

Chapter 5

Developing the concluding framework

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5.1 Introduction

Strauss and Corbin (1990) indicate the importance of rendering ‘*the voice of the informants*’ into the results and findings of research. The purpose of Chapter Five is to describe the findings of the field studies that reflect on meanings people give to the phenomenon of the study in order to arrive at the concluding framework.

Data from the literature case provided theoretical grounding for the preliminary framework developed in Chapter Four. The analysis of data from the literature case assisted to minimize the risk of ‘*isolated theorizing*’ in the process of developing the preliminary framework. The preliminary framework enabled insight into the use of networking capabilities used with virtual organizing in the virtual value network of partners as well as the relationships between the networking capabilities identified. The motivation for implementing a literature case to develop the preliminary framework was to build on earlier academic work rather than to ‘reinvent the wheel’.

This chapter explains the procedure followed in the research project to refine and validate the preliminary framework developed in Chapter Four by means of the explanatory power of field studies in order to arrive at the concluding framework. Further refinement of developed theory or the theoretical framework is an explicit aim of the Grounded Theory method. Using the Grounded Theory approach empirical field study data will be analyzed in Chapter Five in order to confront findings of the preliminary framework. The field studies enable findings of the preliminary framework to be refined and validated in the research project in order to develop the concluding framework.

Theoretical sampling was used in the empirical studies to extend, develop and validate categories [with their properties] in order to further develop the preliminary framework of the study. Only after the data of each empirical field study had been analyzed would a decision be taken to proceed with the next empirical field study until theoretical saturation was reached – when only marginal improvement of categories were recorded. The research project

achieves the research objective of the study in Chapter Five. The research objective was formulated in Chapter Three as:

“To develop better understanding of the capacity of networking capabilities to not only enable, but to enhance, effective and efficient virtual organizing in a virtual network of organizations”.

It is important to consider how theory is defined in the context of Grounded Theory. Hallberg (2006) relates to Strauss and Corbin (1990, 1998) when stating that ‘*theory concerns carefully developed concepts that are put together by statements about mutual relations forming an integrated conceptual framework that explains or predicts a phenomenon or an event, and thereby provides guides to action*’. The use of Grounded Theory to develop the concluding framework with its statement of categories and relationships is considered to be substantive theory.

The Grounded Theory procedure implemented in the research to develop the concluding framework is illustrated in Figure 5.1.

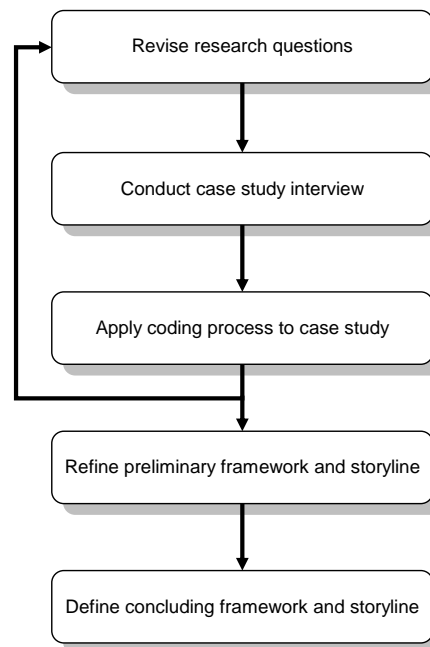


Figure 5.1 The focus of Chapter Five

Chapter Three indicated that data for the research would be organized into seven case studies that included a literature case study, the latter being used in Chapter 4 for the development of the preliminary framework.

The use of the literature case and field studies in the process of research is shown in Figure 5.2.

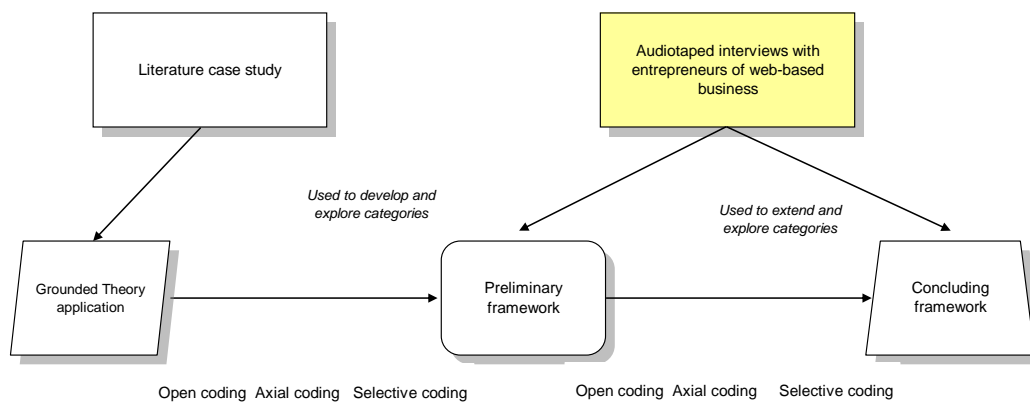


Figure 5.2. Role of literature case and field studies in the sequence of research

The data collected in the empirical field studies was analysed to extend and explore categories and relationships explained in the storyline of the preliminary framework. The data collection method employed in the empirical field studies was individual interviews. Details of the individual interviews conducted are given in Table 5.1.

Table 5.1 Individual interviews as the data collection method in empirical cases

Individual interviews
<p>Individual semi-structured interviews with the directors of 6 different web-based organizations in Gauteng, South Africa. Interviews lasted from 1 hour to 1 hour 30 minutes, were recorded and then transcribed. A follow-up [semi-structured] interview was conducted with one of the 6 directors which lasted an hour, was recorded and then transcribed.</p> <p>Respondents had been selected to mirror the diversity of sectors active in e-commerce in terms of geographical location, previous professional experiences and length of period participating in e-commerce as web-based organizations using a virtual network of partners.</p>

The transcribed interviews were subjected to coding using the Grounded Theory approach as explained in Chapter Three.

5.2. The field studies

All the field studies were performed in the private sector within the province of Gauteng, South Africa, in 2004 and 2005. The companies all function as web-based organizations implementing virtual networks of value network partners in e-commerce. The entrepreneurs were asked if they had implemented virtual networks of partners in conducting business in the e-marketplace and whether they would be willing to participate in the research. The criteria for inclusion in the research were that the entrepreneur had used virtual organizing in the virtual network of partners over a period of at least a year. The interviews were all transcribed and formed the basis of the Grounded Theory analysis.

Semi-structured, in-depth individual interviews were conducted in the offices of the directors. The low-level basic questions designed in Chapter 3 guided the conversation. The exploratory [low-level basic] questions of the study were used

to keep the interview on topic, and served to link the low-level basic questions of the individual interviews to the overall research design. Probes were used during interviews to get more clarity on themes considered incomplete or that lack depth. Transcripts of interviews are included in Annexure 2 of the research.

During the interviews, and based on the low-level basic research questions developed in Chapter Three (see Table 3.4), certain themes were explored with participants. These themes are listed in Table 5.2.

Table 5.2 Themes explored during the interviews

Interview themes
Web-driven supply chain co-operation
Web-driven value chain integration
E-commerce oriented product delivery
Web-based trust formation
Supply chain shared e-commerce vision
E-commerce information management
Web-driven partner communication
Web-driven partner learning
Web-driven customer focus

The iterative approach to the field studies involves the use of an ongoing cyclical process of collecting and analyzing data for concepts implementing the coding process of the Grounded Theory methodology and testing against the existing preliminary framework. Data analysis and testing may indicate a need to change the approach to the questions used. Data analysis and testing may also indicate the need to incorporate different field studies and may potentially impact on the

number of field studies included in the research project. Each additional interview would only proceed after completion of previous data analysis. Several iterations of the process of data collection and analyzing enabled the development of the concluding framework with a statement that fits the interview data representing the experiences and understandings of the interviewees.

The implementation of data collection and data analysis in the field studies are illustrated in Figure 5.3.

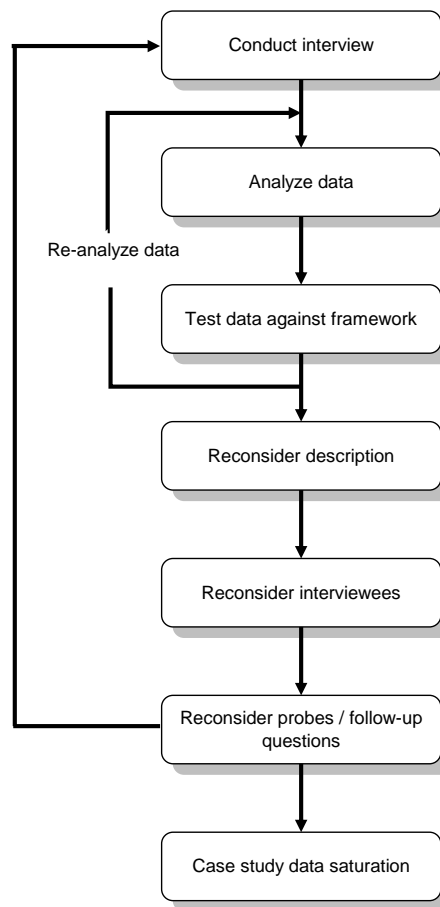


Figure 5.3 Iterative approach to data collection and analysis

Flexibility in the use of questions is important in order to focus subsequent interviews on emerging new ideas and themes. Semi-structured interviews

enabled the exploration of concepts with a certain amount of focus while ‘probes’ were used to clarify answers. Follow-up questions used in the interview enabled richer in-depth answers to be obtained from the interviewees.

Six field studies have been conducted and the characteristics of the individuals in the field studies are listed in Table 5.3.

Table 5.3 Characteristics of participants

	Type of product / service	Title	Previous activities	Educational background
Study 1	Marketing and strategic services	Director	Development coordinator	Engineering/ Computer Science
Study 2	Electronic products	Director	Senior developer	Computer Science, Programming
Study 3	Electronic products and information services	Director	Senior management in related sector	Computer Science, Accountancy
Study 4	On-line trading	Executive Director	Development coordinator	Computer Science
Study 5	Oil and chemical products	Director	Development coordinator	Engineering
Study 6	Books, magazine, music	Executive Director	Development coordinator	Natural science

The data was gathered from the directors of six companies that participate as businesses with virtual supply networks. The six companies are involved in different sectors of the e-marketplace. The web-based firms used in the field study are very successful with the second firm considerably smaller than the

other two in terms of its annual turnover. The fifth field study is the strongest listed company in South Africa while the other two are medium-size web-based businesses. The six web-based firms are described below. In further references to them the abbreviations EC1, EC2, EC3, EC4, EC5 and EC6 are used.

A. Field study 1

Field study 1 is a small web-based organization based in Pretoria. This organization implements independent virtual partners to conduct all software development activities, product and service implementation, while strategic marketing is also outsourced to independent partners in the value chain. The organization conducts all its business activities in e-commerce and has been successful over a period of three years.

The virtual value network consists of partners (project manager/integrators), software developers from across South Africa, clients in the greater Gauteng region, and the actual web-based business that provides and manages virtual organizing as well as marketing activities through its web-site. The interview was conducted with a director in the organization responsible for the virtual organizing activities in the virtual network of partners. The interview concentrated on topics related to networking capabilities that enable virtual organizing.

B. Field study 2

Field study 2 is a small web-based business situated on the East Rand in Gauteng, South Africa. This company sells a wide variety of electronic products (of well-known international brand names) pertaining to business needs. All manufacturing, delivery, inventory, and marketing services are conducted by means of a virtual network of partners.

The company mostly attracts customers in South Africa and more specifically in Gauteng, South Africa. The organization conducts all its business activities in e-commerce and has been successful over a period of more than a year. The company is the sole provider of all computer hardware and software packages of

a local industrial concern that provides a consistent stream of income. The company has not been particularly successful to attract the interest of households and focuses their effort in electronic commerce to expand business activities in the local industrial sector. The interview was conducted with a director in the organization responsible for virtual organizing activities in the virtual network of partners. The interview concentrated on topics related to networking capabilities that enable virtual organizing.

C. Field study 3

Field study 3 is a small web-based company situated in Sandton, Johannesburg. This organization implements an independent virtual network of partners to conduct all software development activities, product and service delivery and service development and offering activities. All electronic products offered in e-commerce are supplied by internationally well-known brand names, delivered in some instances by the manufacturer or an independent service. The organization conducts all its business activities in e-commerce and has been successful over a period of more than two years.

The interview was conducted with a director in the organization responsible for virtual organizing activities in the virtual network of partners. The virtual value network includes retailers, customers, transport companies (although only one is used), manufacturers and the web-based firm that participate in electronic commerce. The interview also focused on the topic of needed networking capabilities in virtual organizations in general and their contribution to enable virtual organizing.

D. Field study 4

Field study 4 is an international financial trading institution that provides in spread trading and 'contract for difference execution' only service. It was founded in 2000 with a global reach into South Africa, North America and Asia. The company conducts trades worth over \$7 billion per annum for clients in 26

countries. The company manages investments of institutional and private clients in international and domestic financial markets.

The company implements a multi-currency, multi-instrument online trading system that is managed from Melrose Arch, Johannesburg. The trading activities is done in London with various charting software packages developed and maintained in the UK. Various banking institutions including Deutsche Bank provide trading information while external information resources including Reuters and Bloomberg provide trading data. The company offers trading products that include spread trading utilizing 'contract for differences', on fixed income, equity, commodity and foreign exchange markets with Internet-driven real-time trades.

The interview was conducted with a director in the organization responsible for virtual organizing activities in the virtual network of partners. The interview focused on virtual organizing in the virtual value network of partners.

E. Field study 5

Field study 5 is an integrated oil and gas company with substantial international chemical interests. The JSE listed company was formed in 1950 and employs over 31 000 people worldwide. The company, situated in Rosebank, Johannesburg, uses virtual organizing with their chemical manufacturing and marketing operations that span the globe. The virtual value chain used in the company's chemical cluster includes plants in USA and Italy while resources are obtained from all over Africa. Products are distributed through partners in countries such as China, Malaysia and America. The interview was conducted with a director in the organization responsible for innovation and systems in 2003. The interview also focused on the topic of needed networking capabilities used with virtual organizing.

F. Field study 6

Field study 6 is a well-known South African web-based electronic business that sells books, magazines, music cd's, dvd's and a variety of other related products in electronic commerce. The web-based business has been very successful in developing their brand name in South Africa. Their website provides book reviews, library facilities and book ordering functions amongst others with a distinctly South African approach.

The firm has joint forces with a financial banking institution in South Africa that enables customers to use credit funds, earned from individual banking transactions that may be used to buy their products online. This approach to electronic business has proved to be very successful with marketing benefits gained from the joint venture with the local financial banking institution. Their customer base is mostly limited to individual clients and institutions from Southern African countries. The outlook for electronic business in South Africa is limited by the fact that a large section of the population has no access to the internet although prospects are improving due to reduced internet costs.

Demographic information of the six field studies is provided in Table 5.4. Apart from the one field interview [Field study 5, performed in July 2008] the remainder of the field interviews took place in the period 2003 until 2004.

Table 5.4 Demographic information of field studies

Interview	Respondent position in virtual organizing	Responsibilities with regards to virtual organizing	Organization type	Sector	Personnel	Estimated number of national customers
1	Manager	Web-interface and systems	Central	Information Technology	4	100 %
2	Manager	Web-interface and systems	Central	Electronic goods retail	2	100 %
3	Manager	Web-interface and systems	Central	Software development	3	100 %
4	Manager	Strategy and implementation	Functional	Trading	55	100 %
5	Manager	Strategy and implementation	Matrix	Petro-chemical	150	30 %
6	Manager	Strategy and implementation	Hierarhical	Books	54	90%

The above six field studies made valuable contributions to further develop and refine concepts and categories of the preliminary framework. The further development of the existing research questions is considered in the next subsection. We reconsider the research questions in order to improve on it with the promise that enhanced research questions may contribute to obtain more value from the field studies.

The next section discusses theoretical sampling of the field study data.

5.3 Theoretical sampling of field study data

Theoretical sampling of field study data includes simultaneous data collection, coding and analyzing in order to develop the concluding framework of the study. The continuous and systematic analysis of the field study data is aimed at refining the preliminary framework to arrive at an enriched theoretical framework that explains the phenomenon of the study. Individuals included in the field studies were selected based on their potential to deliver valuable information to test and refine emerging categories. The analysis of the empirical case data aims to develop, elaborate and saturate categories of the preliminary framework in order to arrive at the concluding framework. Analysis of the empirical case data enables variation in relation to existing concepts of the literature case data to be discovered as well as to further develop and refine categories of the preliminary framework in terms of their properties and dimensions.

The preliminary framework indicates the key categories with storyline that explains the relations established from the literature case data. Theoretical sampling enables the researcher to develop and create density as well as to saturate categories of the preliminary framework in order to arrive at a well-developed theoretical framework (Strauss and Corbin, 1998, p. 203). New data needs to be collected from individuals in field studies to reach theoretical saturation. Theoretical saturation is achieved when the categories and relations between categories are fully described and no new information is forthcoming from individuals used in the field studies. In other words, no additional information is forthcoming from the field study data.

The Grounded Theory methodology specifies theoretical sampling and data analysis to happen in sequence in order for data analysis to guide the process of data collection (Strauss and Corbin, 1998, p. 203). The constant comparison method of Grounded Theory is of central importance when analyzing field study data. This approach considers the relevance of field study data by looking for similarities and differences. Constant comparison of field study data allows for

new concepts to be discovered, new relationships between categories to be identified while properties of categories also need to be reviewed. In other words, all concepts that are discovered in the field study data are compared with the literature case data in order to identify similar as well as different concepts.

The research questions developed in Chapter Three are used in the coding processes of the Grounded Theory methodology. The various categories of questions developed in Chapter Three are presented in Table 5.5.

Table 5.5 Research questions of the study

Name	Description	Use in research study
A Exploratory questions	Low-level basic research questions	Used in process of data collection and data analysis as well as with the coding activities in the Grounded theory method
B Meta questions	Refined higher level and more specific questions developed from exploratory questions	Used to develop the main research questions and narrow the focus of the study
C Main questions	Higher level interpretation of meta questions	Used to develop the fundamental research question
D Fundamental research question	Fundamental research question of the study inferred from main research question	Give flexibility and freedom to explore a phenomenon at depth when developed in a bottom-up process

Since the research questions were formulated prior to the development of the preliminary framework, the questions may need to be modified after the development of the preliminary framework (Strauss & Corbin, 1998, p. 78). The low-level basic research questions in addition serve to focus the coding processes of the Grounded Theory methodology. The low-level basic research questions (see Table 5.5) developed in Chapter Three were revisited to determine whether they were narrowed down sufficiently yet broad enough to allow flexibility in collecting and analyzing empirical field data. The low-level basic

research questions proved effective in focusing the coding processes of Grounded Theory methodology in the development of the preliminary framework of the study. Based on previous experience and results from the use of low-level basic questions in the development of the preliminary framework it was decided against further refinement or introduction of new low-level basic research questions.

The low-level basic research questions were used during the interviews as well as during the processes of collecting, analyzing and coding empirical field data of the study. The low-level basic questions developed in Chapter Three are listed in Table 5.6.

Table 5.6 Low-level basic questions formulated using the process-based approach

'What is?' perspective	'How does?' perspective
What is the enabling role of networking capabilities?	How does the framework of networking capabilities impact on the virtual network?
What is the role of networking capabilities in the virtual network?	How does the framework of networking capabilities impact on the role of the entrepreneur in the virtual network?
What is the relation between virtual organizing and networking capabilities?	How does the framework of networking capabilities enhance activities of virtual organizing?
What situations highlights the need for networking capabilities?	How does the virtual network implement networking capabilities?
What is the inter-relationship between the various networking capabilities?	How do networking capabilities fit into the activities performed by the entrepreneur?
In what way can networking capabilities not only enable but enhance effective and efficient virtual organizing?	What considerations guide the implementation of networking capabilities?
'Why is?' perspective	'How should?' perspective
Why does a virtual network needs to implement networking capabilities?	How should the entrepreneur implement the framework of networking capabilities?
Why do networking capabilities tend to enhance virtual organizing activities?	How should the entrepreneur develop networking capabilities of partners in the virtual network?
Why does the entrepreneur need networking capabilities in the virtual network?	How should the virtual network of partners approach the issue of networking capabilities?
Why do networking capabilities promote improved virtual organizing? Why do networking capabilities promote improved virtual organizing?	How should the implementation of networking capabilities to enhance effective and efficient virtual organizing be secured?

The low-level basic research questions are similar to '*guiding questions*' referred to in Grounded Theory methodology that guide interviews and analysis of field study data of the study (Strauss and Corbin, 1998, p. 78). The use of questions during the coding process supports theoretical sampling of the empirical case data and the constant comparison principle of the Grounded Theory methodology.

5.4 Hierarchical process of coding of the field study data

Each step in the process of coding will be discussed next. The findings of the coding process of the field study data will then be analyzed in relation to the preliminary framework developed in Chapter Four. The existing propositions of the preliminary framework need to be reconsidered, to be revised if necessary, whereas new propositions generated must also be included in the development of an enriched theoretical framework with its explanation of the relations between categories and sub-categories. Empirical case data was used to refine existing categories and sub-categories of the preliminary framework, to develop new categories and sub-categories as well as to refine and develop new propositions in the study.

The process of open coding of the empirical case data is discussed first.

5.4.1 Open coding of the empirical case data

The process of open coding, illustrated in Figure 4.2, was implemented with the field study data. The transcripts of each interview were analyzed when the validated copy was obtained. The process of open coding enables data analysis of data collected from field studies. Transcripts of each interview need to be reviewed and validated with the preliminary framework developed in Chapter Four. Each line of the transcript is reviewed in the process of open coding. The exploratory questions generated in Chapter Three were used in the process of open coding to develop as well as validate new and existing concepts of the preliminary framework. The use of analysis worksheets as in Chapter Four (See Exhibit 4.1) also applies to the field study data analysis. The worksheets of the process of open coding of the field study data in Chapter Five are listed in Annexures 2 and 3. New concepts identified from the field study data are used to

refine existing categories and develop new categories based on new insight gained on the phenomenon of the study. The new insight gained [through the use of low-level basic research questions] was presented in more abstract explanatory terms in the development of the concluding framework with storyline of the study. New concepts identified were first considered for inclusion in existing categories of the preliminary framework. The properties and dimensions of each existing category were revised to incorporate related new concepts with its own label. Where a sufficient number of new and unrelated concepts were identified that did not fit any of the existing categories of the preliminary framework, a new category would be established with a label. Each new category was refined in terms of properties and dimensions to be considered for inclusion in the concluding framework.

The process of open coding yielded three new categories to be included in the concluding framework. The three categories did not match any of the existing categories of the preliminary framework thereby creating the opportunity to further develop and enrich the concluding framework in order to create deeper understanding of the phenomenon of the study. The new categories with their relevant properties and dimensions are listed in Table 5.7.

Table 5.7 New categories identified in open coding of field study data

Category and Concepts	Properties	Dimensions
Ability to act as network broker <u>Concepts</u> <i>Information capture and sharing</i> <i>Virtual network structuring</i> <i>Virtual organizing structuring</i>	<ul style="list-style-type: none"> - Information seeker - Communicator - Pragmatist 	Incompetent to Effective
Knowledge of co-operative agreement <u>Concepts</u> <i>Network configuration</i> <i>Network interest capturing</i> <i>Virtual co-operation agreement structuring</i>	<ul style="list-style-type: none"> - Organizational knowledge - Specialist positioning - Information technology infrastructure - Legal arrangements 	Poor to Good
Virtual network conflict resolution <u>Concepts</u> <i>Open-end information communication</i> <i>E-partner information integrity</i> <i>E-partner open-end communication</i> <i>E-customer global segmentation</i> <i>E-partner business process insight</i>	<ul style="list-style-type: none"> - Conflict identification - Conflict management - Trust enhancement - Network communication enhancement 	Dispersed to Integrated

There was no need to revise properties and dimensions of the categories of the preliminary framework. The open coding process of the field study data enabled

theoretical saturation to be achieved that relates to all the categories of the preliminary framework. The new concepts identified through open coding of the field study data had no impact on existing properties and dimensions of the categories included in the preliminary framework of the research.

The next step involved field study data to be re-analyzed in order to identify sub-categories and their inter-relationships with existing categories in the process of axial coding.

5.4.2 Axial coding of the empirical case data

The axial coding process allows for empirical case data to be re-analyzed conceptually. The process aims to identify conditions, actions/interactions and consequences associated with existing and new categories. The paradigm model was again used as the means to consider all new categories discovered in the process of open coding to be incorporated into an enriched conceptual framework. Each category/sub-category generated from the empirical case data is related to categories of the preliminary framework that describe the phenomenon of the study. There was no change in the core category of the preliminary framework and the paradigm model was validated around the core category '*Web-based trust formation*' of the literature case data. Axial coding of the empirical case data enabled the three new categories to be incorporated into the concluding framework with existing categories of the preliminary framework.

The three new categories that were identified during open coding (see Table 5.7) of empirical case data are defined in Table 5.8.

Table 5.8 Definitions of new networking capabilities

Virtual network conflict resolution	Collective capability to identify, define and align seemingly incompatible goals in the virtual value network of partners.
Ability to act as network broker	Ability to demonstrate and use relevant networking capabilities that facilitate and promote inter-relationships in the virtual value network of partners.
Knowledge of co-operative agreement	The ability to define security and legal concerns, with the intention to create a basis for co-operation amongst legal entities.

Axial coding of the empirical case data enables the three new categories to be related to existing categories in order to determine the impact on inter-relationships of the preliminary framework. The process that enables each of the three new categories to be incorporated into the preliminary framework will be discussed next. Inclusion of the three new categories into the paradigm model enables the impact of changes in existing propositions to be incorporated in the storyline of the concluding framework.

The first new category to be developed in the process of open coding that needs to be incorporated in the paradigm model was labelled '*Ability to act as network broker*'. The category was related to the '*Web-driven trust formation*' category which is the core category of the preliminary framework. '*Ability to act as network broker*' was found to be a sub-category of '*Web-driven trust formation*'. The '*Ability to act as network broker*' specifies '*Web-driven trust formation*' further and serves to extend the context of the concluding framework. This requires that the proposition describing the relationship between '*Ability to act as network broker*' and '*Web-driven trust formation*' be updated to: *High levels of trust formation require the function of the network broker to be effective.*

The second new category was labelled '*Knowledge of cooperative agreement*'. This category was related through the application of the axial coding steps to the core category namely '*Web-driven trust formation*' since it differentiates on '*Web-driven trust formation*'. The proposition, describing the relationship between '*Web-driven trust formation*' and '*Knowledge of cooperative agreement*' can be updated as follows: *Effective Web-driven trust formation is enhanced where partners and the entrepreneur in the virtual networks understand and implement the capability to develop cooperative agreements that secure the interest of all participants.*

The third new category was labelled '*Virtual network conflict resolution*'. This category was related through the application of the axial coding steps to the core category. The new core category '*Virtual network conflict resolution*' is considered to be a causal condition to '*Web-driven trust formation*'. The proposition, describing the relationship between '*Web-driven trust formation*' and '*Virtual network conflict resolution*' reads as follows: Efficient web-driven '*Virtual network conflict resolution*' supports the formation of '*Web-driven trust formation*' for effective virtual organizing.

When participants discussed the use of networking capabilities in virtual organizing they would constantly raise concerns about legal relationships with partners in the virtual value network. Risk is interwoven with trust that partners need to embrace and display in inter-relationships in the virtual value network.

In the following discussion abbreviations are used when referring to interviewees, namely, I1, I2 and I3.

One of the interviewees expressed the importance to integrate business processes indicating that '*the business partners must accept that business processes must be integrated. I need these guys to show commitment to us We need to share goals and policies in the supply chain regarding our product that we deliver in e-commerce.*' (I2). One participant viewed product delivery in electronic commerce to be linked with trust formation based on the view expressed in the interview that successful attainment of policy of virtual value

network impacts on product delivery and after-sales service. Another interviewee was more concerned with the “*lack of availability of a legal framework*” (I3) and the impact it had in creating the virtual value network of partners. The interviewees were also concerned with warranties and liability issues of e-business activities in electronic commerce. Another issue emphasized in the interviews was the importance of legal contracts indicating that business commitments necessitate use of legal contracts in the virtual value network:

“My first venture in electronic commerce was a big failure, of course. It was my first attempt really and I was always very interested in all this...well... the whole concept.... Things could have been better if I made sure of the legal relationship between all my partners... I mean... that was what people talked about... but I never had any idea of its importance” (I1).

The participants also provided valuable insight on what they considered to be the important role of the entrepreneur in the success of the value network in electronic markets. An important consideration for them relates to the entrepreneur as the responsible partner in the virtual value partner to ‘*recognize the market opportunity in e-commerce*’ (I1) that the virtual value network can serve best. The ability of the entrepreneur to enhance collaboration in the supply network is considered essential for the success of the virtual value network since it ‘*enables greater success of integrating the partners in a business unit*’ (I2). The network broker is considered ‘*responsible for product delivery by the customer*’ (I1) in electronic markets that relates to the critical role of the entrepreneur in the supply network. The entrepreneur performs a critical role in all aspects of the virtual value network:

I am the responsible person for everything...I must assemble the team that can make the right inputs in the product that we deliver... but not every business is suitable for my needs... The quality of my product offering is very important to me ... also.... the product delivery” (I3).

The participants furthermore expressed reservations on the ability of the virtual value network to successfully deal with conflict in electronic markets. The

importance of conflict resolution by the network broker to ‘*strengthen inter-relationships*’ (I2) and his/her ability to promote ‘*future dealings*’ (I2) with partners were confirmed by participants. The presence of conflict was considered to be a major source of risk where the entrepreneur needs to manage conflict in the virtual value network:

“I deal with conflict situations on a daily basis... whether in the supply chain or with our customers. I know the risk of not dealing with conflict situations. The lost of one customer may have a spiral effect... not to mention if I should lose a supplier in the supply chain. They are the best in their trade... they understand e-commerce... I cannot afford to lose any of them” (I1).

Another participant put emphasis on the potential rewards of successful risk resolution in the virtual value network that includes ‘*strengthened relationships*’ (I3) and ‘*learning opportunities for our partners*’ (I3) in the virtual value network.

The incorporation of the three new categories in the paradigm model impacts on the relations described in Chapter Four. New categories necessitate new relationships to be specified as well as validated. New propositions developed that describe relationships of the new components included in the changed paradigm model, with relevant validation in the empirical case data, are listed in Table 5.9. Field studies 4, 5 and 6 have not been included in the development of new propositions since they did not deliver significant additional insight.

Table 5.9 Additional propositions of the updated paradigm model

Propositions	Supported by EC1	Supported by EC2	Supported by EC3
High levels of trust formation require the function of the network broker to be effective.	Explicitly	Explicitly	Explicitly
Effective web-driven trust formation is enhanced where enterprises in the virtual organization's knowledge levels of co-operative agreement is high.	Implicitly	Explicitly	Implicitly
Efficient web-driven virtual network conflict resolution supports the formation of Web-driven trust formation for effective virtual organizing.	Explicitly	Explicitly	Explicitly

EC_i = Empirical Field Study data for field study *i*

The three new categories impact on relationships of the previous paradigm model. These changes are depicted in Figure 5.4. The changed model indicates the two new sub-categories '*Ability to act as network broker*', '*Knowledge of cooperative agreement*' and '*Virtual network conflict resolution*' in relation to existing categories of the previous paradigm model.

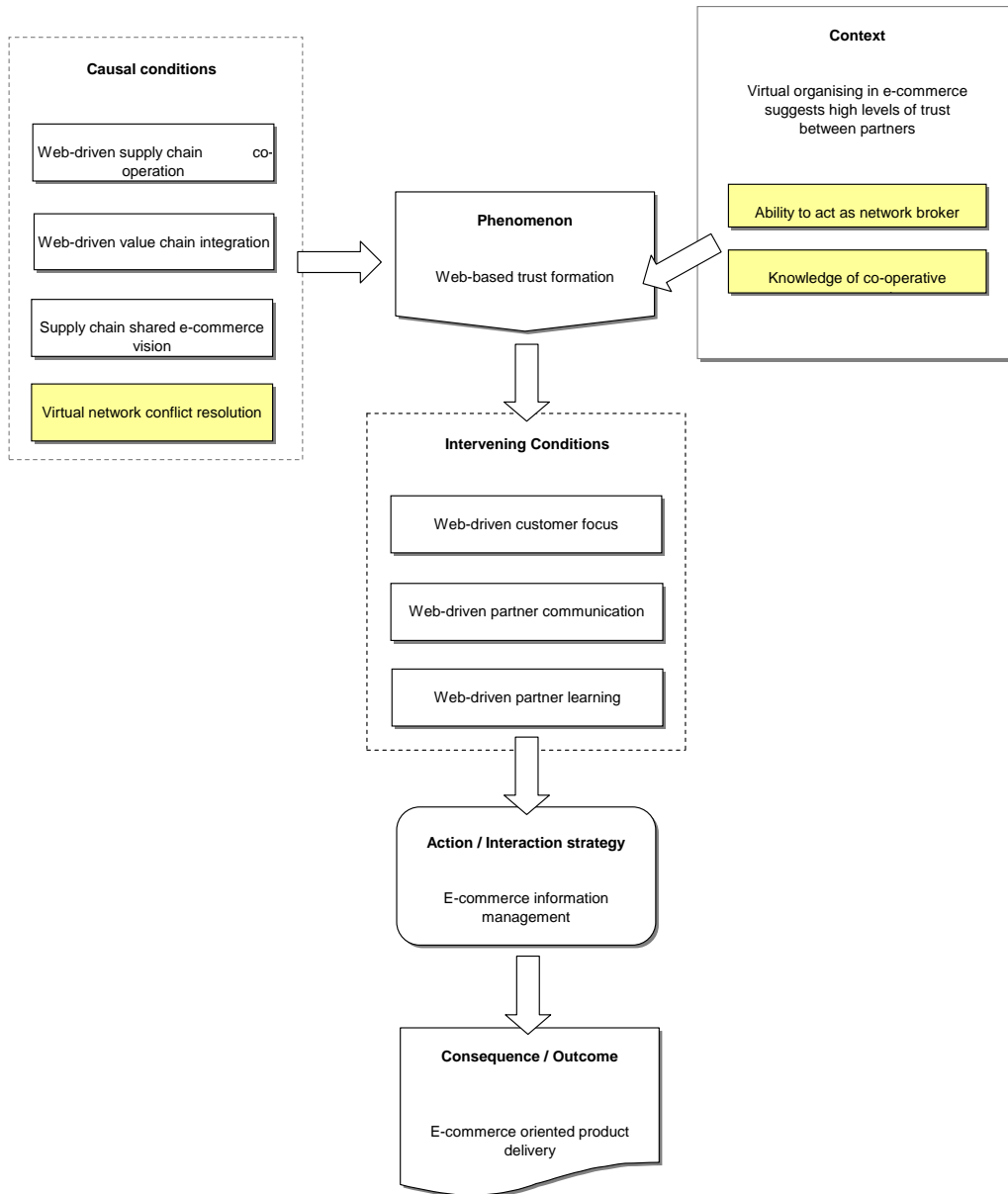


Figure 5.4 Changes to the paradigm model

To summarize, the application of open and axial coding to the three empirical cases resulted in the identification of three new categories of which two categories are considered to be sub-categories. They reached an acceptable level of theoretical saturation based on marginal improvement of categories that was achieved with data from the third empirical case of the study.

These categories were incorporated into the paradigm model indicating the causal relationships between categories and how they relate to each other. The resulting changes to the paradigm model are shown in Figure 5.4.

The final coding process in data analysis of Grounded Theory, namely, selective coding, aims to establish a concluding framework through validation of the core category and further refinement of the existing concepts and categories.

5.4.3 Selective coding of the empirical case data

The story-line of the preliminary framework needs to be refined in the selective coding process in order to arrive at the concluding framework of the study. As explained in Chapter Four, the story-line is a conceptual description about the phenomenon being studied. The refined storyline of the changed paradigm model is as follows:

Successful implementation of virtual organizing suggests effective ‘Web-driven trust formation’ as the core enabling networking capability.

The importance of effective ‘web-driven supply chain co-operation’, ‘Web-driven value chain integration’, ‘Supply chain shared e-commerce vision’ and ‘Virtual network conflict resolution’ acts not only as causal conditions but enables efficient ‘Web-based trust formation’.

The above-mentioned networking capabilities as well as the ‘Ability to act as network broker’ and ‘Knowledge of cooperative agreement’ necessitate successful ‘Web-based trust formation’ in the virtual network of value chain partners. The outcome of ‘Web-based trust formation’ is effective ‘E-commerce information management’ pertaining not only to the virtual network of partners but also to e-commerce consumers. Effective ‘E-commerce information management’ is conditioned by networking capabilities such as effective ‘Web-driven customer focus’, ‘Web-driven partner learning’ and ‘Web-driven partner

communication. These intervening networking capabilities enhance and contribute to more efficient and effective ‘E-commerce information management’.

‘E-commerce information management’ enables more successful ‘E-commerce oriented product delivery’ in e-commerce. The attainment of effective and efficient ‘E-commerce oriented product delivery’ in e-commerce contributes to the creation of ‘Web-based trust formation’.

Relationships between existing and new components (networking capabilities) of the new paradigm model with propositions that describe the new or changed relationships are presented in the concluding framework of the study. The concluding framework is illustrated in Figure 5.5 to be discussed in Section 5.5.

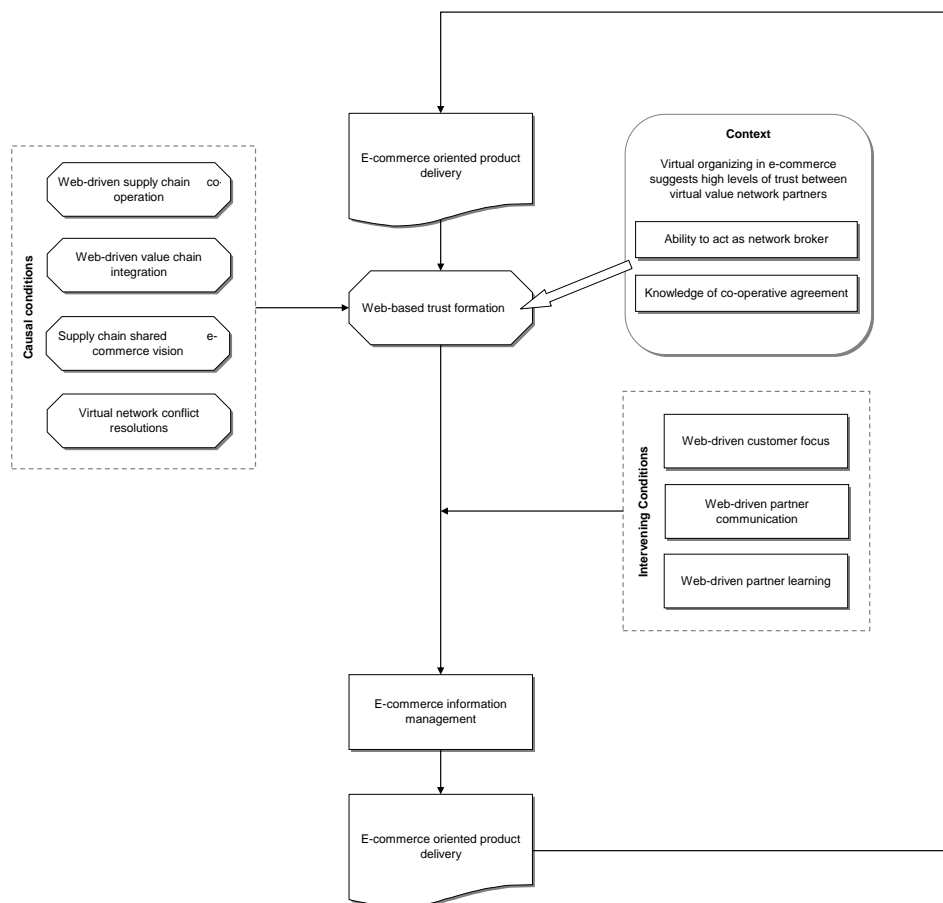


Figure 5.5 The concluding framework

The concluding framework consists of components (networking capabilities) arranged in a specific structure that indicates relationships in the use of networking capabilities with virtual organizing in the virtual value network of partners.

Specific conditions or consequences [in terms of dimensions and properties of categories] are associated with the successful use of networking capabilities in virtual organizing. Such use of networking capabilities indicates specific patterns of use.

The conditions associated with the successful use of the new category and sub-categories [developed during open coding of the empirical case data] relates to the propositions developed (see Table 5.8). The complete and updated list of conditions associated with the successful use of networking capabilities are listed in Table 5.10.

Table 5.10 Conditions associated with successful use of networking capabilities

Category	Property	Dimensions
Web-driven supply chain integration	<i>Web coordination</i>	<i>Innovative</i>
Web-driven customer focus	<i>Customer needs</i>	<i>Specified</i>
Supply chain shared e-commerce vision	<i>Customer value creation</i>	<i>Focused</i>
Ability to act as network broker	<i>Entrepreneurial skills</i>	<i>Developed</i>
Knowledge of cooperative agreement	<i>Legal knowledge</i>	<i>High</i>
Web-based partner trust formation	<i>Valued relationships</i>	<i>Established</i>
E-commerce information management	<i>Consumer needs</i>	<i>Predicted</i>
Web-driven supply chain cooperation	<i>Partner reaction</i>	<i>Real time</i>
Web-driven partner communication	<i>Lead time</i>	<i>Minimized</i>
Virtual network conflict resolution	<i>Conflict management</i>	<i>Effective</i>
Web-driven partner learning	<i>Innovation</i>	<i>Continuous</i>
E-commerce oriented product delivery	<i>Value creation</i>	<i>Innovative</i>

An additional three propositions have been developed during the axial coding process of the empirical cases (see Table 5.9). The complete set of propositions of the concluding framework is presented in Table 5.11. The table presents propositions of the preliminary framework (see Table 4.7) as well as the additional three propositions of the updated paradigm model. The three new propositions of the updated paradigm model had no effect on established relationships of the preliminary framework.

Table 5.11 The final set of propositions that describe relationships between the components of the concluding framework

Propositions	
1	Successful e-commerce oriented product delivery supports more effective web-based trust formation
2	Web-driven supply chain cooperation use with virtual organizing supports effective web-based trust formation
3	Successful web-driven value chain integration with virtual organizing supports effective web-based trust formation
4	Supply chain shared e-commerce vision supports web-based trust formation in virtual organizing
5	Web-based trust formation enhances effective e-commerce information management in virtual organizing
6	The achievement of web-driven customer focus supports effective e-commerce information management
7	Successful web-driven partner communication supports effective e-commerce information management in virtual organizing
8	Successful web-driven partner learning supports effective e-commerce information management in virtual organizing
9	Effective e-commerce information management support e-commerce oriented product delivery
10	High levels of trust formation require the function of the network broker to be effective.
11	Effective web-driven trust formation is enhanced where the knowledge levels of the co-operative agreement by enterprises in the virtual organization is high.
12	Efficient web-driven virtual network conflict resolution supports the formation of Web-driven trust formation.

5.5 The concluding framework

The narrative storyline used to describe the adjusted paradigm model will now be expanded in order to explain the use of networking capabilities with virtual organizing in a virtual value network of organizations. The storyline of the concluding framework addresses and considers all aspects of the research problem formulated in Chapter Three as:

“To develop a framework of needed networking capabilities and their inter-relationships that enable successful virtual organizing in e-business”.

The concluding description is developed and based on the conceptual framework (Figure 5.6) that indicates the relationships between networking capabilities (Table 5.6) to be restricted by a pattern of conditions (Table 5.5) of the research problem. The concluding description of needed networking capabilities with virtual organizing in e-commerce is the following:

Web-driven trust formation is critical to entrepreneurs in order to ensure effective web-driven supply chain integration; high web-based trust formation furthermore supports web-driven supply chain cooperation as well as successful supply chain shared e-commerce vision implementation.

Web-based trust formation is, under these circumstances, a high priority networking capability to entrepreneurs. Web-based trust formation is typically characterised by networking capabilities such as the ability to act as network broker and knowledge of co-operative agreement. One of the results of the importance of successful web-based trust formation is recognition of trust formation’s contribution to effective e-commerce information management.

Effective e-commerce information management is supported and enhanced through networking capabilities such as effective web-driven partner communication, web-driven customer focus and efficient web-driven partner learning. The consequence of effective e-commerce information management is successful e-commerce oriented product delivery in the global marketplace.

This desired outcome of virtual organizing, namely e-commerce oriented product delivery should in turn enhance web-driven trust formation for further increase in effective virtual organizing in e-commerce.

The theoretical framework identifies and explains relationships between networking capabilities used in virtual organizing in accordance with the problem statement of the study. Networking capabilities when used in virtual organizing activities are vital for the development and enrichment of relationships between partners of the virtual value network. Recurring interaction between networking capabilities can contribute to web-based trust formation. This will be discussed in the next section.

5.6 Implications of the concluding framework

Recognizing the central importance of relationships between partners of a virtual value network the research indicates the complex dynamics associated with the use of networking capabilities in virtual organizing. Accordingly, the most important proposition in the study indicates that web-based trust formation enables e-commerce information management with potential users and partners in electronic markets. E-commerce oriented product delivery is positively related to web-based trust formation in the virtual value network of partners. Defining the phenomenon of the study enables an exploration of the complex relationships between the phenomenon and other networking capabilities.

The established inter-relationships between networking capabilities of the concluding framework hold the potential to enhance the effective use of networking capabilities with virtual organizing for the entrepreneur in the virtual value network. This may be illustrated, e.g., in a situation where steps are needed to enhance effective e-commerce information management. If effective web-driven customer focus is seen as the only needed solution, then the required steps may not be fully effective or could even be a failure. A more comprehensive

approach would require that web-driven partner communication be more efficient or it could be that more efficient web-driven partner learning would secure best results.

Successful implementation of web-based trust formation skills are influenced and enhanced by networking capabilities such as web-driven supply chain cooperation, web-driven value chain integration and supply chain shared e-commerce vision. The use of the above mentioned three networking capabilities enhance web-based trust formation that, in turn, facilitates successful e-commerce information management with resultant improved e-commerce oriented product delivery in virtual organizing. It is important to note that the use of networking capabilities in virtual organizing is cyclical in nature. Even when e-commerce oriented product delivery is successful, improvements in effective virtual organizing will depend on continued trust formation in the e-commerce environment.

Hallberg (2006) highlights the view of Strauss and Corbin (1998) on the value of qualitative research findings of Grounded Theory to be reality that cannot be fully known but can be interpreted in the research study. The Grounded Theory method provides a qualitative research methodology that enabled the findings of literature case of the study to be refined and validated in the empirical cases of the study. The findings of the study should therefore not be considered as the complete 'truth' to be viewed as the 'final' statement on the phenomenon. We therefore consider the result of the findings of the field interviews explained by means of the theoretical framework with resultant statement to be the 'concluding framework' of the research project. The concluding framework is viewed as a conceptual framework with a statement of relationships between categories and sub-categories that is based on developed propositions in order to create more insight into the use of networking capabilities with virtual organizing in the virtual value network of partners.

5.7 Summary

The concluding framework developed in Chapter Five was achieved through theoretical saturation of the categories as well as the incorporation of the new category and two sub-categories in the concluding framework. The conceptual framework with the theoretical description of relationships between identified networking capabilities clarify the use of networking capabilities used with virtual organizing in a virtual network of organizations.

The networking capabilities described in the concluding framework indicate a variety of social and socio-technical skills that enable virtual organizing in a virtual network of partners. The study sensitises researchers to the complex dynamics of networking capabilities used in virtual organizing. An understanding of the interaction between networking capabilities is critical to the success of virtual organizing in the virtual value network of partners.

The next chapter considers the important role that the entrepreneur must play in exploiting networking capabilities in the virtual network of partners. By interpreting the results obtained from an Actor-Network perspective, it is shown how the entrepreneur can leverage the interrelationships that exist between the various network capabilities to enable more effective and efficient virtual organizing in the e-marketplace.

Chapter 6

Defining the role of the entrepreneur in the virtual value chain of partners

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6.1. Introduction

The previous chapter discussed the importance of networking capabilities included in a framework, as processes, to be implemented by the entrepreneur (as well as the other members of the virtual supply network) to enable virtual organizing activities in the virtual supply network of partners. We also established the interrelationships that exist between the various identified networking capabilities and how these interrelationships strengthen virtual coordination activities in the virtual supply network system. The resultant Grounded Theory developed in Chapter Five (the *concluding framework*) explains the interrelationships and importance of networking capabilities that enable virtual organizing activities in a virtual supply network of partners.

What is not clear from the Grounded Theory developed in Chapter Five is the contribution of the network capabilities to the creation and continued maintenance of a virtual value chain of partners (who participate in the e-marketplace) by the entrepreneur. This chapter uses the developed Grounded Theory to focus on the attempts of the entrepreneur to create and maintain a virtual value chain of partners in the e-marketplace. The attempts of the entrepreneur to develop and establish a virtual value chain of partners as well as the users of the product offering in the e-marketplace is viewed through the lens of Actor-Network Theory. We draw upon Actor-Network Theory (ANT) to trace and explain the processes whereby a relatively stable virtual value chain of partners and users become established and is maintained.

The focus of this chapter therefore goes beyond the objectives of the research project as described in Chapter One, where the research problem has been identified as:

“To develop a framework of needed networking capabilities and their interrelationships that enable successful virtual organizing in e-business”.

Having reached this research objective with the development of the Grounded Theory in the preceding chapter, this enlarged focus enables us to examine the dynamics of the establishment and maintenance of the virtual value chain. The developed Grounded Theory does not as such address these dynamic aspects. To put it simply, the developed Grounded Theory does not “tell” the entrepreneur how to utilize the identified networking capabilities to actually build and maintain a successful network of partners, or virtual value chain. This is precisely what the focus of ANT is: to investigate how successful networks of aligned interests between heterogenous elements can be established, or why this sometimes does not happen. ANT therefore provides the ideal vehicle for investigating how the entrepreneur could utilize knowledge and skills with respect to networking capabilities to build a stable and eventually institutionalized network of partners. As such, this deviation from the original focus of the study is deemed useful through the additional contribution that is made by investigating the dynamic aspects of networking capabilities.

First, in section 6.2, the ANT perspective of the Grounded Theory is discussed. The section explains the existence of a virtual value network of partners that is created by the entrepreneur in the e-marketplace of users. The section concludes with a discussion on Inscription and Translation in ANT.

The next section, section 6.3, considers the function and impact of networking capabilities on the formation of a virtual supply network of partners from the perspective of ANT. Since a virtual supply network of partners do not exist in isolation but forms part of a more comprehensive network (virtual value network) that includes users in the e-marketplace the following section examines the existence of an ‘*entrepreneurial process*’ pertaining to the e-marketplace of users.

We then, in section 6.4, consider how a virtual supply network of partners is maintained. We deliberate on how the networking capabilities of the Grounded Theory (developed in Chapter Five) support the entrepreneur in his endeavour to interest and enrol new members into an existing virtual supply network. ANT

ideas (as part of the Due Process Model) provides a useful perspective on the potential functionality of networking capabilities to further advance the efforts of the network broker to introduce new applicants into the virtual supply network.

In section 6.5, the relevance of an entrepreneurial process is explained. We then consider the impact of information technology for the entrepreneur in the e-marketplace of users (external environment) in section 6.6.

The final section draws some conclusions from the findings of this chapter with regard to the role of the entrepreneur in the virtual value network of partners.

6.2. An ANT perspective of the Grounded Theory

This section considers the role and relevance of the developed Grounded Theory on the formation of a virtual value network of partners from the perspective of ANT. The existence of the '*virtual value network*' and its relevance for the entrepreneur of a web-based organization needs to be explained (from the perspective of ANT). The virtual value network includes the virtual supply network of partners, the entrepreneur and the consumers or users of the product or service in the e-marketplace. The virtual supply network consists of only the entrepreneur and his virtual supply network of partners that enables product or service delivery in the e-marketplace of users.

The relevance and importance of a virtual value network of partners for the entrepreneur which participates in the e-marketplace as a web-based organization can be summarized as follows. The web-based organization (as represented by the entrepreneur) participates in the e-marketplace (consisting of users) by means of a virtual supply network of partners in order to realize the economic vision of the entrepreneur. The entrepreneur is referred to as the '*focal actor*' in ANT while the users (in the e-marketplace) are considered to be equal partners in the virtual value chain network. The concept of virtual value network in relation to the virtual supply network is illustrated in Figure 6.1.

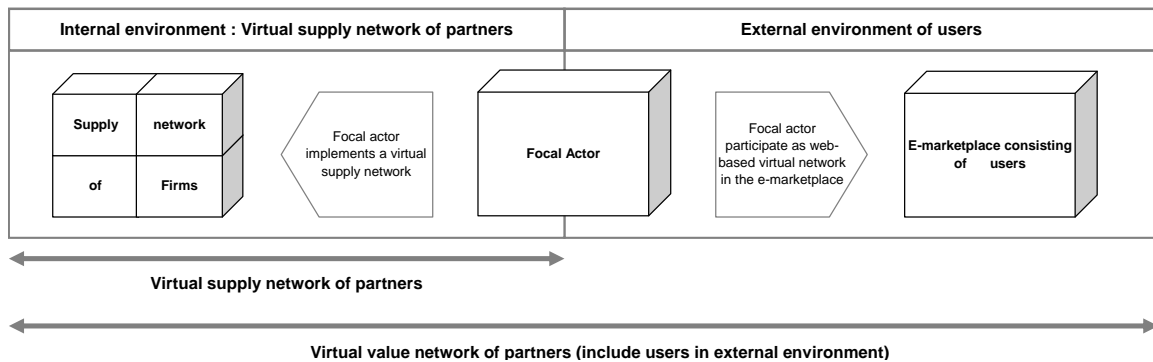


Figure 6.1 The concept of the virtual value network in the e-marketplace

Figure 6.1 indicates the central role of the entrepreneur who participates in the e-marketplace as a web-based organization by means of a virtual supply network of firms. The users in the e-marketplace view the entrepreneur to be a separate entity and independent from the virtual supply network of partners. The entrepreneur performs a central role in the formation of a virtual value network and is held responsible by the users for the success of the virtual supply network of partners in the delivery of products and services in the e-marketplace. Any member of the virtual supply network of partners may potentially perform the role of an intermediary and facilitate the interactions between the different partners included in the virtual value network of partners.

The ANT perspective implicates the entrepreneur as responsible in the establishment of a virtual supply network of partners that enables product and service delivery in the e-marketplace. The entrepreneur, considered to be accountable for the supply actor-network, builds the virtual supply network of partners in order to deliver products and services in the e-marketplace. The virtual value network consists of heterogeneous (technical and human elements) actors that contribute to accomplish the economic vision of the entrepreneur. The entrepreneur is responsible for product and service delivery of the virtual supply network of partners by the users (participating in the e-marketplace) whereas the

partners in the virtual supply network act as delegates who represent and promote the viewpoints of the entrepreneur in the e-marketplace of users.

The entrepreneur realizes his economic vision of the e-commerce oriented product delivery by means of the virtual supply network and needs to consider the merit for the inclusion of each new partner into the actor-network. The partners included in the virtual supply network function as separate entities that participate in the actor-network by means of virtual organizing over distance. Technical (Information Systems) and non-technical (human) actors are considered as equal partners in the virtual supply network. The entrepreneur implements Information Systems in the actor-network to effect changes pertaining to the way partners think and perform virtual organizing activities in order to realize the economic vision (entrepreneur).

ANT identifies two concepts that are of particular relevance for improving our understanding of the way in which networking capabilities affect virtual organizing activities in the virtual value network of partners, namely inscription and translation. The concepts of translation and inscription are discussed in the following sub-section.

6.2.1. Translation and Inscription in ANT

Successful participation in the e-marketplace of users depends on the ability of the focal actor to gain the support of a sufficient number of allies in order to realize the economic vision, namely, e-commerce product delivery. The focal actor needs to gain the support of a sufficient number of candidates (potential allies) to be included in the virtual supply network. The entrepreneur needs to evaluate the interests of each candidate considered for inclusion in the virtual supply network. These interests have to be re-aligned with his own in order to realize the economic vision. Only the candidates that are willing to participate in

virtual organizing activities and strengthen the virtual supply network will be included as partners.

The moments of translation in ANT present a new perspective on how the entrepreneur succeeds in his attempts to enrol and mobilize the candidates into the virtual supply network of partners. The moments of translation create an opportunity to address the problem of action-at-a-distance in the virtual supply network (Kaghan & Bowker, 2001). Actor-network theory indicates four '*moments of translation*' to the achievement of durability in a newly created virtual supply network of alliance. Doolin and Lowe (2002) refer to Law (1992) in describing what should be the aim with the process of translation, namely "*How is it that things get performed (and perform themselves) into relations that are relatively stable and stay in place?*". The achievement of stable relations enables the entrepreneur to realize his economic vision pertaining to e-commerce oriented product delivery by means of the virtual supply network.

A further important concept in ANT relates to inscription. Whereas translation considers aspects of reinterpretation and representation of aligned interests, inscription gives insight as to the patterns of use of Information Technology in order to promote the script of the entrepreneur in the virtual supply network of partners. The entrepreneur inscribes his economic vision for e-commerce product delivery in the technical content of technology systems as the means to affect a change process in the way virtual organizing activities are performed in the virtual supply network of partners.

ANT provides a lens to gain insight and a better understanding as to how the focal actor achieves stability in an actor-network. The focal actor constructs a virtual supply network of partners to be established and accepted as a fact in the e-marketplace of users. ANT puts a lot of emphasis on the entrepreneur and his attempts to align the diverse collection of interests of the various actors included in the virtual supply actor-network. Kaghan and Bowker (2001) explain the importance of negotiations in reaching the status of an established actor-network (black box) as follows:

“Crucially, black-boxes are always the outcome of socio-technical negotiations - it takes continuing work both to create them and to hold them in place. Closure is neither complete nor final”. The virtual supply network, as one member of the value chain, therefore includes allies as well as users (e-marketplace). The more allies and users the focal actor manages to include in the value chain, the more difficult it is to argue against the existing support for the existence of the web-based organization consisting of a virtual supply chain network system.

The interests of each member of the virtual supply network needs to be aligned if the focal actor hopes to build and sustain the actor-network. The entrepreneur uses networking capabilities with virtual organizing activities in order to build and maintain a virtual value network of partners in the e-marketplace of users. The focal-actor is unable to force users to participate in the virtual value network of partners. The entrepreneur may influence the potential user in the e-marketplace to participate in the virtual value network of partners that will be discussed in more detail in section 6.5. The entrepreneur that participates in the e-marketplace by means of a conventional organization (hierarchy) in contrast to the virtual network structured network implements different power structures in order to secure product delivery.

The formation of a virtual supply network of partners will be discussed in the next section.

6.3. The formation of a virtual supply network of partners

The ANT perspective indicates four moments of translation (as indicated in the previous sub-section) to consider how the entrepreneur establishes a virtual supply network of partners. ANT refers to the four moments of translation as: Problematization, Interest building, Enrolment and Mobilization (Callon, 1986). The four identified moments of translation and their contribution in creating a

better understanding of the creation of a virtual supply actor-network (from the ANT perspective) can be summarized as follows:

- The problematization phase is initiated by the focal actor (entrepreneur) who intentionally starts a change process (participation in the e-marketplace) of the status quo of doing business. The focal actor identifies the relevant actors (supply chain partners) and defines their interests in supporting the proposed change (to the e-marketplace). The focal actor then attempts to position the actors in an actor-network, although this only happens after he has successfully established whether each of the actors whom he considers for inclusion in the actor-network has interests that are consistent (not necessarily identical) to his own. The focal actor in addition attempts to establish an Obligatory Passage Point (OPP) in the problematization phase by creating an alliance among relevant participating actors of the actor-network who shares the same objective. The entrepreneur (by means of the OPP) intends to position himself as indispensable to the virtual supply network.
- During the second phase, namely Interest building, the focal actor tries to convince candidates considered for inclusion in the virtual supply network that their best interests are pursued through the OPP. The focal actor may create and introduce incentives for potential firms outside the actor-network to accept the defined problem of the focal actor.
- In the third phase, namely Enrolment, the focal actor assembles an alliance of actors to pursue the objectives he has established. The focal actor defines the roles in the newly created actor-network in order to promote and consolidate the position of the virtual supply network alliance. This is accomplished when the focal actor has introduced various different strategies.
- During the final stage, namely Mobilization, the focal actor attempts to stabilize the actor-network through the creation of durable relations. The focal actor builds on the existing set of enrolled actors in the virtual supply

network in his attempts to ensure the continued support for his underlying ideas and original motivation for creating a virtual-network. The focal actor makes an effort to institutionalize his ideas in the actor-network thereby avoiding its being labelled as controversial by the participating actors.

The attempts of the entrepreneur to create a virtual supply actor-network may not be successful. The '*moments of translation*' explain the various moments in the formation of an actor-network although very different factors might impact on the success of the entrepreneur in his endeavour. The above interpretation of the formation of a virtual supply actor-network from the perspective of the '*moments of translation*' of ANT indicates the central role of the entrepreneur. The next sub-section considers how networking capabilities (Grounded Theory) contribute to the creation of a virtual supply network of partners.

6.3.1. The impact of the Grounded Theory on the formation of a virtual supply network of partners

The Grounded Theory, developed in Chapter Five, provides an understanding of how the identified networking capabilities enable and enhance virtual organizing in a virtual network. In this sub-section this understanding provides the basis for a focus on the task of the entrepreneur to establish a successful virtual supply network of partners.

From the ANT perspective, the creation of the virtual supply network of partners by the entrepreneur is considered to be processes of institutionalization (virtual organizing) rather than structures (virtual organization). Effective socio-technical skills of a personal nature are essential for the focal actor in his attempts to develop a virtual supply network of partners. The focal actor needs to implement and demonstrate strong networking capabilities in the process of creating a virtual actor-network whereas a personal limitation (pertaining to the ability to

implement network capabilities) or the lack thereof will seriously undermine the potential for success.

The use of networking capabilities in the process of creating a virtual supply network implicates the focal actor and his ability to configure and direct the virtual supply actor-network from its initiation. When applying the framework of identified networking capabilities to the translation phases, as identified in ANT, it enables us to comprehend more fully how networking capabilities contribute to the creation of a virtual supply actor-network. The relevance and use of networking capabilities from the perspective of ANT in the process of creating an actor-network by the focal actor is illustrated in Figure 6.2.

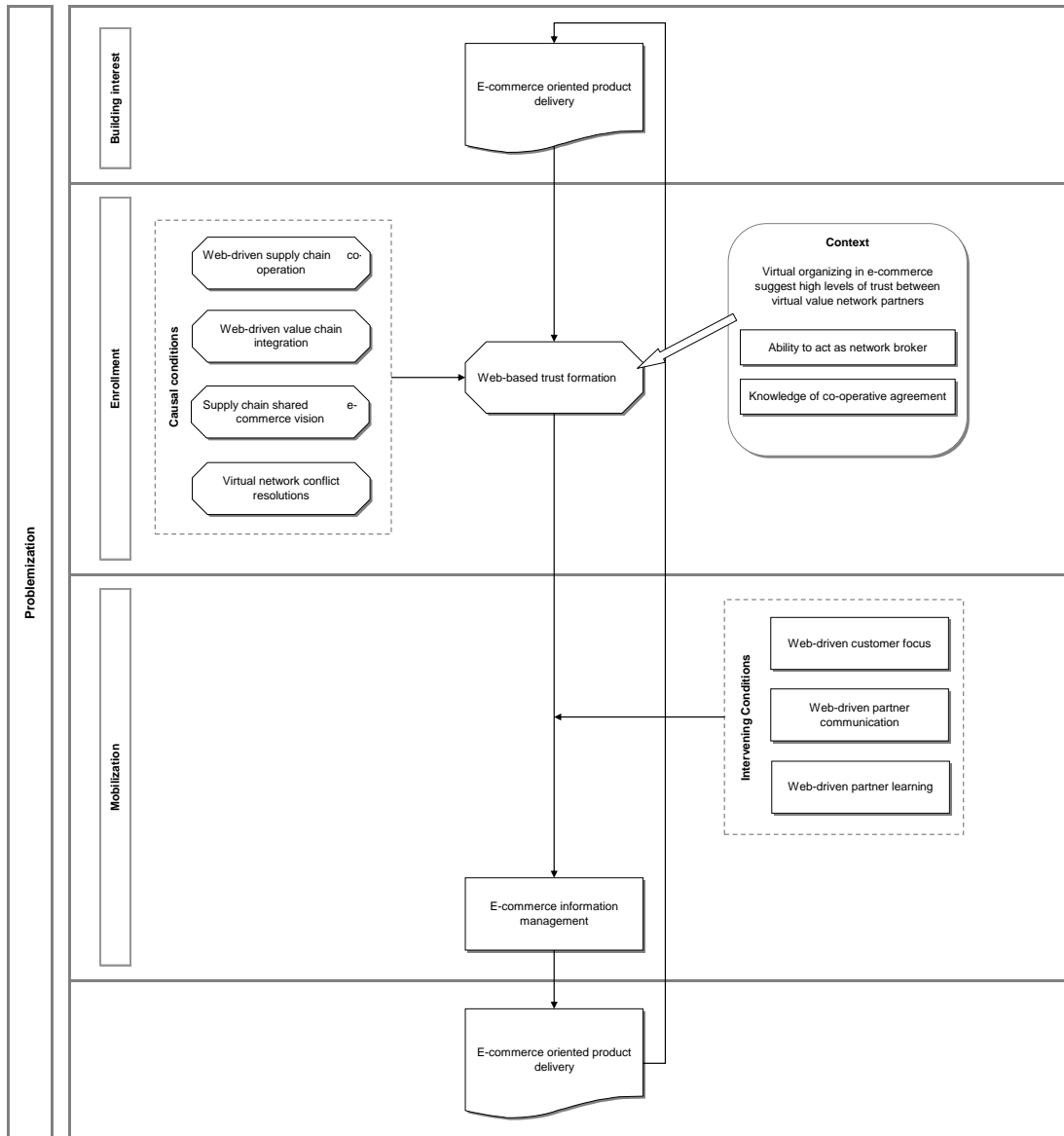


Figure 6.2 Relevance of the Grounded Theory in the translation process

Figure 6.2 indicates the potential contribution of the Grounded Theory (consisting of a framework of identified networking capabilities) in the four moments of translation of ANT when creating a virtual supply actor-network. Relevant networking capabilities to be considered in each of the four moments of translation are identified and categorized (based on their relevance and importance to enable success in each of the four identified moments) in Table 6.1. Table 6.1 indicates the four moments of translation (with accompanying

definitions) and names relevant networking capabilities as primary and supporting networking capabilities to be considered for the successful completion of each of the moments of translation.

Table 6.1 The Grounded Theory applied to the four moments of translation

Moments of translation	Description	Primary networking capabilities exercised	Supporting networking capabilities
Problematization <i>(Becoming indispensable)</i>	Defining problems and suggesting solutions where the focal actor is indispensable in the solution.	E-commerce oriented product delivery Web-based trust formation E-commerce information management	Ability to act as network broker Knowledge of co-operative agreement
Building interest <i>(Locking key allies into place)</i>	Finding ways to (re)formulate the problem/ solutions in such a way that key allies will associate their own interest with the formulation Translate (reinterpret) interests Link to their identity/ vision/ objectives Retain control of the (re) formulation process	E-commerce oriented product delivery	
Enrolment <i>(Expanding support)</i>	Establishing the problem/ solutions as an accepted fact Control/ influence the production of facts. Use allies as spokespersons Inscribe problem/ solutions in organizational memory (scripting)	Web-based trust formation	Web-driven supply chain co-operation Web-driven supply chain integration Supply chain shared e-commerce vision Virtual network conflict resolution
Mobilization <i>(Ensuring compliance)</i>	Ensure compliance by monitoring the network and addressing dissent as and when it arises Use stability in network to enact solutions Restart translation process. Translation is an ongoing process	E-commerce oriented information management	Web-driven partner communication Web-driven partner learning Web-driven customer focus

Table 6.1 indicates the various networking capabilities implicated in the moments of translation. Their contributing to the creation and the development of (hopefully institutionalized) actor-networks can be interpreted as follows:

- **Problematization:** The focal actor needs to demonstrate strong '*E-commerce oriented product delivery*' skills in order to motivate the change process of the status quo of conducting business from the traditional to the e-Marketplace. The focal actor needs to implement '*E-commerce information management*' capabilities in order to identify relevant actors with similar (although not identical) interests as potential candidates to be included in the actor-network. The focal actor needs '*Web-based trust formation*' skills in his attempts to develop an obligatory passage point (OPP) with the intention to create an alliance among the relevant actors with a shared objective. It is only possible for the focal actor to become indispensable to the actor-network when he succeeds in creating a trusting relationship between the participating actors in the actor-network.
- **Building interest:** The focal actor needs to demonstrate '*E-commerce oriented product delivery*' capabilities if he intends to convince participating actors in the network that their best interests are pursued through the obligatory passage point.
- **Enrolment:** The focal actor needs to implement strong '*Web-based trust formation*' skills when creating an alliance of actors in pursuit of the objectives of the focal actor. Where the focal actor succeeds in creating sufficient levels of trust it contributes and enables him to convince potential actors to join the actor-network. The formation of trust in the actor-network is promoted and enhanced where the focal actor demonstrates skills pertaining to '*Web-driven supply chain integration*', '*Web-driven supply chain cooperation*', '*Virtual network conflict resolution*' as well as '*Supply chain shared e-commerce vision*'.
- **Mobilization:** The focal actor with the necessary '*E-commerce oriented information management*' skills should succeed at creating durable

relations in the actor-network. The focal actor that succeeds at demonstrating strong '*E-commerce oriented information management*' skills represents the most effective and efficient means to secure the continued support for the underlying ideas for the existence of the actor-network. The underlying idea or motivation for the creation of the actor-network only becomes institutionalized through effective and efficient '*E-commerce oriented information management*'. The focal actor also needs to implement different skills related to '*Web-driven partner communication*', '*Web-driven partner learning*' and '*Web-driven customer focus*' that promote and enhance '*E-commerce oriented information management*' as the means to institutionalize the actor-network in the e-Marketplace.

Networking capabilities have both enabling and restricting qualities in the formation of virtual supply chain networks. An important consideration for using an ANT perspective was to better understand and explain the possibilities and limitations associated with networking capabilities in the formation of virtual supply chain networks. The ANT perspective emphasizes the importance of socio-technical skills of a personal nature (pertaining to the focal actor) in his attempts to create a virtual supply network. Networking capabilities play an important role, from the perspective of ANT, to enable the '*exchange of properties*' linked to the creation of a virtual supply network although it is doubtful whether a virtual supply network can become '*institutionalized*' without also considering the role of networking capabilities in the external environment of users (in the e-marketplace).

The process of institutionalizing a virtual supply network in the e-marketplace can only be obtained if and where the virtual supply network is flexible enough to establish, address and effectively serve the multiple interests of its other constituent value chain member, namely, the users in the e-marketplace.

Constant changes experienced in a virtual supply network of partners – for example, partners leaving and entering the virtual network impact on the

entrepreneur and his attempts to stabilize the virtual supply network. The most important reasons for changes happening in the actor-network include:

- Forced new (envisioned) e-market product offerings (inscription)
- Changes in the technical content of existing product offerings (translation)
- Existing partners leaving the actor network (interests).

Since the virtual supply network is always in a process of change where actors leave the actor-network and the focal actor in response needs to introduce new actors to the virtual supply network, the continuous success of the web-based organization depends on the entrepreneur's ability to introduce new partners into the virtual supply actor-network. The Due Process Model is helpful in considering the socio-technical negotiations involved where a new partner needs to be included in an existing actor-network. The next section considers the role and importance of socio-technical skills with the introduction of new members into the virtual supply network from the perspective of the Due Process Model. This is considered important if the entrepreneur hopes to continuously delivery his/her product offering successfully in the e-marketplace by means of a virtual supply network of partners.

6.4. The Due Process Model perspective

The Due Process Model provides a framework of how the entrepreneur introduces new partners into an existing virtual supply network. The Due Process Model can also be applied to the implementation of new technology systems in the virtual supply network since ANT does not distinguish between human and non-human actors in a virtual network.

In the Due Process Model any attempt of the focal actor to include a new candidate or when a new candidate presents himself for inclusion needs to be

considered by the actor-network. The actor-network only permits the candidate to be enrolled into the virtual supply network if it is perceived to contribute to strengthening it. The Due Process Model is concerned with and attempts to explain the process by which actors are included and excluded from the virtual supply network. The Due Process Model is illustrated in Figure 6.3.

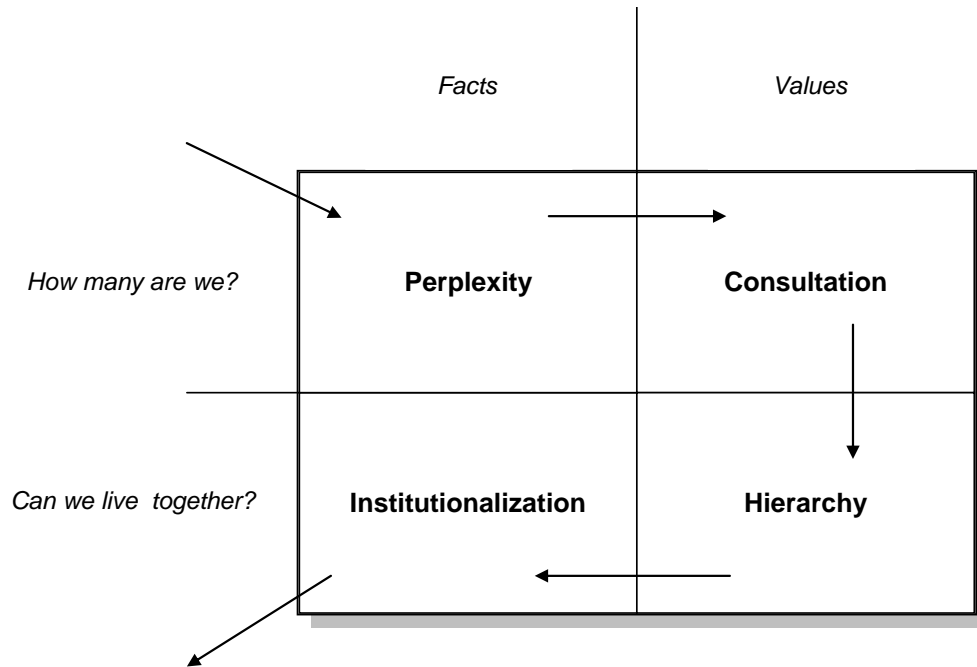


Figure 6.3 The Due Process Model (Source: McMaster *et al.* 1997)

Figure 6.3 indicates the Due Process Model as consisting of four phases namely perplexity, consultation, hierarchy, and institution. While perplexity and consultation considers the issue of ‘*how many are we*’, hierarchy and institution reflects on aspects pertaining to ‘*can we live together*’. The phases are discussed below:

- In the perplexity phase the focal actor put forward a claim for the inclusion of the candidate in the virtual supply network to strengthen it, thereby contributing to the virtual supply network success in the e-marketplace.

This possible inclusion of a new partner in the virtual value chain brings a degree of perplexity to the supply network, and leads to a process where claim and counter-claim need to be tested and contested. The existing actors in the virtual supply network expect the focal actor to consider the impact of the new candidate on the existing network and to explain the potential benefits and disadvantages to be obtained by its inclusion. The candidate that succeeds in demonstrating strong networking capability skills that can benefit and enhance the objectives of the virtual supply network through enhanced virtual organizing activities should gain support, and presents a strong claim for inclusion in the actor-network.

- The entrepreneur leads the next phase, namely, consultation. Concerns about the legitimacy of the candidate are discussed and debated by existing members. A candidate will only be successful in his attempts to be included in an actor-network network when the existing members, after consultation, agree that his potential contribution adds value to the advantage of the virtual supply network in the e-marketplace of users.
- The third phase in the process considers the need to include an additional actor in the actor-network in relation to its relative importance to the virtual supply network. In other words, although actors in the existing actor-network might agree that the new actor should be included, they could still conclude that its importance is relatively low, arguing against its inclusion. If the actors in the virtual supply network reject a candidate in this phase, the actor will be excluded from the virtual supply network system.
- In the final phase of the Due Process Model a candidate that has been accepted is absorbed into the existing network which can then regain its previous status of institutionalization.

In terms of the model, there is always the danger of the entrepreneur driving the process of transformation from phase 1 (Perplexity) directly through to the final

phase, Institutionalization, omitting stages two and three of the model. When the entrepreneur omits and does not apply the next two stages of the Due Process Model, it increases the likelihood of failure and the candidate's non-admittance into the supply network of partners. The Due Process Model shows how all perceived '*enemies*' of the virtual network are excluded although they may, at a later time, appeal for re-admission into the network of partners.

The next sub-section considers the role of networking capabilities from the Due Process Model perspective.

6.4.1. Implications of the Grounded Theory on partner selection and inclusion in a virtual supply network

The networking capabilities of potential new members of the actor-network need to be recognized by existing members as an important criterion when considering whether a candidate should be included or rejected. The focal actor also evaluates the potential set of networking capabilities each candidate may contribute to the virtual supply network as an important consideration for inclusion in the virtual supply network. A virtual supply network consists of individual partners where each partner needs to contribute their resources, competencies, as well as networking capabilities to the actor-network in order for it to succeed in the e-marketplace. The virtual supply network includes actors that take on different roles based on the established virtual value supply chain activities needed to deliver a product or service in the e-marketplace. The different supply chain activities associated with delivery of products and services to the e-marketplace require each member of the actor-network to implement and demonstrate a different set of networking capabilities that enables effective virtual organizing activities.

The focal actor needs to consider whether a candidate for inclusion in the actor-network might threaten his own position in the virtual supply network in time. The

focal actor who takes on the role of network broker will tend to excel at socio-technical skills related to the e-marketplace such as effective '*virtual information management*' as well as '*virtual trust formation*' (entrepreneurial process) whereas actors in the supply network will tend to excel at networking skills concerning the supply network coordination activities (internal process). It is therefore important to note that not every actor with the required tendency or orientation to networking capabilities can take on the role of the focal actor in the virtual value chain formation. In the scenario where a member of the value chain with a typical orientation to technical expertise and know-how, introduces a new technology or feature to the product offering in e-commerce, a different set of networking capabilities might need to be demonstrated by a partner in the virtual supply network. The focal actor should carefully consider each potential new candidate which might threaten his own position in the existing virtual supply chain. Such a candidate might, at a later stage, leave the existing supply network and start a competing supply network based on its own ability to perform the network broker activities, thereby putting the existing supply chain network of partners at risk.

Members of an existing actor-network will tend to resist the inclusion of a new applicant into the virtual supply network who demonstrates strong networking capabilities and technical know-how related to a specific function in the supply chain, thereby protecting their own interests.

Once the needed constituency of existing actors in the virtual network has been considered in the perplexity and consultation phases of the Due Process Model, aspects pertaining to the question of whether the actors can live together needs to be considered (hierarchy and institution phases). Networking capabilities should contribute to the success of virtual organizing activities in the virtual supply network. The Due Process Model highlights the importance of effectively linking the resources, personal and firm-specific capabilities with the existing set of networking capabilities of the different actors participating in the supply network. To illustrate the point, the network broker tends to excel at networking capabilities such as virtual information management ('*E-commerce oriented*

information management’) whereas actors participating in the value supply chain typically demonstrate a more technical orientation that is linked to networking capabilities such as *‘Web-driven value chain integration’*. The actor that successfully participates in the virtual supply network either as a network broker and/or supply chain member (i.e., succeeds with the implementation of the needed set of networking capabilities) will not only improve their own competitive advantage in the specific supply chain (central actor) but will also help create and improve the competitive advantage of the virtual supply chain in the e-marketplace.

The view of the virtual network as consisting of an assembly of actors that contribute vastly different sets of networking capabilities needed to function effectively in the supply network highlights the fact that the agent cannot simply be replaced at will in a virtual network without seriously impacting on its potential to succeed in the e-marketplace. ANT demonstrates, by means of the Due Process Model, how the entrepreneur motivates the need to introduce a new member (based on his potential to contribute a set of network capabilities as an important consideration for the success of the virtual supply chain) into the actor-network. The Grounded Theory (consisting of a framework of identified networking capabilities) supports the entrepreneur in determining the suitability of a candidate considered for inclusion in the actor-network.

Since a virtual supply network does not exist in isolation but forms part of a virtual value network of partners that includes the users in the e-marketplace, we need to consider the use of networking capabilities by the entrepreneur in the creation of the virtual value network in the e-marketplace of users. The next section considers the use and implications of the Grounded Theory for the entrepreneur in the external environment of users.

6.5. The formation of the virtual value network of partners

The entrepreneur that performs the role of network broker is responsible for the web-based organization and its virtual supply network of partners to fulfil its business objectives in the global e-marketplace. The entrepreneur needs to implement networking capabilities that impact on the success of web-based organizations in the in e-marketplace. The identified networking capabilities not only contribute to the creation of a virtual supply network (as explained through the lens of ANT), it also enables virtual organizing activities between actors in the actor-network (consisting of a virtual supply network of partners) as well as effective participation in the e-marketplace (external environment).

Much can be learned from the concluding framework on which networking capabilities the focal actor needs to excel at in order to effectively compete in the e-marketplace. The concluding framework (Chapter Five) explains how networking capabilities enable virtual organizing between participating firms in a virtual supply network as follows:

Successful implementation of virtual organizing suggests effective ‘Web-driven trust formation’ as the core enabling networking capability.

Effective ‘web-driven supply chain co-operation’, ‘Web-driven value chain integration’, ‘Supply chain shared e-commerce vision’ and ‘Virtual network conflict resolution’ acts not only as causal conditions but highlights and supports efficient ‘Web-based trust formation’.

The above-mentioned networking capabilities as well as the ‘Ability to act as network broker’ and ‘Knowledge of cooperative agreement’ necessitate successful formation of ‘Web-based trust formation’ in the virtual network of value chain partners. The outcome of ‘Web-based trust formation’ is effective ‘E-commerce information management’ pertaining to not only the virtual network of partners but includes e-commerce consumers. Effective ‘E-commerce information management’ is conditioned by networking capabilities such as

effective ‘Web-driven customer focus’, ‘Web-driven partner learning’ and ‘Web-driven partner communication. These intervening networking capabilities enhance and contribute to more efficient and effective ‘E-commerce information management’.

‘E-commerce information management’ enables more successful ‘E-commerce oriented product delivery’ in e-commerce. The attainment of effective and efficient ‘E-commerce oriented product delivery’ in e-commerce contributes to the creation of ‘Web-based trust formation’.

The concluding framework storyline indicates the existence of networking capabilities that directly impact on the ability of the entrepreneur to conduct virtual organizing activities in e-commerce. The entrepreneur is responsible to the customers in the e-commerce environment to deliver on the promises of the web-based organization and he needs to excel at specific networking capabilities that enables virtual organizing activities to be performed which impacts on the external environment of users, namely:

- *‘Web-based trust formation’*
- *‘E-commerce information management’*
- *‘E-commerce oriented product delivery’*

As indicated in Chapter Five it is important to note that two additional sub-networking capabilities should be included under *‘Web-based trust formation’*, namely:

- *‘Ability to act as network capability’*
- *‘Knowledge of cooperative agreement’*

The above-mentioned three networking capabilities which impact on the external environment of the web-based organization are illustrated in Figure 6.4.

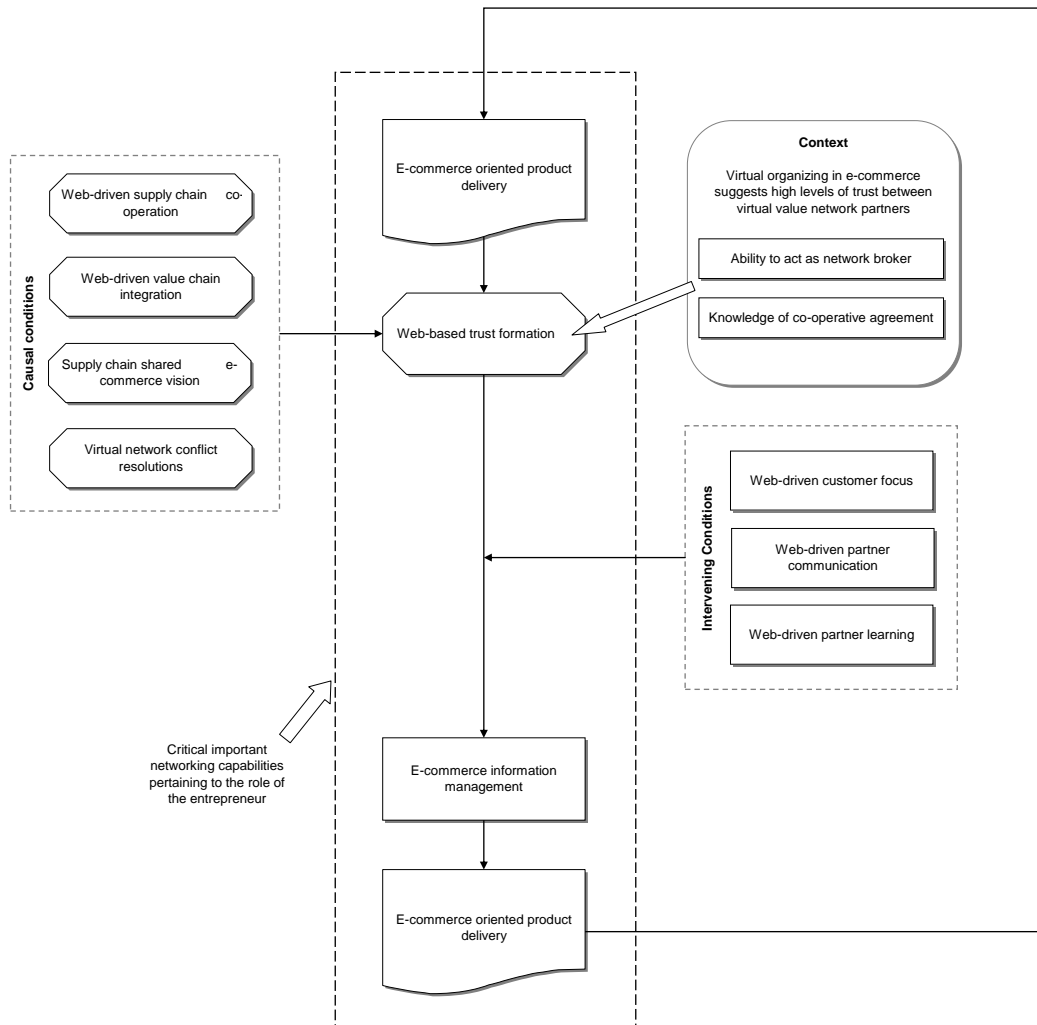


Figure 6.4 The concluding framework

Figure 6.4 highlights three networking capabilities, namely ‘*Web-based trust formation*’, ‘*E-commerce information management*’ and ‘*E-commerce product delivery*’ as the critically important components in a process that enables the e-commerce related virtual organizing activities of the entrepreneur. Since the entrepreneur is accountable for the web-based organization this process is referred to as the ‘*entrepreneurial process*’.

The entrepreneurial process includes three networking capabilities namely ‘*Web-based trust formation*’, ‘*E-commerce information management*’ and ‘*E-commerce oriented product delivery*’ pertaining to the external environment (e-marketplace)

as well as the internal environment (network of partners). The entrepreneurial process highlights the importance of entrepreneurial vision for the network broker that wish to succeed in the e-marketplace. Important considerations pertaining to the three mentioned networking capabilities include the following:

- In a rapidly changing environment the entrepreneurial vision should lead the integration of networking capabilities between participating firms. The collective activities of the virtual network should therefore be led by the entrepreneurial vision as reflected in '*E-commerce oriented product delivery*'. In other words, '*E-commerce oriented product delivery*' represents the basic idea or vision of the web-based firm by the entrepreneur. It is also important to note that the business development process as a networking capability is mostly presented in '*E-commerce oriented product delivery*'. '*E-commerce oriented product delivery*' furthermore represents the final networking capability. The network broker or entrepreneur needs to revise the entrepreneurial vision at intervals and the entrepreneurial vision should co-evolve with the unfolding business venture. Most importantly, the entrepreneurial vision must be co-developed to match the resource base of participants of the value supply chain. Web-based entrepreneurial firms tend to act on their vision and the limits they have in terms of resources and capabilities determine the value chain configuration and the need for virtual organizing.
- The entrepreneur tends to determine the feasibility of the business model when he promotes and "sells" it to potential network partners, the capital market and to the potential customer. This process is linked to the networking capability of "*Web-based trust formation*". When the vision of the entrepreneur with regard to the product offering is accurate in identifying the actual customer e-commerce need, it will positively affect "*Web-based trust formation*".
- The two critically important networking capabilities namely '*Web-based trust formation*' and '*E-commerce oriented product delivery*' are linked to a

third network capability named “*E-commerce information management*”. It is critically important to entrepreneurs who implement virtual organizing to develop or establish dialogue with the customers. E-commerce represents a high-velocity market and “*E-commerce information management*” suggests a dynamic capability that relies on real-time information, cross-functional relationships as well as intensive communication between the web-based firm interacting with the external market and members of the value chain involved in business development processes.

The above discussion indicates the use of the three identified networking capabilities included in the ‘*entrepreneurial process*’ by the entrepreneur with virtual organizing activities in the e-marketplace of users. The three networking capabilities included in the ‘*entrepreneurial process*’ enable and support virtual organizing activities of the entrepreneur in pursuit of new opportunities in the e-marketplace that impacts on the economic vision of the entrepreneur.

The network broker needs to excel at all three networking capabilities included in the ‘*entrepreneurial process*’ in order for the virtual supply network to become institutionalized. The entrepreneur needs to create and build relationships with the partners included in the virtual value network as well as with the potential users in the e-marketplace in order to realize the economic vision. The entrepreneur use the networking capabilities of the entrepreneurial process with virtual organizing that create a competitive advantage in the e-marketplace of users through the creation of a virtual value network in order to realize the vision of the entrepreneur. Such a competitive advantage can only be obtained when trusting partners (a term that include users) in the value chain network create and share information which enables the network broker to deliver e-commerce products and services that addresses the interests of all participating members of the value chain network.

The entrepreneur with the ability to use the networking capabilities (included in the ‘*entrepreneurial process*’) with virtual organizing activities in the e-marketplace cannot be replaced by another potential or existing partner of the

virtual supply network at random. The entrepreneur needs to consider whether candidates considered for inclusion in the virtual supply network have adequate capacity to use networking capabilities that enables virtual organizing activities as to prevent the early demise of the virtual supply network. The entrepreneur who acts as network broker needs to excel at all the identified network capabilities that differentiate him from the partners in the virtual supply actor-network.

The implementation and development of networking capabilities by partners in the virtual supply network are dynamic in nature and happens continuously. The entrepreneur and partners in the virtual supply network need to continuously improve on their ability to use networking capabilities with virtual organizing brought about through ongoing changes that is happening in the e-marketplace. Members of a virtual supply network that demonstrate the capacity to use networking capabilities with virtual organizing enhance their value in the e-marketplace to be introduced and to successfully participate in other virtual supply networks.

The use of networking capabilities with virtual organizing influences the action of the partners in the virtual value network. Information Systems guide the actions of partners of the virtual value network over distance. Partners participate in various different networks where technology systems become a distinctive characteristic of a virtual actor-network. The impact of information technology on the virtual value network where partners share technology systems will be considered in the next section.

6.6. The role of information technology in the virtual value network

The concept of '*Inscription*' introduced in the discussion of ANT provides a way to understand the role of Information Systems for the entrepreneur that enables complex virtual organizing actions of humans and non-humans in a virtual value network of partners.

The vision of the entrepreneur to be achieved by means of virtual organizing activities (across distance) enables the creation of a virtual value network of partners in the e-marketplace. The entrepreneur envisions the e-commerce product offering of the virtual supply network to be advanced in the e-marketplace of users. Inscription gives a new perspective of the role of Information Technology for the entrepreneur and his attempts to align the heterogeneous interests of participating actors to be embedded in Information Systems (non-human actors). The aligned interests of the partners are embedded in Information Technologies that promotes the script of the entrepreneur and stabilize the virtual value network. Once the development of the virtual value network reaches the stage where its existence becomes '*seemingly irreversible*', it is considered to be a fact in the e-marketplace. The position of the virtual value network continuously grows stronger and more relevant in the e-marketplace as more users from different virtual value networks enrol.

The entrepreneur implements Information Systems as a partner and preferred spokesperson of the virtual value network of partners in the e-marketplace. The claim of the entrepreneur pertaining to the e-commerce oriented product offering necessitates the introduction of virtual organizing activities in the e-marketplace in order to realize the vision. Information Systems then acts as the delegate who stands in and speaks on behalf of the entrepreneur in the actor-network as the preferred spokesperson. The entrepreneur implements Information Systems as an active delegate and spokesperson to promote the claim of aligned interests (script) in the virtual value network of partners. The script of the entrepreneur Inscribed in Information Systems advances the interests of the entrepreneur.

The implementation of technology systems facilitates the creation of relationships with potential users in the e-marketplace, to be included in the virtual value network. The entrepreneur develops a social agenda, namely web-based trust formation, to be promoted with the implementation of information technology. The entrepreneur inscribes the aligned interests of the partners in Information Systems that facilitates web-based trust formation in the e-marketplace of users.

The impact of information technology that promotes the agenda of the entrepreneur, to be advanced with the use of networking capabilities with virtual organizing activities, is illustrated in Figure 6.5.

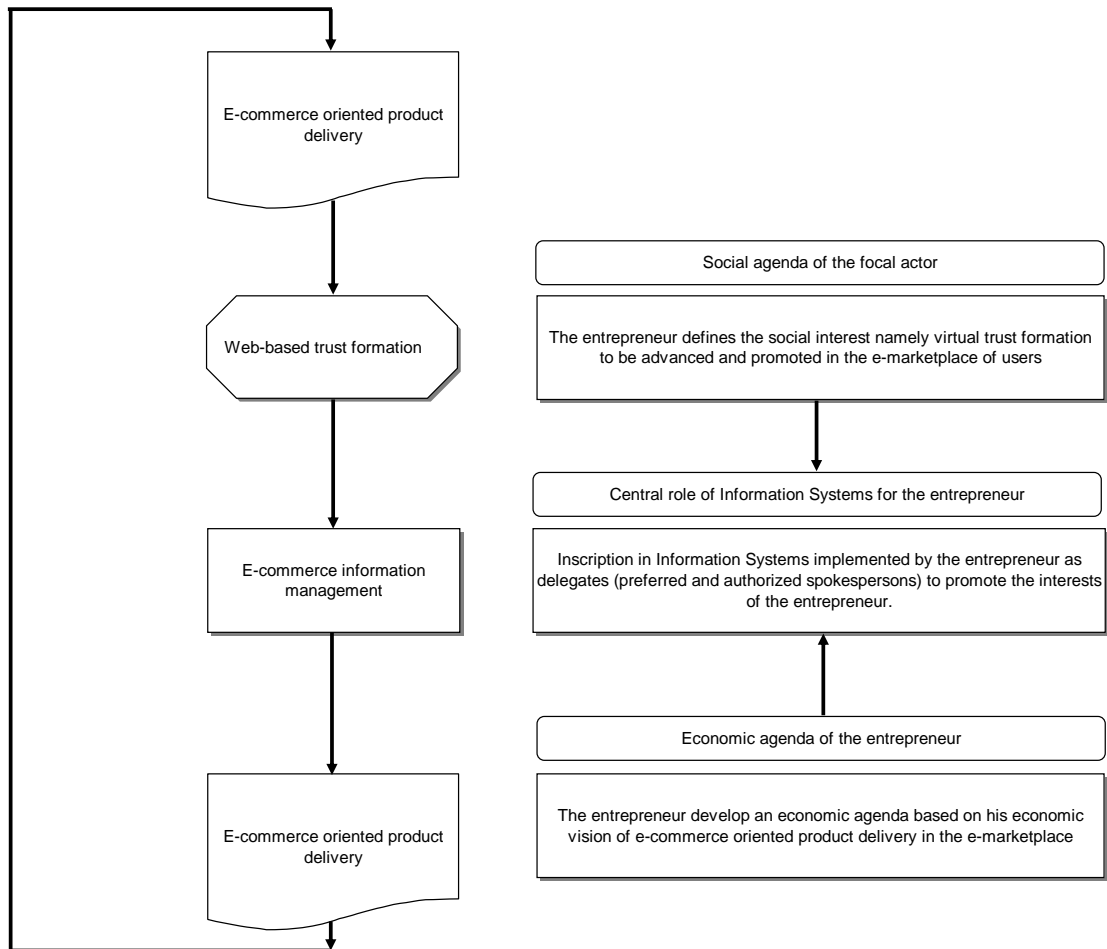


Figure 6.5 The role of information technology with virtual organizing

Figure 6.5 illustrates the central role of information technology to advance the social and economic agenda of the entrepreneur Inscribed in Information Systems. The entrepreneur implements Information Systems (partner) as a program of action to advance the script (aligned interests) and economic agenda for e-commerce product delivery in the e-marketplace. The script of the entrepreneur, Inscribed in Information Systems, necessitates the implementation of virtual organizing activities in the e-marketplace of users. The entrepreneur attempts to promote his interests in the structuring of data and information as well as in the software analysis capabilities allowed for as part of the Information Systems.

Figure 6.5 indicates the social outcome namely virtual trust formation in the e-marketplace of users to be realized with the implementation of Information Systems in the e-marketplace of users. Information Systems becomes the medium that enables the desired social change namely trust formation to be advanced through virtual organizing activities in the e-marketplace of users (vision of the entrepreneur). The focal actor advances his social agenda (web-based trust formation) by means of Information Systems (technical artefacts) in order to realize his aligned interests pertaining to the economic vision by means of the virtual value network.

The entrepreneurial process of networking capabilities used with virtual organizing advances the social agenda of the entrepreneur namely '*virtual trust formation*' Inscribed in the hardware and software implemented in the virtual value network of partners. The entrepreneur inscribes social meaning, namely, '*virtual trust formation*' in materials that include manuals, texts and technical objects in order to advance his aligned interests of the economic vision. ANT provides a valuable analytical lens through which to observe how Information Technology affects social change, namely, virtual trust formation, as an important requirement for the formation of the virtual value network of partners.

The entrepreneur attends to the constant flow of new advances in technology systems that impact on the implementation and use of networking capabilities with virtual organizing in the e-marketplace. New advances in technology systems also impacts on the vision of the entrepreneur for e-commerce oriented product delivery in the e-marketplace. Any changes in the economic vision of the entrepreneur necessitate the interests of partners to be realigned with the entrepreneur inscribed in technology systems. The entrepreneur therefore needs to continuously develop the virtual value network in response to constant changes in the e-marketplace that threatens to destabilize the actor-network.

The final section of the chapter draws some conclusions as to the role of the entrepreneur in the virtual value network.

6.7. Defining the role of the entrepreneur in the virtual value network

The final section considers the role of the entrepreneur in the virtual value network of partners. The Grounded Theory perspective, as interpreted here through the lens of Actor-Network Theory, provides insight as to the role of the entrepreneur in the creation of a virtual value network and the implementation of networking capabilities (included in the entrepreneurial process) that enable virtual organizing activities in the e-marketplace.

The economic vision of the entrepreneur defines the opportunity to be addressed with the e-commerce product delivery in the e-marketplace. Information Systems act to strengthen the original claim (e-commerce oriented product delivery) of the entrepreneur and disseminate it throughout the virtual value network of partners. Successful translation results in the creation of a virtual value network that realizes the economic agenda for e-commerce oriented product delivery of the entrepreneur in the e-marketplace of users. The networking capabilities, included in the entrepreneurial process, enable virtual organizing activities in pursuit of the

economic vision of the entrepreneur to be realized by means of the virtual value network of partners.

The entrepreneur advances his economic vision by means of Information Technology that enables virtual organizing activities and limits the scope of action that is available to partners of the virtual value network. The use of networking capabilities with virtual organizing activities by the users in the e-marketplace indicates a willingness of partners to participate in particular ways of thinking and acting that promotes the vision of the entrepreneur. Figure 6.6 indicates the use of the networking capabilities (in the entrepreneurial process) by the entrepreneur that enables and supports participation of users in the virtual value network.

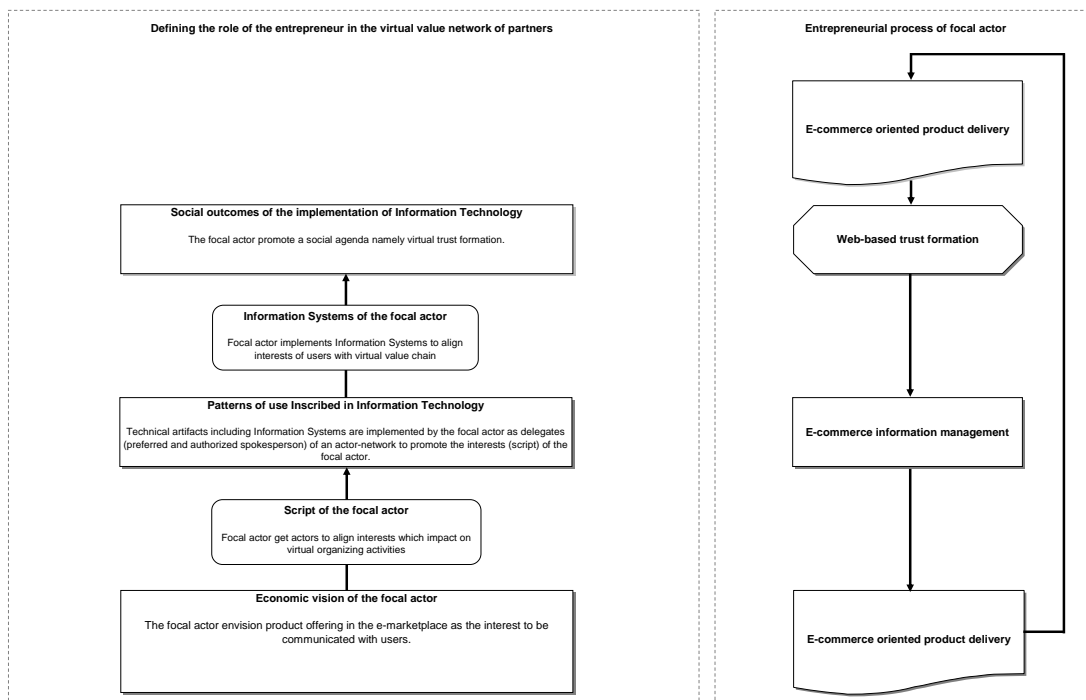


Figure 6.6 The role of the entrepreneur in the virtual value network of partners

The pattern of use inscribed in Information Systems promotes virtual trust formation amongst potential users and indicates the scope of networking capabilities to be used with virtual organizing activities. The entrepreneur uses '*E-commerce information management*' skills when he inscribes his vision in

Information Systems that advance virtual trust formation amongst potential users. The entrepreneur implements Information Systems as an actor (partner) with the power to advance his claim for the creation of a virtual value network and influences decision making and trust formation amongst potential new users through the alignment of interests inscribed in Information Systems.

The processing, transmission, collection and storage of information as elements of an Information System necessitate the use of '*e-commerce information management skills*' by the entrepreneur to positively influence the decision-making process of the potential user.

The entrepreneur affects virtual trust formation when he uses e-commerce information management skills with the implementation of Information Systems. Information Systems promote his claim to be advanced through the virtual value network. The entrepreneur realizes the desired social (virtual trust formation) and technical (e-commerce product delivery) outcomes by means of Information Systems as the means to advance his economic vision. Information Systems, acting as preferred "spokesperson" of the entrepreneur, facilitate web-based trust formation amongst potential users to influence participation in the virtual value network of partners. Trust formation amongst users as the social outcome of inscription in Information Systems enables the entrepreneur to successfully assemble a virtual value network. Information Systems further enable the entrepreneur to achieve stability and control over the virtual value network of partners.

The inter-relationship that exists between the networking capabilities (of the entrepreneurial process) creates insight as to how the entrepreneur performs activities in the e-marketplace in order to create relations (the virtual value network) that are relatively stable and stay in place.

Information Systems hold the key to both enable and to inhibit participation of potential users in the virtual value network. Information Systems need to communicate trustworthy, timely and useful information that translates the interests of the partners to be promoted by means of the e-commerce product

offering. The claim of the entrepreneur inscribed in Information Systems must be backed with information and facts that indicate integrity and insight to convince the potential user that his best interests are promoted and protected with the e-commerce product offering. Participation of the user in the virtual value network as a partner enables the entrepreneur to gain valuable information. The information obtained from the user enables the entrepreneur to strengthen the virtual value network, to be used as a platform, to validate and improve on the claim of the entrepreneur pertaining to the economic vision for e-commerce product delivery in the e-marketplace.

The ability of the entrepreneur to create and establish a virtual value network to be considered an accepted fact in the e-marketplace demonstrates abilities of a personal nature (the ability to successfully implement networking capabilities) and validates the role of the entrepreneur as the focal-actor in the virtual value network of partners. The network capabilities included in the entrepreneurial process, to be used with virtual organizing activities by the entrepreneur in the e-marketplace, implicate expertise. The entrepreneur with the ability to implement the required networking capabilities when conducting virtual organizing activities in the external environment of users has the power to create, build and establish the virtual value network to be considered as an ongoing concern in the e-marketplace of users.