Abstract

Organizations are operating in a complex and unstable business environment which is characterised by global pressures, de-regulation and intense competition arising from the innovative application of information technology to all aspects of business. In this new environment the old rules of competition no longer apply and there is a clear move away from traditional forms of strategy towards innovative approaches such as global market strategies, time based competition and dis-intermediation in the supply chain. These mega-trends affect all types of organizations and industries and are forcing individual organizations and their economic partners to respond. One important outcome is the emergence of 'virtual' organizations which are defined with respect to their product-market strategy, network structure, information systems and business communication patterns. Virtual organizations are composed of different legal entities and are often geographically dispersed and international in their outlook. Emerging forms of virtual organization are characterised by their use of business trust in addition to formal legal contracts. A series of hypotheses are proposed and the theoretical implications of trust in the formation and development of virtual organizations is discussed.

1. Introduction

The importance of trust has grown over the last decade because of the prevalent use of business strategies which rely critically on the co-operative behaviour of groups of economic partners. Such strategies are, in general, a response to the increased complexity of the business environment and the associated pressures that this places on organizations (Moss Kanter 1990; Fulk and DeSanctis 1995). In this new business environment there is a need for flexible strategies which can respond quickly to changes in product-markets, competitors’ behaviour, global pressures and de-regulation (Lorenzoni and Baden-Fuller 1993). Companies have therefore developed different methods of working with customers, suppliers, competitors, banks and other economic partners which rely much more on the development of trust and long-term business relationships (Buttle 1996). With the creation of new strategic entities such as integrated supply chain structures, strategic alliances and strategic webs, the term virtual organization has been used to denote the difference between legally defined corporations and the virtual organization that is composed of different legal entities which choose to work together in a co-operative manner.

To develop these ideas further, and add some rigour to the arguments, working definitions of trust and the virtual organization will be derived from the literature. The definition of trust will provide a method for measurement. The definition of the virtual organization will be in the form of a taxonomy which will allow the analysis and comparison of different types of virtual organizations. These definitions provide the basis for empirical field work with the ultimate aim of developing theories to explain the importance of, and linkages between, trust, the virtual organization and the business environment.

2. Definitions

The terms trust and virtual are used loosely by a wide range of authors and publication outlets, and therefore a complete review of the literature is not contemplated. Instead, only the principal sources of literature are discussed which have been most widely accepted. Working definitions of trust and the virtual organization will be developed before bringing the concepts together in an integrated framework which can be operationalised and used to conduct empirical field research into virtual organizations.

2.1 Trust

There are multiple definitions of trust and a single, simple definition is insufficient to capture the essence of the concept. Trust will therefore be defined as a multi-
dimensional variable which defines it with reference to the context in which it is applied. However it is instructive to provide some simple definitions to start with, before developing a more comprehensive one. In the context of business relationships, Ring and Van de Ven (1994) define trust as “the confidence that another organization will behave according to its expectations and that it will exhibit goodwill”. Hart and Saunders (1997) expand on this definition to state that: “Trust is based on ‘fair dealing’ and a sense of reciprocity, but does not imply that outcomes be divided equally between parties.”

The notions of expected behaviour and goodwill provide a basic definition but can be expanded on by attempting to define the components of trust more precisely. The earliest work on trust focused on individuals and was done from a psychological perspective (Worchel 1979, Lewis and Weigert 1985). From this research, it is possible to identify two (related) types of trust: dispositional; and subjective. Dispositional trust is the natural tendency of an individual to trust other people, and is considered to be a function of their attitudes, personality and previous experience. It is independent of a specific situation and is a measure of an individual’s tendency to trust or distrust. It is essentially a measure of whether an individual tends to trust other agents or not. Dispositional trust varies between individuals and may change over time but is not related to a particular situation or context.

When a specific situation is analysed, the question of what constitutes trust changes from the general question to measure dispositional trust “Do you trust other people?” to the subjective trust concept which can be measured by the more specific question “Do you trust X to behave in a particular way in this situation?” Other influences affect the level of subjective trust, specifically structural and situational factors such as the nature of the task, the knowledge of the other partner, the power relationship and the incentives. Subjective trust is therefore a function of dispositional trust and structural/situational factors and will vary depending on the identity of the other partner (Kee and Knox 1970; Luhman 1979).

It is important to distinguish between trust, both dispositional and subjective, from actual behaviour. Both forms of trust can be measured without reference to actual behaviour. Subjective trust influences the behaviour of an individual but this is mediated by the specific nature of the transaction. Behaviour towards an economic partner is a function of subjective trust, risk and the importance of the outcome. It can be seen that even if the level of subjective trust is low and the risk is high, if the importance of the outcome is extremely low, an agent may choose, quite rationally, to display ‘trusting behaviour’ towards an economic partner because the outcome is unimportant. Behaviour and trust are therefore independent concepts and the influence of trust on behaviour is mediated by the perceived risk of the situation and the importance of the outcome (Lewis and Weigert 1985).

The relationship between trust and behaviour between economic partners is also dynamic because it changes over time. For example, given two companies A and B, the subjective trust of A is influenced by the behaviour of B, which in turn may affect the behaviour of A which then influences the subjective trust of B towards A and may affect B’s behaviour towards A and so on. This type of circular process relationship has been identified in both the marketing literature and the organization behaviour literature on research into the formation of business relationships (Ring and Van de Ven 1994; Holm et al 1996).

2.2. Trust and business frameworks

Two frameworks of business relationships and organizational trust deserve particular attention because of their attempts to integrate the diverse literature on these subjects. These are Ring and Van de Ven (1994) and Mayer et al (1995). Ring and Van De Ven’s work is chosen because it attempts to explain the formation and development of co-operative business relationships with trust as an important variable in their model. Mayer et al (1995) focus on trust as a subject in its own right and model the different facets of trust before explaining its role in various social phenomena, including trust and cooperation between organizations. These models are discussed separately before relating the notion of trust to the virtual organization and presenting a synthesis of the different approaches.

Ring and Van de Ven (1994) propose a framework of trust in which negotiations, commitments and executions take place as a continuous process of trust building and relationship development. They argue that the development of co-operative business relationships based on trust is most appropriately conceptualised as a continuous sequence of activities which are constantly monitored for efficiency and equity. For analytical purposes the activities are divided into three groups: negotiations based on risk and trust; commitments; and executions. It is easy to relate the principal variables in this framework back to the earlier discussion of trust. Negotiations based on risk and trust are equivalent to
what was termed subjective trust. Commitments and execution are similar to behaviour in the form of relationship development, and assessments are analogous to the development of knowledge of the economic partner and subjective trust based on previous behaviour.

It is clear that both business relationships and trust are dynamic concepts and any framework must be capable of taking into account changes over time. The framework is plausible and robust but does not include the impact of shared information systems. Although it does not explicitly take into account the virtual organization as an organizational concept distinct from co-operative relationships, it can easily be extended to do so. Shared information systems clearly have an impact on how the model works in practice, because it directly affects the speed and efficiency of how the assessments of economic partners are made. For example, with electronic data interchange (EDI) systems, it is possible to check the actual performance of suppliers’ deliveries in terms of timeliness and accuracy on a real-time basis. Information systems also allow more complex structures to be created, such as the virtual organization.

The second framework of Mayer et al (1995) focuses on trust as a social phenomenon in its own right before considering how it affects other management problem areas. A distinction is made in the model between the propensity of the trustor and the factors of perceived trustworthiness. This correlates almost exactly with notions of dispositional and subjective trust. Similarly it is recognised that risk taking or behaviour measured by outcomes is a function of (subjective) trust and the perceived risk of the situation. In common with Ring and Van de Ven (1994), there is a feedback loop to signify that this is a dynamic process where the knowledge of one’s partner gained from experience of their actual behaviour influences the level of subjective trust. Again, the importance of shared information systems is not recognised. It can be seen that outcomes and knowledge of a partner’s ability and integrity could be gained much more accurately and comprehensively if shared systems were in place to continuously monitor the level of actual behaviour at an operational level.

In both business frameworks of trust, there is no mention of information systems and their influence and impacts on the trust models. However this may be due to the long time-scales involved in academic publications. The similarities of the two models are clear and their differences are in emphasis and focus, rather than conceptual. In the next section an overview and discussion of the virtual organization is presented before bringing the separate discussions together in an integrated model of trust and the virtual organization.

3. Virtual Organizations

There is a plethora of different terms to describe the phenomenon of novel forms of economic organization, for example virtual organization (Lockett and Holland 1996), strategic web (Lorenzoni and Baden-Fuller 1993), network organization (Powell 1990) and strategic/co-operative alliances (Holm et al 1996). This lack of an agreed nomenclature is common in new and rapidly developing subject areas, but it is necessary to define what the authors mean by the term ‘virtual organization’ in relation to other commonly used terms. Traditional organizations can be defined with reference to legal ownership and the relationships between separately owned organizations can be grouped into two distinct economic forms of governance, hierarchy and market (Williamson 1991). Hierarchy denotes common ownership of successive stages of the supply chain whereas market represents the transactions between atomistic organizational units. Recent attention has focused on intermediate forms of economic organization which lie somewhere between a market and a hierarchy. Williamson (1991) refers to these as hybrid organizations, whereas other authors use the terms already mentioned above (network, virtual etc.). What is interesting here is that most businesses can be said to be somewhere in the middle, that is, neither market nor hierarchy, and theoreticians have attempted to explain this ‘swollen middle’ (Hennart 1993). The term virtual has been used by many authors, often without a recognised IT component.

In order to capture the complexity of the virtual organization concept, the approach taken here is to argue that the virtual organization is best defined as a taxonomy composed of several dimensions which can be used to distinguish between the different forms of economic organization. This umbrella approach accepts that there are different types of virtual organization which can be grouped easily according to their position on the taxonomy, but that there is a qualitative difference between the emerging virtual organizations and their historic antecedents of loosely coupled networks and hybrid structures. It is the extent to which virtual organizations behave as if they were a single organizational entity even though they may be composed of many different parts, that distinguishes them from other hybrid structures such as co-operative alliances. In terms of concrete, measurable behaviour, the virtual organization would typically encompass common marketing, production and procurement activities, often
and increasingly co-ordinated through shared information systems. Given that some organizations, especially retailing ones, are involved in a range of different product-markets, it is likely that they will belong to a number of virtual organizations. As activities across organizational boundaries become more entwined, and the extent to which co-operative strategies are effected through joint operations, the marketing identities of the individual ‘legal’ corporations are likely to be subsumed into the identify of the virtual organization. This discussion would suggest that organizations may move through different trajectories towards the virtual organization, ranging from the creation of completely new virtual organizations through to the increasing the formal aspects of existing networks of inter-connected organizations, say in the creation of a common marketing identity.

A simple definition based on the authors’ previous work in this area is proposed before developing the idea into a more comprehensive taxonomy. A virtual organization is defined as: a group of separately owned organizations that for specific group(s) of activities behave as if they were a single organizational entity and co-ordinate their behaviour through relationships based on trust and shared information systems. The motivation for this type of behaviour is to achieve competitive advantage by allocating resources and matching different capabilities, or core competencies, together in a more effective manner than through the traditional market/hierarchy dichotomy. An important characteristic of most virtual organizations is their high information intensity because of the high degree of co-ordination that is required, and therefore shared information systems are needed to create and maintain the necessary communication between the separate partners.

The existence of inter-organizational relationships based on co-operative strategies and trust is well documented (Grandori and Soda 1995; Hinterhuber and Levin 1994; Naude and Holland 1996). However in strategic alliances the extent and scope of the relationship in terms of the degree of co-operation and the range of business processes included are often limited and typically vary across relationships (Hart and Estrin 1991). In a virtual organization the web of co-operative relationships forms a greater whole and the extent to which the separate organizations belong to a common identity based on shared objectives and strategies is much greater in a virtual organization than in a market network. Based on the management and IS literature the following variables will be used to develop a taxonomy of the virtual organization: product market strategy; network structure of the inter-connected organizations; information systems and business communication patterns; and trust. Each of these terms is discussed briefly before relating trust to the virtual organization. Aspects of globalisation cut across each of the variables in the model.

3.1 Product-Market Strategy

The product-market strategy of developing co-operative relationships with economic partners and ultimately developing virtual organizations is common across enterprises, industries and national economies (Hinterhuber and Levin 1994; Holm et al 1996; Moss Kanter 1990). The combined pressures of globalisation, deregulation, time-based strategies and the need for extremely high quality forces businesses to re-think the way that they organise their economic activities in order to compete effectively and achieve high returns on their investments (Dicken 1992; March 1996; and Vesey 1991). The strategic intent of the virtual organization is to create a new organizational entity based on close cooperation amongst a group of separate organizations to achieve a common marketing strategy and identity (Verity 1995). The existence of an explicit marketing identity distinguishes the virtual organization from other types of groupings based on co-operative relationships.

3.2 Network structure

The network structure is the arrangement of the separate organizational units. This is an important dimension of the virtual organization because it distinguishes vertical value-adding partnerships (Konsynski and McFarlan 1990) and horizontal alliances such as IBOS virtual bank (Holland and Lockett 1996). For example, Benetton is an example of a virtual organization with the network structure of a typical value-chain from raw materials to final customer (Lorenzoni and Baden-Fuller 1993). The brand name of Benetton defines the virtual entity from a marketing perspective, and the operational activities are organised to optimise the value-chain as a whole. The Barclays virtual global bank concept has a very different structure with Barclays and its world-wide correspondence banking network at the centre which is then connected to small and medium sized customer banks (Lockett and Holland 1996). Network structure can be defined in several ways: with reference to membership of an organization-set; with reference to a particular activity (action-sets); and more generally as a network of inter-connected organizations (Aldrich and Whetten 1981). All of these types of network structure can be visualised and for complex structures techniques exist for analysing the structure of market networks to explore the role of connections, information exchange and influence (Aldrich and Whetten 1981).
3.2 Information Systems and Business Communication Patterns

Within organizational boundaries, there has been an enormous shift towards the choice of package software in preference to alternatives such as writing software in-house or developing legacy systems further (Price Waterhouse 1996). The dominant type of software to manage all aspects of an organization’s management activities is termed enterprise resource planning (ERP) system, and the top commercial examples are SAP R/3, MOVEX and Baan (SAP 1996, Butler Group 1996). It is difficult to overestimate the impact that such systems are having on organizational design and the same is true for virtual organizations. In the same way that organizations can be modelled as information processors (Naude and Holland 1996), virtual organizations are not only bound together by shared access to data and systems, they can actually be described in terms of information flows which represent business communication patterns. Some examples of how this technique has been used are outlined below.

A critical aspect of all virtual organizations is their total reliance on technology mediated business communication patterns. Mapping out information flows, loci of decision making and control can be used to generate high-level models of the virtual organization. The technique also demonstrates clear differences between traditional communication patterns and those in novel forms of organization. For example the first innovative examples of EDI transactions were thought to follow standard patterns of communication which were based on the assumption that electronic business communication would simply mirror traditional methods of communication (Odette 1988). However leading-edge companies such as Marks and Spencer and Motorola were adopting totally new methods of conducting business with their economic partners based on the enabling effects of fast telecommunications linked into internal information systems (Holland 1995).

The above examples demonstrate the potential of technology mediated communication patterns to change the way that business is co-ordinated between economic partners. It is clear that increased integration across organizational boundaries and shifts in control and decision making can occur. These concepts can also be extended to larger market networks of organizations, including virtual organizations. It is clear that telecommunications links are vital to support virtual forms of organization but that to understand how they function from a business perspective then it is necessary to analyse the ensuing business communication patterns in addition to the IT and telecommunications infrastructures. Leading examples of virtual organizations which have employed these techniques are Benetton (Lorenzoni and Baden-Fuller 1993), IBOS and Barclays (Lockett and Holland 1996). In the case of Benetton, operational data on estimates of market demand, retail sales and production data are shared throughout the value chain. Similarly in Barclays virtual bank, customer banks share whole systems with Barclays global payments and BZW so that they are able to see data on payments, foreign exchange rates and costs as if they were part of Barclays.

4. Trust and the Virtual Organization

From the discussion of the virtual organization, it is clear that the interactions between the separate organizational units cannot be regulated completely by contracts which characterise market style transactions and similarly are not governed by common ownership as is the case with hierarchies (Williamson 1991). The high level of investments inherent in the creation of a virtual organization, whether from an existing set of relationships, or one created from a green-field site, mean that there is a significant level of risk associated with the outcome - the outcome matters to the participants. Based on contemporary examples of virtual organizations, businesses are obviously willing to take such risks, and organizational trust has been hypothesised to be an explanatory variable for the development of such co-operative behaviour. The proposed model that synthesises and extends the earlier models of organizational trust (Ring and Van de Ven 1994; Mayer et al 1995) to include information systems and the virtual organization concept is shown in figure 1. Each of the variables and their inter-relationships are discussed in turn.

There are four groups of variables in the model: trust antecedents; behavioural elements; outcome and monitoring of performance. Trust antecedents are composed of dispositional trust and the situational context which together combine to give the level of subjective trust for a particular situation. The behavioural elements group encapsulates the key variables which influence the choice of strategic behaviour concerning the formation of virtual organizations. In this context the important inputs to that strategic process are the level of subjective trust, the risk of failure, and the importance of the outcome which influence the actual behaviour of the organization and the development of a particular type of virtual organization, represented by the outcome. The performance of the virtual organization is monitored and
the results feed back into the model because they directly affect the situation context.

5. Factors Affecting the Formation of Virtual Organizations

Based on the proposed framework, a series of hypotheses are proposed that identify the relationships between the separate variables, in particular, to identify the factors affecting the formation of virtual organizations.

Hypothesis 1: Virtual organizations will develop quicker and easier where the level of subjective trust between the different economic partners is high.

The relationship between trust and relationships is well established (Aldrich and Whetten 1981; Ring and Van de Ven 1994; Mayer et al 1995) and this hypothesis extends the concepts from individual relationship to virtual organization. The virtual organization exposes the different economic partners to risks of opportunism and non-performance, often in situations where the outcome is very important, for example in processing part of a foreign exchange transaction, or delivering components that are critically important to maintain production outputs. In traditional governance structures the impact of these uncertainties would be limited by the use of legal contracts. In the virtual organization trust gives greater flexibility and recent empirical evidence indicates that trust-based relationships can lead to competitive advantage (Barney and Hansen 1994; Ring and Van de Ven 1994; Zaheer and Venkatraman 1995). However the variables in the trust models of Ring and Van De Ven (1994) and Mayer et al. (1995) and the proposed model (see Figure 1) such as assessments, outcomes, knowledge of partner and the nature of the task can all be directly informed by feedback from shared information systems such as EDI (Holland et al 1992, 1994). This means that the performance of each economic partner can be observed and monitored on a continuous basis, rather than an historical one. The impact on the trust development process would therefore be to speed it up, leading either to increased or decreased trust depending on the activities of economic partners in the virtual organization.

Hypothesis 2: The importance of subjective trust in determining the success of virtual organizations is contingent on the risk of failure and the importance of the outcome.

The variable subjective trust is viewed as being separate from actual behaviour in terms of whether or not to develop relationships and create virtual organizations. In most industrial markets and to a lesser extent retail markets, the outcome is important and there may be a risk of the intended actions failing in some way. Subjective trust is critical in these situations because it influences managers’ decision making in determining whether or not to proceed with tactical and strategic relationships and transactions. However if the outcome is unimportant or the risk of failure very low then even if the level of subjective risk is low, then it could still be rational to proceed with relationships (Kee and Knox 1970; Worchel 1979).

Hypothesis 3. Shared information systems amongst economic partners involved in some form of virtual organization will serve to speed up the trust/distrust development process.

The models of trust in the psychological and management literature do not explicitly include the role and impact of information systems (Barney and Hansen 1994; Ring and Van de Ven 1994; Zaheer and Venkatraman 1995). However the variables in the trust models of Ring and Van De Ven (1994) and Mayer et al. (1995) and the proposed model (see Figure 1) such as assessments, outcomes, knowledge of partner and the nature of the task can all be directly informed by feedback from shared information systems such as EDI (Holland et al 1992, 1994). This means that the performance of each economic partner can be observed and monitored on a continuous basis, rather than an historical one. The impact on the trust development process would therefore be to speed it up, leading either to increased or decreased trust depending on the activities of economic partners in the virtual organization.

Hypothesis 4. International differences in dispositional trust will become less important than situational context in determining the level of subjective trust as shared information systems enable the free flow of performance information between separately owned economic partners.

International partners often have different cultures, values and expectations about all aspects of business relationships which is reflected in their different outlooks and initial levels of dispositional trust. For example, empirical evidence on international co-operative alliances identifies key initial differences between US and Japanese companies’ attitudes to their partners and also in how they react to the monitoring of performance and behaviour of partner organizations (Johnson et al 1996). Of particular importance is the concept of cultural sensitivity to partner organizations. However even though international differences remain, once processes are in place that are driven by shared information systems, increased knowledge of partner organizations’ performances is quickly and easily monitored and will influence the level of subjective trust more than the dispositional trust. There is already some evidence of this
occurring in international banking and consultancy, although here the common cultures of banking and consultancy could be masking the differences and importance of national cultures (Lockett and Holland 1996; Sieber and Griese 1997).

Hypothesis 5.
In business markets, virtual organizations will be characterised by long-term relationships and stability rather than transient relationships to support unique projects or electronic markets.

The early work on electronic data interchange and what is currently termed electronic commerce attaches great importance and significance to transient relationships which support unique projects or in the context of electronic markets, rapid switching between economic partners. It is proposed that most virtual organizations will not follow this pattern but will instead share more of the characteristics of relatively stable market networks (e.g. see Hart and Estrin 1991; Johnston and Lawrence 1988; Johnston and Vitale 1988). This is important because it means that trust will be more important than issues of security and formal guarantees, and that information systems can be designed for relatively few organizations rather than for totally ‘open’ market style systems, which considerably reduces the complexity of the information technology dimension of the virtual organization. Similarly in international relationships, more emphasis will be placed on developing trust rather than security measures to ensure high performance (Aulakh et al 1996).

6. Discussion
In this paper an attempt has been made to review and synthesise the important literature on trust and the virtual organization from a management perspective. It is clearly a complex area that can be approached from many academic viewpoints. However in practical terms the resulting models are reasonably similar and operational measures should be possible. A model of trust between organizations which encompasses the impact of IOSs is presented. The importance of trust lies in the changing nature of organizational forms which are becoming much more complex in order to deal with their environments, and are often designed around information systems. This has led to the broad concept of the virtual organization, and a taxonomy for classifying such organizations has been suggested by the authors. What is clear is that the development of IOSs and associated technologies such as mobile communications, is enabling complex forms of organizations to be developed and managed, with trust playing an important role.

The main areas of interest emerging from the review of the literature are the inter-relationships between shared information systems, trust and the virtual organization. For example does the development of shared information systems have a positive impact on the level of trust between organizations? Does a high level of trust encourage the formation of virtual organizations? What are the characteristics of organizations that make them more likely to become part of a virtual organization? How do virtual organizations cease trading, given their prior investments into business relationships and IOSs? How important are international differences?

A series of hypotheses have been proposed to explore these issues and provide the basis for further empirical research. Given the paucity of empirical evidence which addresses the inter-relationships between trust, information systems and the virtual organization, the case study method is probably the most appropriate method for developing the ideas and testing the hypotheses.

References


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Figure 1. Proposed Business Framework of Trust and the Virtual Organization