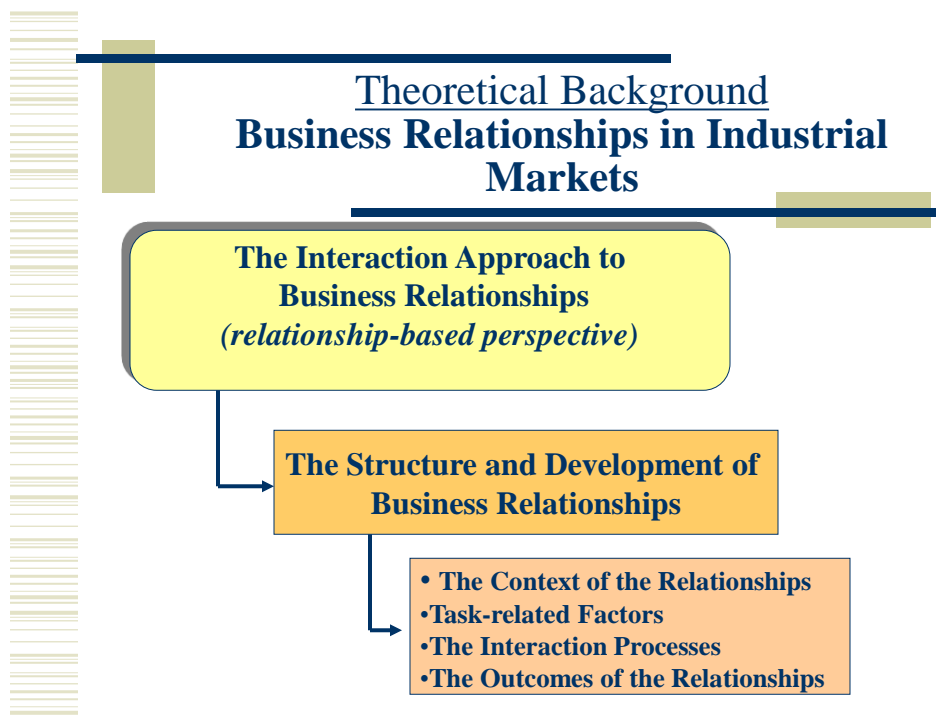
“A description and critical analysis of what other authors have written”

Critically reviewing the literature

1. *Start at a more general level before narrowing down to your specific research questions*
2. *Provide a brief overview of key ideas and themes*
3. *Summarize, compare and contrast the research of the key writers*
4. *Narrow to highlight research work most relevant to your own research*
5. *Provide detailed account of the findings of this research and show how they are related*
6. *Highlight those aspects where your own research will provide new insights*

Critically reviewing the literature

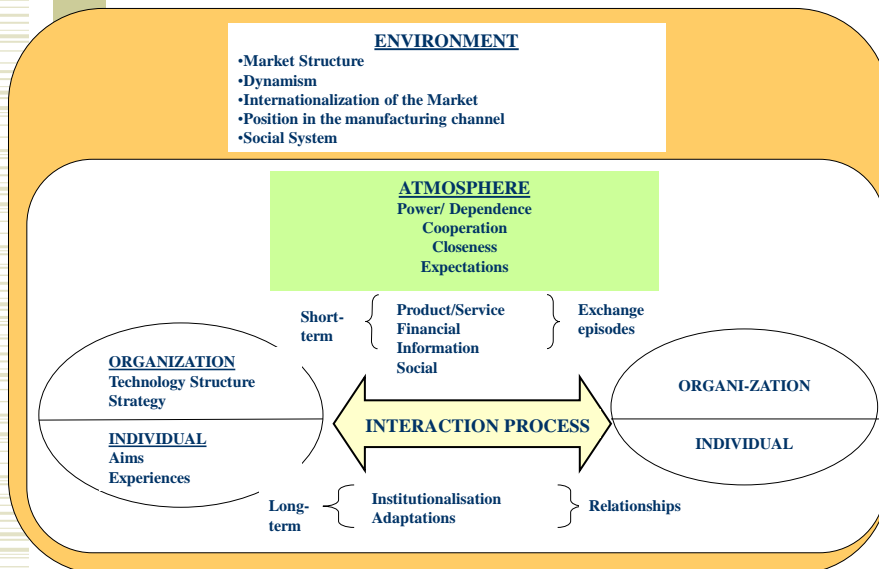
- *Planning your literature search strategy*
 1. Define the parameters of your literature search
 - Language of publication; subject area; business sector; geographical area; publication period; literature type.
 2. Generate your key words
 3. Use relevance trees
 4. Scanning and browsing



THEORETICAL FRAMEWORK

1. Models of Interaction and Business Relationships
2. Studies with focus on Contextual Factors
3. Studies with focus on Task Factors
4. Studies with focus on Interaction Process Factors
5. Studies with focus on Outcome Factors

"The Interaction Model"

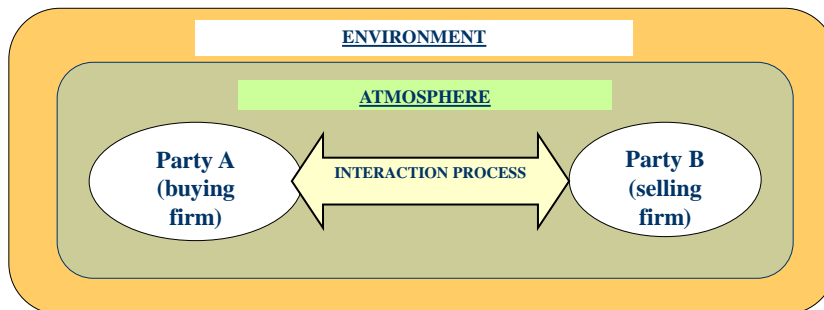


Source: Håkansson, 1982, p.25
 "International Marketing and Purchasing of Industrial Goods: An Interaction Approach"

Outline of the Model *(Håkansson, 1982)*

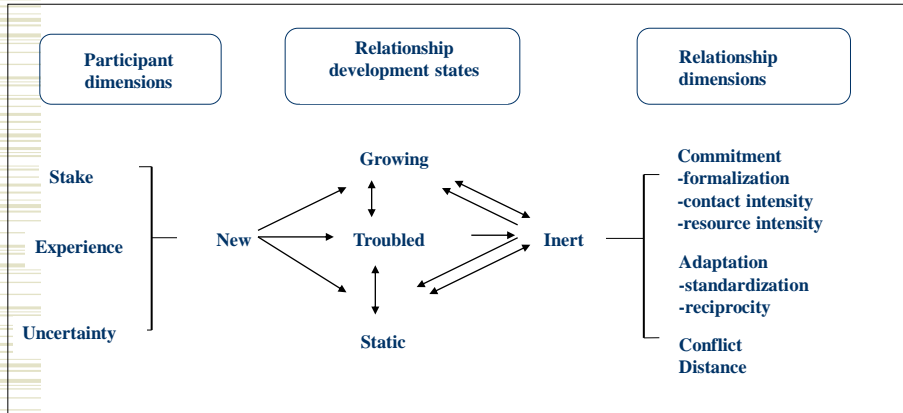
1. Both buyer & seller are active participants in the market...
2. Relationship between buyer and seller is long-term, close and involving a complex pattern of interaction between and within each company...
3. Links between buyer and sellers often become institutionalized into a set of roles that each party expects the other to perform...
4. Close relationships are often considered in the context of continuous raw material or component supply.

BLACKBOARD – FOUR GROUPS OF VARIABLES



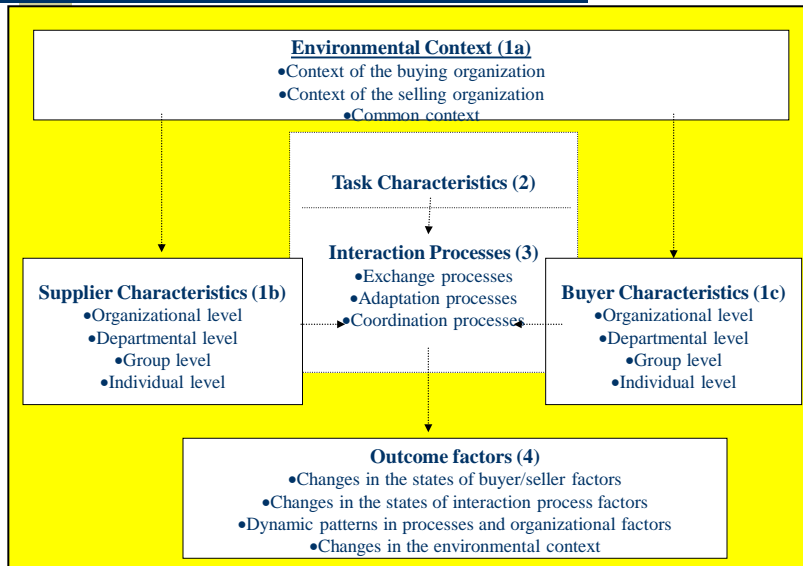
Main elements of the Interaction Model

"A Model of Business Relationships"



*Source: Ford and Rosson, 1982
"A Model of Manufacturer-Overseas Distributor Relationships"*

Taxonomy of Factors in Buyer-Seller Interactions



Source: Möller and Wilson (1995) - Business Marketing: An Interaction and Network Perspective (p.25)

Frame of Reference

- ◆ Explains, either graphically or in narrative form, the main things to be studied – the key factors, constructs or variables – and the presumed relationships among them.
- ◆ *conceptual frameworks and research questions are the best defense against overload. They also reflect that data collection is inescapably a selective process – you cannot capture everything!*

(Miles and Huberman, 1994, p.55)

Conceptualization

- ◆ The definition of **concepts**: *a clear statement of the nature or extent of something.*
- ◆ **concept** is all of the knowledge possessed by an individual about a category of objects or events (Anglin, 1977)
- ◆ an idea or a principle relating to something abstract

Examples for Conceptualization

<u>Concept</u>	<u>Definition</u>
Long-term relationships	<ul style="list-style-type: none"> • “An interdependent process of interaction and exchange occurring between at least two parties that entails a medium- to long-term perspective and a mutuality of interests” <p><i>(based on the definitions proposed by Webster, 1992 and Holmlund and Törnroos, 1997)</i></p>
Context of the Buying Organization	<ul style="list-style-type: none"> • The context of the buying organization is defined/characterized through the variables of: size, structure, age, degree of centralization, objectives and strategies pursued. <p><i>(as referred by e.g., Håkansson, 1982; Campbell, 1985; Hallén et al., 1993; Möller and Wilson, 1995)</i></p>
The Buying Process	<p>The buying process is defined as the sequential stream of buying activities conducted by a <i>buyer</i> and is based on a conceptual scheme that has eight steps defined:</p> <ol style="list-style-type: none"> (1) anticipation or recognition of a need; (2) determination of characteristics and quantity; (3) description of characteristics and quantity; (4) search and qualification of potential sources; (5) acquisition and analysis of proposals; (6) evaluation of proposals and selection of suppliers (7) selection of order routine; (8) performance feedback and evaluation <p><i>(as proposed by Robinson, Faris and Wind (1967) – The Buygrid Model)</i></p>
Trust	<p>Belief that a business partner will perform actions that result in positive outcomes for the firm.</p> <p><i>(based in Anderson and Narus, 1990)</i></p>

Operationalization

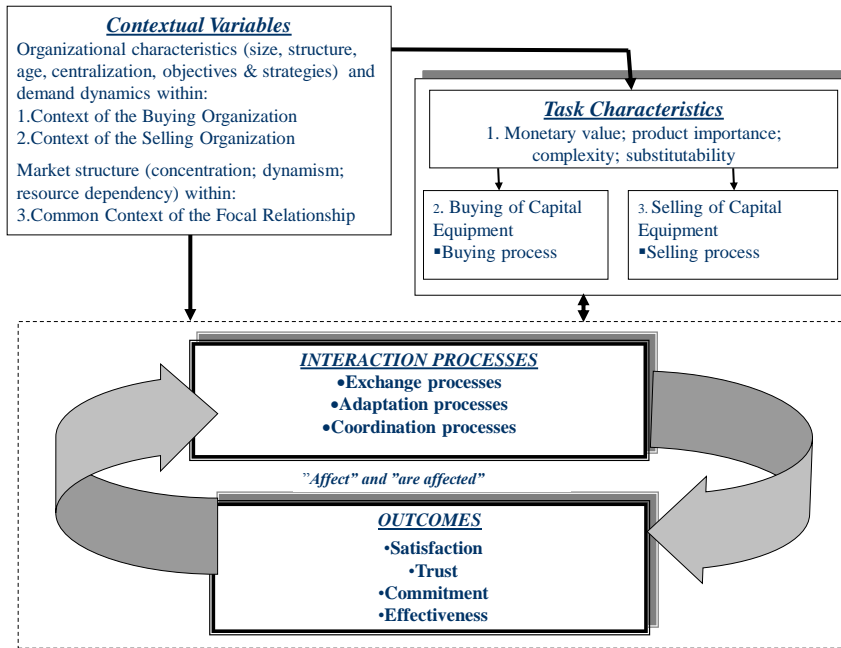
♦ The measurement of concepts

(to find the size, length or amount of sth by comparing it with a standard unit)

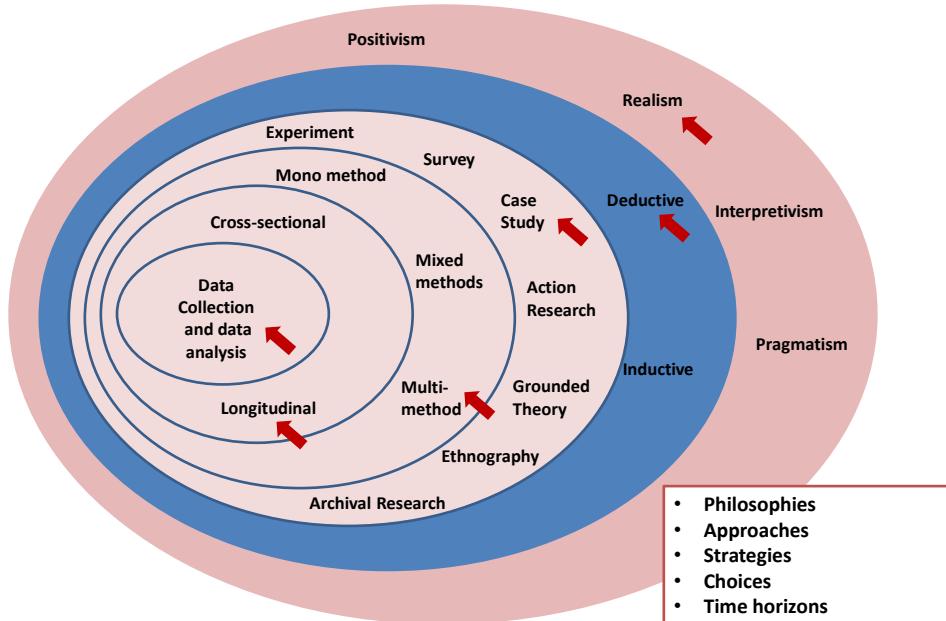
- ♦ “...without operationalization no empirical research is possible. Unless theoretical concepts are operationalized, they remain general abstract terms with no link to the real world. **The process of operationalization is the clarification of how the researcher (quantitative or qualitative) is to decide what constitutes examples of the concepts he or she is examining in the research.**”

(Potter, 1996,p.258)

MODEL OF ANALYSIS



Understand your philosophy and approach (Chapter 4)



Source: Saunders et al. (2009, p.138) – The research “onion”

Understand your philosophy and approach *(Chapter 4)*

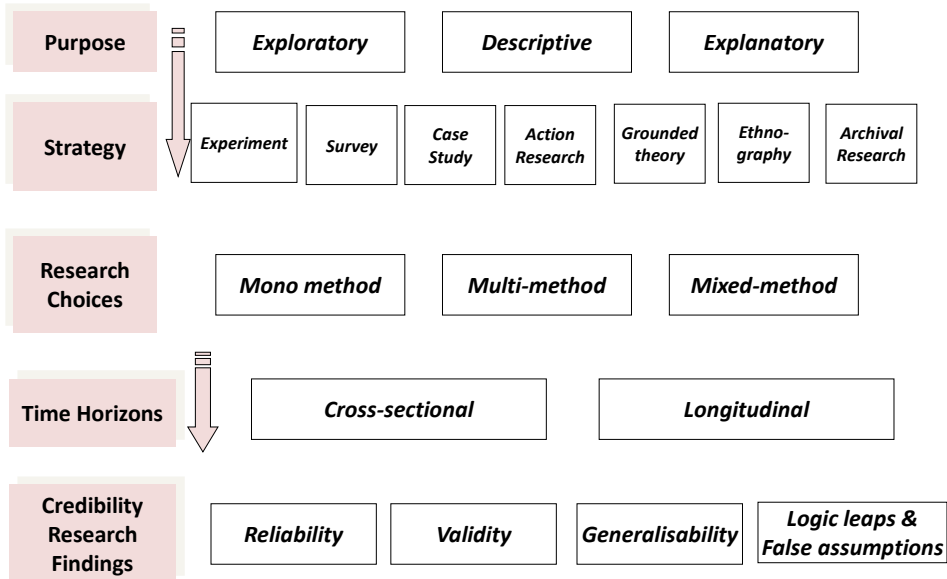
- “Both qualitative and quantitative methods may be used appropriately with any research paradigm. Questions of method are secondary to questions of paradigm, which we define as the basic belief system or world view that guides the investigation, not only in choices of method but in ontologically and epistemologically fundamental ways.” (Guba and Lincoln, 1994,p.105)
- “The research philosophy you adopt contains important assumptions about the way in which you view the world.”

Understand your philosophy and approach *(Chapter 4)*

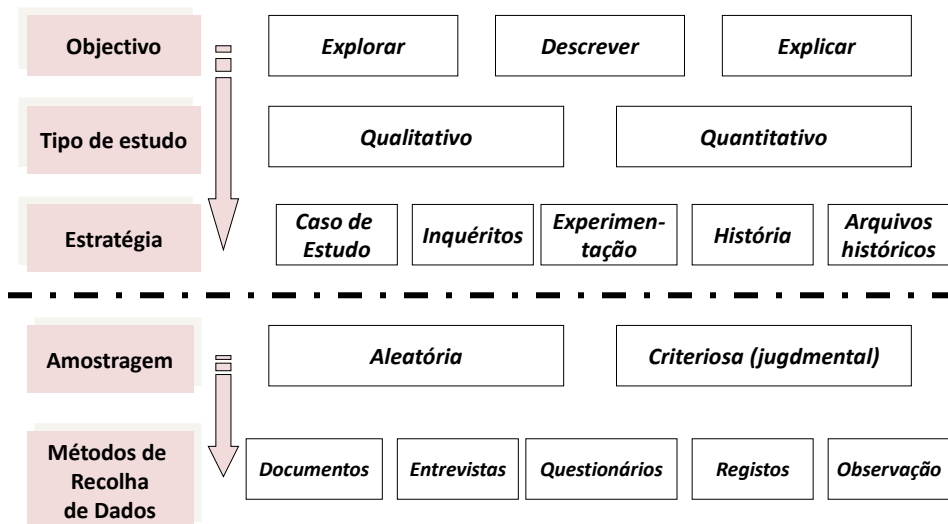
Issue	Positivism	Postpositivism	Critical Theory et al.	Constructivism
Inquiry aim	Explanation: Prediction and control		Critique and transformation; restitution and emancipation	Understanding; reconstruction
Nature of knowledge	Verified hypothesis Established as facts or laws	Nonfalsified hypotheses that are probable facts or laws	Structural / historical insights	Individual reconstruction coalescing around consensus
Knowledge accumulation	Accretion – “building blocks” adding to “edifice of knowledge”; generalizations and cause-effect linkages.		Historical revisionism; generalization by similarity	More informed and sophisticated reconstructions; vicarious experience

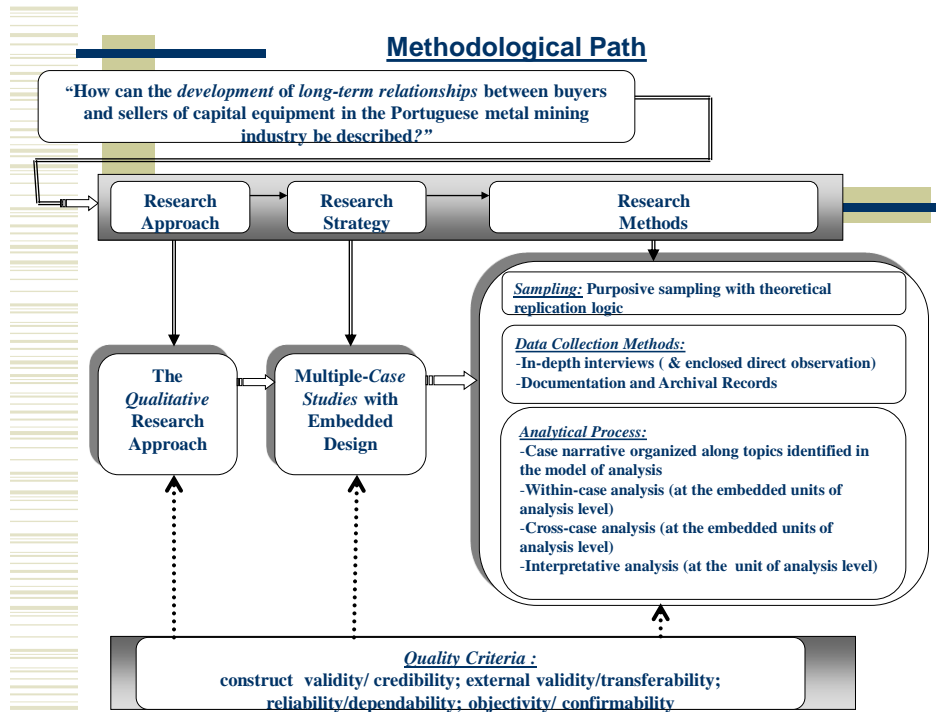
Source: Adapted from Guba and Lincoln (1994, p.112)

Formulate the research design (Chapter 5) – (Saunders, 2009)



Metodologia Qualitativa (Estudos Sociais, Yin, 1994)





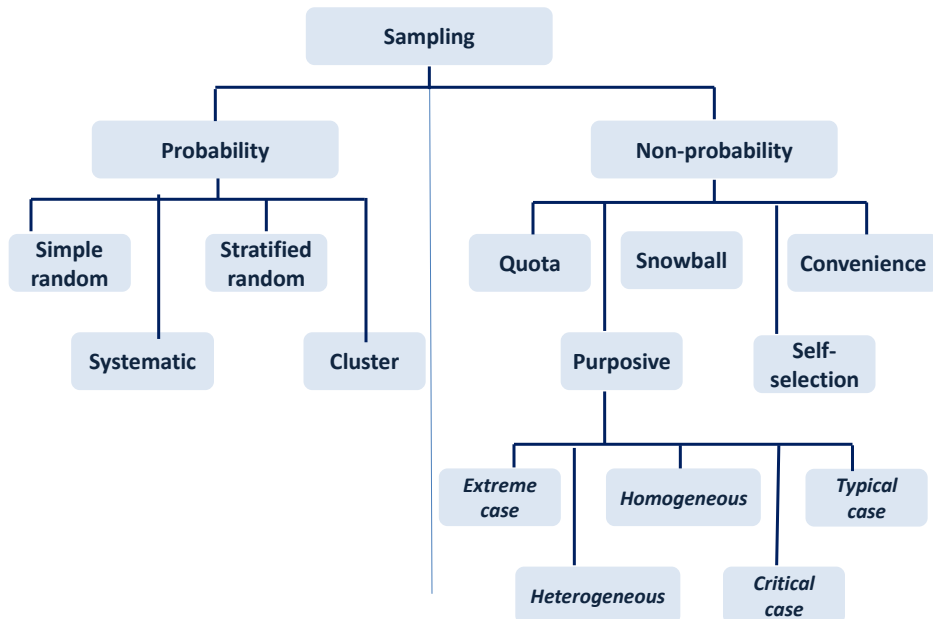
Case Study Design

- Multiple-case embedded design
- Unit of analysis: the *development* of BRs
- Sub-units = embedded units of analysis (specified in the model)
- Development = longitudinal data gathering (retrospective + real-time research 1,5 year)

Negotiating access and research ethics *(Chapter 6)*

- Ensuring familiarity and understanding
- Allowing yourself sufficient time
- Using existing and developing new contacts
- Providing a clear account of purpose and type of access required
- Overcoming organizational concerns
- Possible benefits to the organization
- Using suitable language
- Facilitating replies
- Developing access incrementally
- Establishing your credibility

Selecting samples *(Chapter 7)*



Source: Saunders *et al.* (2009, p.213) – Sampling Techniques

Sampling

Miles and Huberman (1994, p.27) state that sampling in qualitative research involves two actions:

- ◆ “First, you need to set *boundaries*: to define aspects of your case(s) that you can study within the limits of your time and means, that connect directly to your research questions, and that probably will include examples of what you want to study;
- ◆ Second, at the same time, you need to create a *frame* to help you uncover, confirm, or qualify the basic constructs that undergird your study”

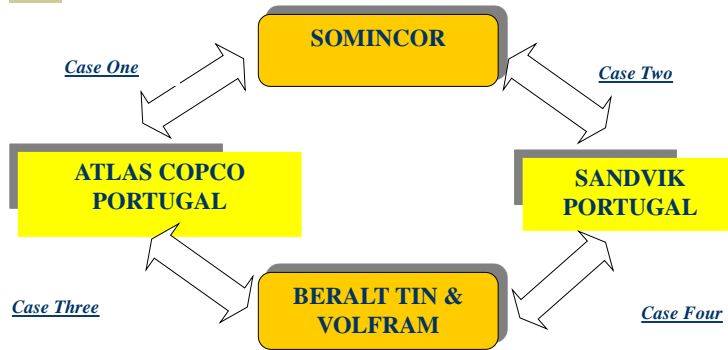
Map of Interviews

Company / Position	SOMINCOR	BERALT, TIN & WOLFRAM	ATLAS COPCO PORTUGAL	SANDVIK PORTUGAL
Mine Production Manager	(1) + 1	(3) + 3		
Mine Manager				
Former Processing Plant Manager		(2)		
Head of Production Department	1	1		
Head of Maintenance Department	2	2		
Head of Sourcing Department	1	1		
Head of Engineering Department	2 + (1)	1		
Production Engineer	3 + (1)			
Business Manager			(2) + 3 + (1) + 2	
Managing director / Business Manager				(3) + 3
Total of Personal Interviews	10	8	5	3
Total of Telephone Interviews	(3)	(5)	(3)	(3)

Conventional Positivistic Criteria	Marshall & Rossman (1989)	Lincoln & Guba (1990) (Trust-worthiness)	Yin (1994)	Miles & Huberman (1994)
<u>Internal Validity</u> : the degree to which findings correctly map the phenomenon in question	<u>Truth Value</u> : the extent to which the findings are accurate	<u>Credibility</u> : an analog to internal validity	<u>Construct Validity</u> : establishing correct operational measures for the concepts being studied <u>Internal Validity</u> : (for explanatory or causal studies); establishing causal relationships	<u>Internal Validity / Credibility / Authenticity</u> : Do the findings of the study make sense? Are they credible to the people studied and to readers? Do we have an authentic portrait of what we are looking for?
<u>External Validity</u> : the degree to which findings can be generalized to other settings similar to the one in which the study occurred	<u>Applicability</u> : the extent to which findings are generalizable to another setting or group of people	<u>Transferability</u> : an analog to external validity	<u>External Validity</u> : establishing the domain to which a study's findings can be generalized	<u>External Validity / Transferability / Fittingness</u> : degree to which the conclusions of a study have any larger import
<u>Reliability</u> : the extent to which findings can be replicated, or reproduced, by another inquirer	<u>Consistency</u> : the extent to which findings would be replicated if the study were conducted with the same participants in the same context	<u>Dependability</u> : an analog to reliability	<u>Reliability</u> : demonstrating that the operations of a study – such as the data collection procedures can be repeated, with the same results	<u>Reliability / Dependability / Auditability</u> : degree to which the study is consistent, stable over time and across researchers and methods
<u>Objectivity</u> : the extent to which findings are free from bias	<u>Neutrality</u> : the extent to which the findings are reflective of the subjects and the inquiry itself rather than researcher's biases or prejudices	<u>Confirmability</u> : an analog to objectivity		<u>Objectivity / Confirmability</u> : degree to which the findings are free from unacknowledged researcher biases

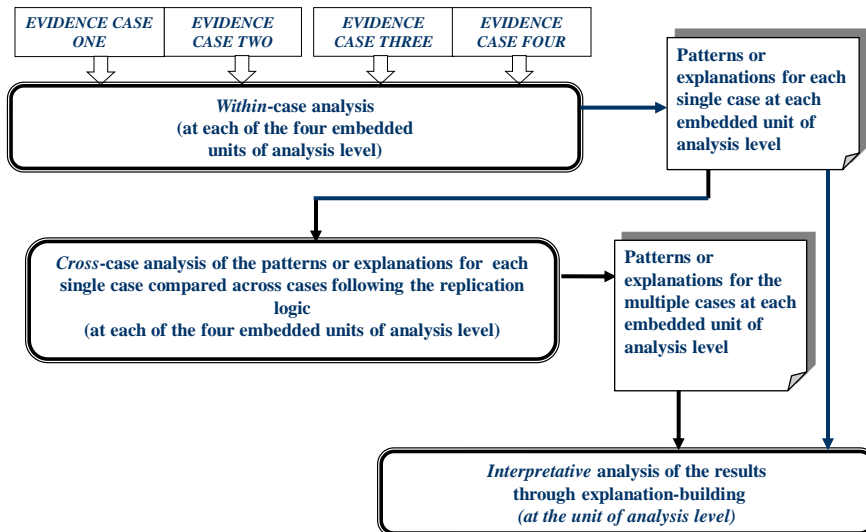
tests	case study tactic	phase of research in which tactic occurs
Construct validity	<ul style="list-style-type: none"> – use multiple sources of evidence – establish chain of evidence – have key informants review draft case study report 	<ul style="list-style-type: none"> data collection data collection data collection
Internal validity	<ul style="list-style-type: none"> – do pattern-matching – do explanation-building – do time-series analysis 	<ul style="list-style-type: none"> data analysis data analysis data analysis
External validity	<ul style="list-style-type: none"> – use replication logic in multiple-case studies 	research design
Reliability	<ul style="list-style-type: none"> – use case study protocol – develop case study data base 	<ul style="list-style-type: none"> data collection data collection

The Empirical Evidence



Legend:
 Buying organizations
 Selling organizations

The Study's Analytical Process, p.145



How can the *interaction processes* occurring between buyers and sellers of capital equipment in the metal mining industry be described?

The Interaction Processes can be described through the three sub-processes of *exchange*, *adaptation*, and *coordination*. These are also closely inter-twined and if any of these processes fails its implementation, the interaction between the companies is damaged jeopardizing the outcomes of the relationships.

- *Exchanges* are determined much by the extent of supplier-based adaptations.

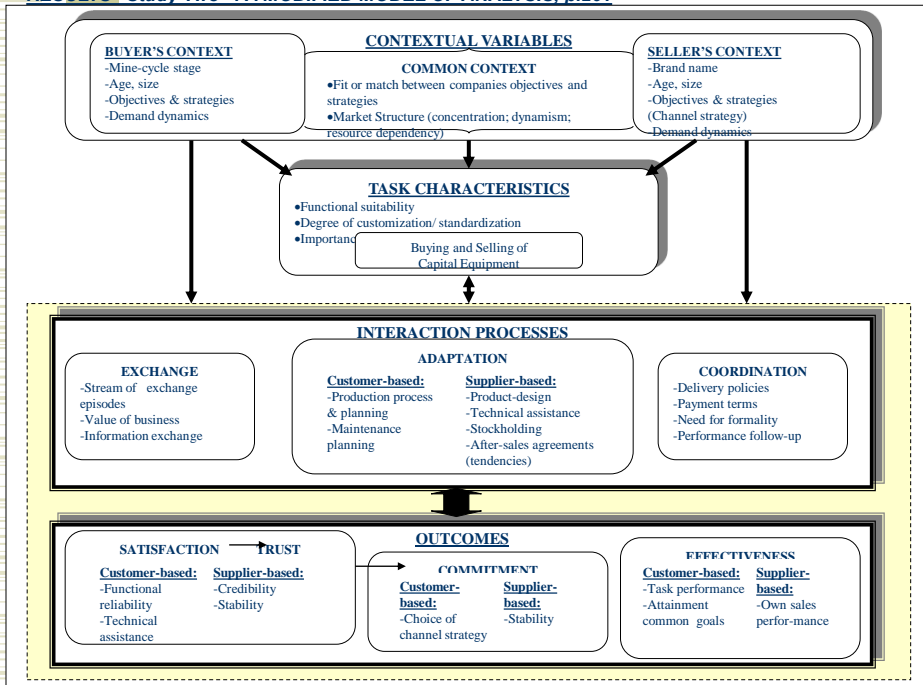
- *Adaptation* processes can be categorized in customer-based and supplier-based adaptations. The importance of the latter by far outruns the first. These can be described along the variables: product-design adaptations; technical assistance; stockholding; after-sales agreements.

How can the *interaction processes* occurring between buyers and sellers of capital equipment in the metal mining industry be described?

- These *after-sales agreements* have a growing importance in the interaction processes and thus development of relationships (e.g., outsourcing maintenance, preventative maintenance; guarantees on operational costs)

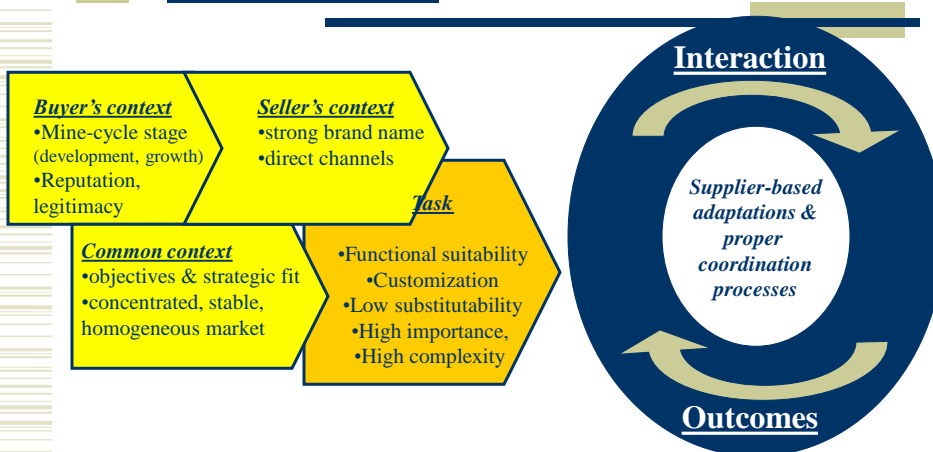
- *Coordination processes* are closely inter-related to the adaptation processes and are deemed as extremely important for the positive development of the relationships. This sub-process is described along the variables: delivery policies, payment terms, formality, and performance follow-up.

RESULTS "Study Two" : A MODIFIED MODEL OF ANALYSIS, p.261

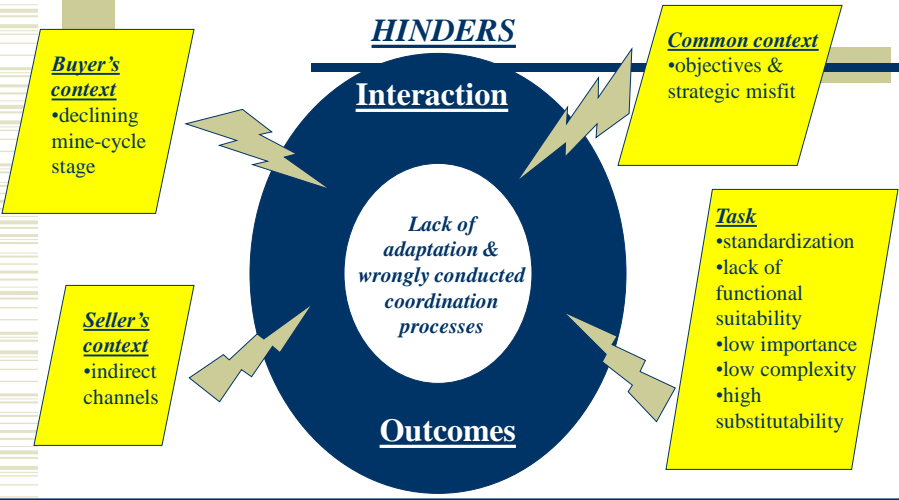


What are the factors that most aid or hinder the development of the relationships established between buyers and sellers of capital equipment in the metal mining industry?

DRIVING FORCES



What are the factors that most aid or hinder the development of the relationships established between buyers and sellers of capital equipment in the metal mining industry?



Managerial Recommendations (Study Two)

...for "SELLERS"

- Select *direct channels*
- The *mine-cycle stage* is a good indicator of potential investments in capital equipment
- Enhance the *functional suitability* and potential *degree of customization* of the equipment
- Be prepared to make a wide array of *product-based adaptations*
- Design "tailor-made" *after-sales agreements*

...for "BUYERS"

- Conduct *preventative maintenance*
- Seek *standardization of the capital equipment*, (interchangeability of spare parts)
- Select primarily suppliers that have their *own sales subsidiary* in the local market
- Consider *sellers of capital equipment to be also after-sales providers*

”Behavioral Patterns of Capital Equipment Buying in the Metal Mining Industry”... integrating the two studies’ results...& complementary findings of Study Two

- **Buying processes** are similar among all the metal mining companies studied (whether in Sweden, Poland, or Portugal). Negotiation is core; scope of maintenance and repair agreement paramount and determinant to supplier selection.
- All companies are highly production-oriented and this underlies the dominance exerted by **production department** (in Poland, **technical services department**).
- **Similarities** found indicate that findings are independent of the particular metal mining industry setting. In a global arena, country-based frontiers loose significance and possibly the **industry culture** plays a more determinant role than country-based cultural differences in the behavioral patterns of the metal mining companies.

”Behavioral Patterns of Capital Equipment Buying in the Metal Mining Industry”... integrating the two studies’ results...& complementary findings of Study Two

Metal mining companies aspire to **long-term relationships** and to regard capital equipment suppliers as business partners. Yet, sellers must abide to certain requisites to achieve this ”status quo”:

- ♦ continuity in terms of **channel strategy** while continuously **adapting** the offers to the particular **mine-cycle stage** of the customer company is core;
- ♦ capital equipment should be **functional suitable** and have a high degree of **customization**;
- ♦ the running of the **interaction processes** are determinant of the relationships **outcomes** (comprehensive **after-sales agreements** and proper **coordination** contributes to positive outcomes of the relationships);
- ♦ assessment of **satisfaction** and **trust** are based to the greatest extent on **technical dimensions** (functional reliability and technical assistance).

THESIS CONTRIBUTION

- Investigates the *buying of capital equipment* in an industry setting not addressed by previous research.



- Provides rich descriptions of long-term relationships' development. Addresses dynamic aspects that lead to the *identification of relevant variables* in this setting.

- Introduces a "*modified model for analysis*" appropriate for the study of the development of long-term relationships in this mining setting.

THESIS CONTRIBUTION

- Provides *managerial guidelines* to both buyers and sellers of capital equipment active in the metal mining industry.

- Reports *successes and failures of relationship development*; identifies issues praised (respectively not praised) by the organizations involved.



- Identifies that *industry culture* may play a more important role than national-based cultural differences in the behavioral patterns of capital equipment buying.