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## Trust and innovativeness in virtual organisations

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**Abstract:** This paper discusses trust and control in a virtualised environment. An extensive use of information and communication technology, and virtualisation of organisations put trust into the core of management challenges. Trust is a glue that bonds individuals and groups together to form virtual teams and a virtual organisation. It is also an important force behind their innovativeness and flexibility. Besides the traditional perception of personal or individual trust, we have to introduce a much wider concept of organisational trust. It can be enhanced by legislation on e-business, electronic signatures and data protection acts. Another factor that can reduce the risk and consequently build trust is the ability of computer technology to archive and recover all data and processes. Altogether, a virtual environment looks relatively safe if all available techniques and legislation are employed. Innovativeness in virtual organisations should be able to be spread in order to be regarded as an efficient and worthy innovation. This can be achieved by setting standardisations and avoiding social risks during its acceptance.

**Keywords:** innovativeness; organisational trust; virtual enterprise; virtual organisation.

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## **1 Introduction**

A virtual organisation is one in which business partners and teams work together across geographical or organisational boundaries by means of Information Technology (IT).

Virtual organisation requires a different way of perceiving the world by those who wish to participate in it. There are four key characteristics of virtual organisation as process. Firstly, virtual organisation entails the development of relationships with a broad range of potential partners, each having a particular competency that complements the others. Secondly, virtual organising capitalises on the mobility and responsiveness of telecommunications to overcome problems of distance. Thirdly, timing is a key aspect of relationships, with actors using responsiveness and availability to decide between alternatives. Finally, there must be trust between actors separated in space for virtual organisation to be effective.

A virtual enterprise acts similarly to an organisation, therefore, the organisational problems associated with the critical success factors are specifically addressed to identify potential risk. Compared with the problems within normal organisations, the problems within virtual enterprise are significantly different and even more complex. These problems are more related to cross organisational issues and stakeholders' perspectives. Moreover, the potential issues within a normal/ individual organisation will also affect the virtual organisation.

Trust and innovation are inevitably interlinked. Trust has been described as a fundamental ingredient for collaboration among organisations (Lewicki et al., 1998). Levels of trust in organisations can be causally related to collaborative climates that encourage innovation. Innovation, in turn, results in economic advantages for one firm over another and even one nation over another. Understanding the linkage between trust and innovation should be very important to any organisation.

The virtual enterprise is usually cited as an innovative inter-organisational configuration. Is it possible to justify and to assert the innovativeness of virtual enterprises just by claiming that they are made up of innovative 'elements'? Is a sum of innovative features making the resulting system innovative too?

## **2 Virtuality and multidimensional distance**

The introduction of ICT is not enough to describe and define the dimensions of a virtual organisation. A virtual organisation is influenced by more than one factor. Technology

and people create a very dynamic environment which can make the interactions abstract and unpredictable. Virtuality can be attributed to this fluid environment, as a more generic and multidimensional concept which can realise modern organisation. Following this approach, this virtual distance refers to socio-emotional distance with many factors influencing the existing environment, as Lojeski et al. (2006) outlines.

According to this, closer *spatial or geographical distance* enforces the social ties, supports cooperation and provides stronger influences to the relationships (Bradner and Mark, 2002; Latane, 1996). The *temporal distance* introduces the different time zones among the members of the organisations (Montoya-Weiss et al., 2001). This is an important factor considering the actions towards globalisation, utilisation and administration of information systems, reengineering and team management. The *relational distance* refers to the relationship between roles in an organisation, when they are local or distant. This distance affects the social cohesion, ICT and the leader effectiveness as it is mentioned in Moody and White (2003).

There is also the cultural distance, which its effects are difficult to define in a virtual environment and the *social distance*, which has been studied according to the economically defined class and the status difference, the social closeness feeling, the factor of direct and networked exchanges, the management and the friendship networks (Akerlof, 1997; Bottero and Prandy, 2003; Fox, 1977; Krackhardt and Kilduff, 1999). The relationship history also benefits the openness, trust and information sharing, a property that is essential on building an environment of trust in a virtual organisation (Alge et al., 2003). If a work includes overlapping objectives and *task interdependences*, then the organisation scheme requires more communication, organisational and team commitment and organisational team citizenship (Bishop and Scott, 2000; Pearce and Gregersen, 1991). *Face-to-face interaction* also affects the virtuality of the organisations. The frequency of these interactions is associated with the perceptions of distance. The multitasking is also a factor that affects virtuality. People cannot respond efficiently when they work on more than one task. Extra stress, confusion and less productivity is the effect of multitasking on people. Finally, the *technical skill* is responsible for the quality of interactions between team members and the selections of them.

### 3 Types of virtual organisations

The emergence of the 'virtual organisation' as an organisational form has evolved from a futuristic concept to an identifiable structure across a variety of organisations. Definitions of the virtual organisation share a common view of different organisations coming together as a newly defined unit. These virtual organisations are often incarnated as a virtual team made up of representatives from different organisations, often from differing physical locations, and reflecting differing organisational cultures.

These descriptions of virtuality, in general, propose an entrepreneurial situation in which organisations or pieces of an organisational team exploit opportunities or take advantage of shared expertise, market access or sharing of costs and risks. The coordination of the group is critical to achieving the desired results of increased value added to both business processes and organisational mechanisms (Venkatraman, 1994). The virtuality of virtual organisations has been described as having two key features: creation of a common value chain between distinct entities and distributed, IT supported business processes.

Much of the existing literature describing the virtual workplace consists of qualitative descriptions of existing virtual forms. Virtual inter-organisational linkages have evolved (Benjamin and Wigand, 1995), making the vertical distribution chain obsolete in some industries (Davidow and Malone, 1992). Virtual linkages have also been described between organisations that disband over time.

IT is a primary mechanism for providing support and control to virtual forms. Communication within virtual organisational forms is increasingly supported by IT. An understanding of different virtual forms is important as each of these forms may play a different organisational role and have different IT needs. Therefore, to best support the development and success of virtual entities, we not only need an understanding of the virtual form, but also the differences in the use of IT in these teams.

Respondents identified the scope of the work, the projected length of time spent in virtual work, types of projects, the range of involvement and the number of personnel involved. These criteria suggested four distinct virtual organisational types: permanent virtual organisations, virtual teams, virtual project and temporary virtual organisations.

#### 4 Trust in virtual organisations

This new commercial and organisational environment raises the issue of trust as a fundamental characteristic of economic, social and psychological interactions. Trust can be referred and is part of a wide range of functions of virtual organisations. It is related to cooperation, productivity, efficiency, innovativeness and passive loyalty (Bavec, 2006). Its main components include dependability, predictability and faith (Seppänen et al., 2007). Inter-organisational and Intra-organisational trust may have a common conceptual basis but in reality and especially in virtual enterprises are approached differently. Although there are some similarities in the factors by which they are affected, they are interpreted differently and the researchers tend to divide and study them separately. In the virtual organisations, these differences tend to be more important and essential for understanding and installing the trust environment. Trust increases predictability, adaptability and strategic flexibility (Lorenz, 1988; Sako, 1994; Young-Ybarra and Wiersema, 1999). On the other hand, it reduces transaction costs, internalisation costs and social complexity (Arrow, 1974; Bidault and Jarillo, 1997).

In the Lewicki et al. (1998) and Shapiro et al. (1992), the trust is developed in three stages. In *calculus-based trust*, the behaviour is outlined by predicting the trustworthiness of the other parties by examining the benefits in each case. The rewards and the deterrents in each case will form the trustworthy or untrustworthy behaviour, and this behaviour is the predictable one in calculus-based trust. The next stage is characterised by the exchange of information. This indicates that the more knowledge exists between the potential trusted parties, the more potential is the trust to be higher. This level forms the *knowledge-based trust*. In the final stage, the *identification-based trust*, the parties have developed a self-organised trust framework that can be maintained based on prerequisite knowledge.

In a virtual organisation, the two first stages are benefited from technology. It is believed that support by ICT could bring advantages to predict the trust schema between the organisational parties. However, the virtuality does not always include the

face-to-face interactions which could provide positive feedback to prediction. The second stage is also benefitted by technology. Knowledge management and extraction can build and support the trust in virtual organisations. Virtuality in the last stage seems to have blurred effects. Standardisation of technologies could help towards trust maintenance, but it could also restrict, it make it less flexible.

Trust can have a conditional or unconditional form. The conditional one is developed by enacting some social processes like high confidence, free knowledge exchange and information, high involvement, help seeking behaviour, and more (Jones and George, 1998). In contrast, the unconditional is based on values and emotions. Sometimes, this type of trust can result in lower levels of trust or even distrust. The last one is examined completely separate and generally it can appear in an organisation simultaneously with trust and have positive and negative effects (Lewicki and Bunker, 1995). Reliance is also associated with trust but it is slightly different. It comes as a property of a system or person. In virtual organisations and in ICT, the trust is transformed in reliability and how reliable the systems are, in order to fulfil the requirements.

In the system of organisational trust, virtuality tends to affect the already unbalanced relationships of the classical organisation form. Managers try to introduce trust between employees, between employees and employers or between employees and managers. The last relationship raises controversial issues, which are associated with innovativeness. Before affecting trust, virtuality can change the form of the whole organisation. The role of technology is enhanced and the whole transactional system must be redesigned on the basis of trust. The new era must support multidimensional trust in virtual organisations and critical evaluation in its implementation.

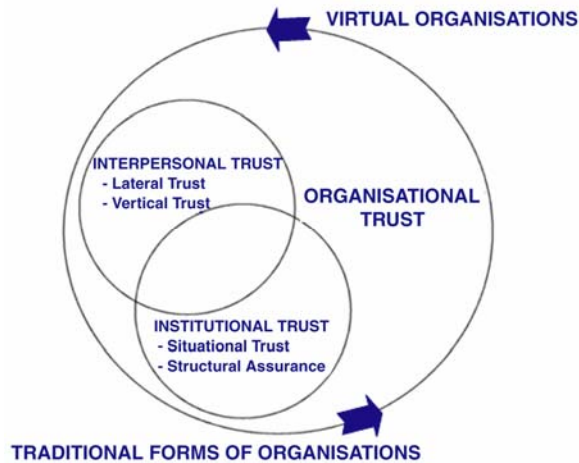
In virtuality, it is not only trust that affects the relationships and entities of the organisation, but also the perception of trust. Specifically this perception can influence the performance in cultural distance. In other words, according to Lojeski et al. (2006), how a member of a team perceives the perceptions of distance, it would finally influence the levels of trust towards other members of a team. Furthermore, lower level of trust leads to lower level of commitment and engagement to the goals of the team or organisation.

Multidimensional trust means that there are different types of organisational trust which can be approached from various aspects. The Ellonen et al. (2006a,b) refers to interpersonal and impersonal (institutional) trust. The first one includes the lateral and vertical trust based on the competence, benevolence and reliability (Mayer and Davis, 1999). This type represents the relationships among employees and between employees and leaders. The second is distinguished in the situational normality which bases the trust on normal and order and structural assurance, which base the trust on contracts, regulations and guarantees.

Virtual organisations are built on standards, have a good structure and customers should therefore, realise what to expect. The same spirit dominates the internal relationships of virtual organisations. Information Systems lead and manage the organisation, in a deterministic way. The purpose relates to the capacity of control, but in such a way that enables the production of alternative solutions. Here, a balance is needed. High levels of control can lead to low levels of trust (Bavec, 2006). In virtual organisations, the fundamentals of control are needed under the flexibility, adaptability and dynamically generated alternative actions. These requirements are supported by institutional organisational trust in virtual organisations, whereas

traditional forms of organisations are based and prioritise interpersonal organisational trust. Figure 1 illustrates the different types of organisational trust and the tendencies in organisations.

**Figure 1** Different types of organisational trust and tendencies in the organisations



Trust in virtual organisations is also built gradually (Jarvenpaa et al., 1998). This indicates that organisational trust is developed by following an evolutionary pattern. At the start, virtual organisations are focused on transmission of trust. There is a wide range of issues on this matter, which are related to technology, networks, information security, data handling and others related to social factors. Sometimes, this is one of the most difficult steps for building the trust, as it may be an expensive investment. It can be also vital for the survival of the organisation depending on whether it leads to the competitive advantage. On the other hand, it could be a cheap and easy step. This happens when the product, the service or the organisation as an entity incorporates a brand name and initial reputation, leading to an initial level of subjective trust (Holland and Lockett, 1998). How quick the transmission will be, requires a special behaviour. Enthusiastic communication promotes the maintenance of swift trust (Jarvenpaa and Leidner, 1999; Kasper-Fuehrer and Ashkanasy, 2001). The next step is referred to the evaluation of behaviour, making a comparison and contrast between past and future. The concept of trust is completed when each side can estimate and accept the result of the capability of the other side to perform the expected activities and reach the expected results.

Virtual organisations introduce by their nature the 'distance'. Distance for human brain is not always an objective and measured concept. Adapting and affecting people's perception of distance may result a positive effect in trust and it is something that could influence virtual organisations (Lojeski et al., 2006).

The trust of virtual organisations tend to have a less subjective nature compared to the traditional form of organisations, but it is true that people have already learnt to handle and 'trust subjective trust'. This happens due to their dependency on ethics, morals, emotions, values and natural attitudes (Brenkert, 1998; Flores and Solomon, 1998), concepts which are difficult to be modelled in a virtual environment (Kasper-Fuehrer and Ashkanasy, 2001). However, there are various efforts towards

adapting and modelling traditional and social concepts in ICT. Trust in virtual organisations should be based on standardised ICT in the maximum degree but always incorporating a certain degree of flexibility and freedom and on building reliable systems.

## **5 Innovativeness in virtual organisations**

'What is new, how new and new to whom' according to Johannessen et al. (2001) seems weak to describe the multidimensional nature of innovativeness in virtual environments. Virtual organisations bring a controversy. Innovativeness exists in their nature, but their expression is not always innovative. The innovation adoption can be technological, administrative, referrer to human resources or the product/service (Daft and Becker, 1978). According to Barbini and D'Atri (2005), most of the time, a virtual enterprise is the sum of innovative elements, which are connected to technology or managerial issues. The purpose and the challenge are to combine the innovative elements and produce a complete innovative pattern on which the virtual organisation will use to express its new and clearly innovative nature. The boundaries of these organisations are blurred (Aken et al., 1997). They are flexible, dynamic, proactive, not constrained by predefined structures and easily reconfigurable (Goldman et al., 1995).

The Malinen and Simula (2005) introduces an innovation environment which is influenced by an innovation system, local buzz, global knowledge pipelines and shared interpretative frameworks of local actors. Furthermore (Malinen and Barsk, 2003), describes the innovation capability model. According to this, the creativity and ability of an organisation to renew, is based on competences, the processes on different levels, the ICT capabilities which provide knowledge access and technology infrastructures. In addition, the collaboration is formed on network relationships, global pipelines and social capital and trust. The business intelligence also supports this innovative milieu and buzz.

Moreover, Malinen and Simula (2005) examine the effect of the Less-Favoured Regions (LFRs), in which research background is low and the innovation cannot be transferred. The authors propose the professorship and actors development as a countervailing together with local buzz and pipelines.

Virtuality enhances an environment without big and bureaucratic organisations where innovation cannot be developed (Grossi, 1990). Innovativeness in virtual organisations should be able to be spread in order to be regarded an efficient and worthy innovation. This can be achieved by setting standardisations and avoiding social risks during its acceptance. Innovations that cannot be spread, run the risk of disputing their nature and lacking of adoption. Tele-work has dealt with many problems as innovations are associated with social as well as psychological issues (Suomi, 2007). Furthermore, human resources cannot be standardised easily and they are regarded as too risky for organisations. Managers have a dominant role in innovations and should support the reengineering in business process which may undermine their leading role. Standardisation should follow a certain degree of freedom and flexibility as in trust.

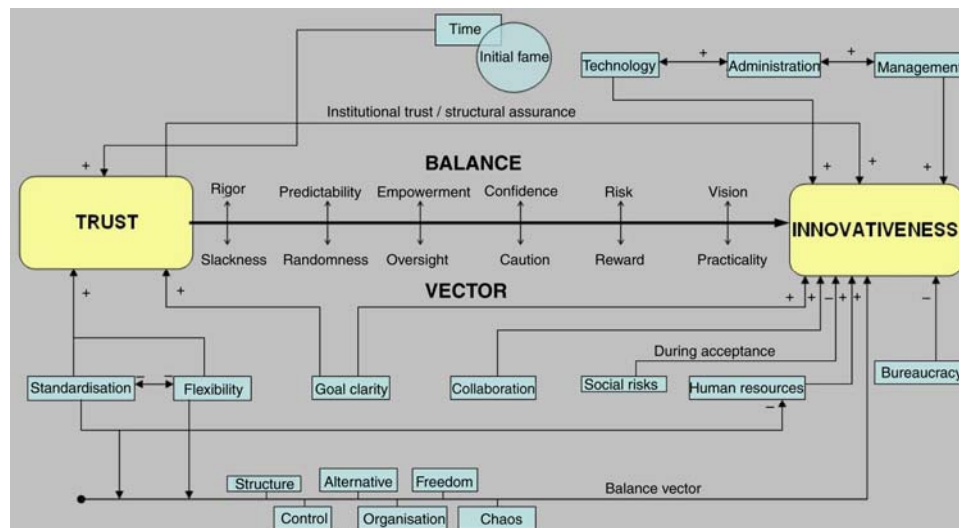
Innovation follows the pattern of building an organisation in a technology-oriented (Venkatraman, 1994) or business-oriented form (Barbini and D'Atri, 2005; Porter,

2001). In virtual organisations, these two patterns seem to overlap each other. Nowadays, technologies should incorporate the business and management element in their design and vice versa. Sometimes, the pattern of administration and moderation is introduced to bridge the gap and discover new paths towards innovation based on both technology and business aspects.

The scheme of a flexible and free virtual organisation can be expressed well through a decentralised model. Distributed systems and network technologies support such models. Such an environment encourages innovative motivations and builds an 'organised chaos' (Waterman, 1993) which is referred as 'adhocracy' (Barbini and D'Atri, 2005).

So, how can the innovativeness be defined, controlled or measured in this chaos? The key is to identify that point of balance and that critical point among standardisation, control, structure, organisation, freedom, flexibility, alternative and chaos. All of them describe the two sides of the same coin and innovation could be the adaptor between dynamic and continuous transitions. Figure 2 illustrates the conceptual framework for trust and innovativeness.

**Figure 2** The conceptual framework for trust and innovativeness



## 6 Case examples

There are several studies that approach topics of interest on trust and innovativeness. In VonKortzfleisch and Al-Laham (2000), knowledge management is studied in medium-sized companies. The triangulation approach has been followed which provides an elaborated and empirical framework with more detailed investigation. The empirical findings are outlined by three vectors (market interaction, competency leverage and work configuration) concerning the relationships between clients and company, the possibilities to acquire resources or develop new innovative knowledge and a vector of how knowledge is done. Each vector consists of three stages which describe the new challenges and opportunities between the client and company, the creation of intellectual



assets and the opportunities of expertise across and within organisational environment, respectively. The results reveal high degree of structuration and formalisation as a basis of knowledge management in the virtual organisation. However the authors mention the dimension of restrictions in the levels of organisational virtualness.

In Malinen and Simula (2005), a conceptual framework has been applied for investigating the regional competence on several technology applications and industrial branches in areas without universities. The Innolab platform focuses on local areas in Finland and qualitative research methods have been used. The results show increased entrepreneurship, local buzz and pipelines. This fact can support the bridging gap between academia and local industry in areas without universities but by introducing the professorship concept.

Moreover, Herting (2002) focuses on the correlation between trust and innovation in hospital organisations. The findings reveal that the calculus, knowledge and identity-based trust are positively correlated with administrative innovations. The calculus-based trust is negatively correlated with product/service innovation and the other innovation forms (technical, human-resource) do not appear a significant correlation with trust stages. The author also proposes a curvilinear relationship between trust and innovation.

## **7 Correlating trust and innovativeness**

The multidimensional factors that exist in both trust and innovativeness make it difficult to correlate their overlapping effects in virtual organisations. Many studies focus on these difficulties estimating the inter-correlations and multi-co linearity between the defined dimensions in their statistical analyses (Lojeski, 2006).

Through the types of organisational trust, various issues which are associated with innovativeness can be raised. Interpersonal trust affects innovativeness. New ideas, brainstorming and sharing thoughts require a certain degree of trust, in order that participants feel free to express themselves and to avoid thinking that they run the risk of being penalised for their abortive plans or applications (Lojeski, 2006). Such a collaborative environment promotes innovativeness and new ideas. It also supports their spread. On the other hand, institutional trust implies innovative processes on an innovative basis. Structural assurance provides a structural scheme for virtual organisations which leads to innovation. Structure in an organisation is an introduced factor to measure innovativeness.

Virtual organisations based on information systems create a structural environment enhancing the process of innovation. Situational normality provides the convenience and the foundations for building an innovative environment over a secure and trustworthy preexisted framework.

During the stages of trust, the innovation is affected differently. In calculus-based trust, the uncertain environment and risks can reduce the innovation of virtual organisation. However, in virtual organisations that are oriented to reduce the negative effects of this stage may be created calculated risks. In the knowledge-based trust, the information gathering can lead to virtual socialisation and increased knowledge of organisational goals, which, both affect the innovation positively. In the last stage,

the secure environment with trusted relationships drives to values and visions sharing among the participants of the organisation and empowerment for greater authority and control.

A collaborative environment could bridge the gap between trust and innovation. Slackness can influence positive experimentation, but it introduces lack of organisational discipline. The minimum trust cannot produce an innovative environment and innovation remains at minimum level. On the other hand, maximum trust does not guarantee maximum innovation. The relationships are non-linear as (Shapiro et al., 1992) show.

## **8 Summary and conclusions**

Technologies to help enable Virtual Organisations are already here. The acceptance of Virtual Organisations depends on willingness of society, organisations and people to understand this concept and transition to this effective approach to management. However, the concept is fraught with numerous issues and challenges. Note that understanding the technology is not enough. One must examine the people and relationship issues as well – work practices, management oversight, organisational culture and strategic alliances.

Once investigated the innovativeness of the virtual enterprise as an inter-organisational configuration, it could be now interesting to analyse on the impact of such cooperative form on the organisations constituting it. Within organisations adopting a sort of virtual philosophy, that is, firms adhering to virtual enterprises in strategic and consistent ways, its cooperative configuration becomes an important driver for innovation.

The virtual enterprise philosophy may stimulate innovation on member firms by allowing SMEs to concentrate on their core activities, relying for the non-strategic ones on the possibility to develop specific virtual enterprises. In addition, it will support a continuous fine-tuning of their task environment. Even though the task environment of the single SME will not consistently change, being in large part identified with the virtual community of enterprises in which virtual collaborations arise, every involvement in a virtual enterprise is likely to drive the need for contingent task environment modifications.

It is clear that virtual enterprise can be an innovative medium for enabling members' organisational innovation; hence, organisations operating with a virtual enterprise approach can secure and increase their instrumental rationality and, at the same time, they will meet the environmental contingencies by continuously redefining their task environment (by selectively enacting a part of their task environment) in order to endogenise such contingencies. Their structure will evolve consequently.

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