

**The measurement of trust in inter-organisational networks: a
conceptual framework and research design**

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The measurement of trust in inter-organizational networks: a conceptual framework and research design

ABSTRACT

The aim of this paper is to outline a conceptual model and research design for measuring trust in inter-organisational networks which has the potential to be a 'blueprint' for a large-scale, multilevel study of trust in networks. Inter-organisational networks are increasingly recognised as a means to achieve economic and social exchange yet, how these networks operate is less widely understood. Trust is widely identified as being essential to the functioning of networks forms of organisation. In order to analyse trust in networks the Social Relations Model (Kenny 1994) of interpersonal perception is applied here. Insights from this model are used to specify relevant components of trust; and extended by incorporating measures of trust at the level of the work group.

Keywords: *inter-organisational network; trust; multi-level theory; social relations model*

Inter-organisational networks are increasingly recognised as an important means of co-ordinating complex economic and social exchange (Williamson 1975, 1985; Powell 1990; Adler 2001). Such networks tend to develop or be created when problems are sufficiently complex, idiosyncratic or unpredictable that an optimal combination of specialisation and flexibility of response is required. One example is emergency response teams, where natural disasters require a coordinated response by specialist medical, police, fire and welfare units. Another is where individuals at risk become clients of several agencies at once (e.g. victims of domestic violence; young addicts arrested for theft – see Campbell 1999). Under these circumstances, coordination cannot occur through price, because price does not carry useful information, nor through authority because of the absence of relevant hierarchy and generally diffuse roles. The effectiveness of performance 'assistance' or risk management depends on the extent to which

there is smooth and frictionless cooperation. Trust, and the various components and manifestations, is the core mechanism for achieving cooperation in such networks. As Arrow (1974:23) points out:

Trust is an important lubricant of the social system. It is extremely efficient; it saves a lot of trouble to have a fair degree of reliance on other people's word...Trust and similar values, loyalty or truth-telling, are examples of what the economist would call 'externalities'. They are goods, they are commodities; they have real, practical economic value, they increase the efficiency of the system, enable you to produce more goods or more of whatever values you hold in high esteem.

Trust is clearly critical to the smooth functioning of such inter-organisational networks. But the conceptualisation and measurement of trust is complicated by the fact that interpersonal relationships are embedded in organisational contexts, and in the daily life of work settings. The study of trust in inter-organisational networks requires multilevel analysis, capable of separating out three basic facets:

- Factors associated with interpersonal relationships, including individual causes and consequences of trust judgements (e.g. will John (from the legal centre) phone Mary (from the police) to ascertain information relevant to a case? This will depend on past experience with Mary and John's own propensity to trust, or not);
- Factors applicable at a collective level (e.g. work group, organisation) that are analogous to individual-level trust (e.g. organisational reputation, confidence in institutions); and
- Factors at a collective level that impact on interpersonal trust judgements, such as the culture of organisations, or ideological consensus/dissensus in work-groups.

The aim of this paper is to outline a conceptual model and research design for measuring trust in inter-organisational networks which has the potential to be a 'blueprint' for a large-scale, multilevel study of trust in inter-organisational networks.

CONCEPTUALISATION

The theoretical framework we employ is the Social Relations Model (Kenny 1994) of interpersonal perception and we apply this to the problem of analysing trust in inter-organisational networks. We use insights from this model to specify relevant components of trust; and extend it by incorporating measures of trust at the level of the work setting (or group). The Social Relations Model is a framework for understanding interpersonal perception (Kenny and LaVoie 1984; Kenny 1994). Its development was stimulated largely through a seminal article by Cronbach (1955) that established a general framework for decomposing interpersonal judgements (of a perceiver who rates several others on several traits) into four components, whose inter-correlations provide an assessment of accuracy.

The Social Relations Model and Trust

Within the Social Relations Model, the perception that a perceiver has of a target is separated into three elements: perceiver, target, and relationship. With respect to trust, the perceiver effect would denote how trustful the person tends to be; the target effect would reflect how trustworthy a person is generally seen to be by others; and the relationship effect reflects the particularism that produces a level of trust that is independent of the general trustfulness of the perceiver and the trustworthiness of the target. In simple terms, these three elements can be thought of as three components of a table of trust ratings, where the rows comprise subjects (trustors) and the columns objects of trust (trustees). The perceiver effect (trustfulness) is the subjects row mean minus the overall row mean; the target effect (trustworthiness) is the object's column mean minus the overall column mean; and the relationship effect is the chi-square distance (the difference between the actual rating, and the rating predicted by the perceiver effect and the target effect). The relations between these three elements have been shown to reveal information about nine basic questions of interpersonal perception. These are reviewed in detail in Kenny (1994), but

include issues like ‘uniqueness’ – does person X see person Y idiosyncratically; or self-other agreement – do others see person Y as she sees herself?

Multilevel Theory

The Social Relations Model provides a sound basis for analysing trust. However, relationships between individuals and organisations introduce an additional level of complexity for the concept of trust. In the case of a direct relationship between an organisation and an individual, one actor in the relationship (the organisation) is not a psychological entity but does display functional equivalences to trust. For example, in the decision as to whether or not to advance a loan, a bank’s risk assessment procedures will seek information about trustworthiness that is more or less independent of the subjective interpretations of any particular loan assessor. In this case, employment history, family status and occupation would be used as surrogates for direct information. Conversely, a loan-seeker’s decision about which bank to chose is likely to be influenced by psychological factors peculiar to that individual – their attitudes to large corporations and their perceptions of the reputations of various banks, for example.

Our problem is the situation where the organisation and the work group constitute a context that independently affects two parties in a relationship. Specifically, we are interested in producing estimates in the propensity for employees to trust members of another organisation that distinguish the person-target from the organisation-target. In these circumstances, trust cannot be understood as though it were context-free (i.e. simply an outcome of the trustfulness of one individual in a relationship with the trustworthiness of another individual), because both trustfulness and trustworthiness partly reflect organisational conditions. Individuals’ personal qualities are mediated by the fact that they also represent and stand for the organisation – from the point of view of the perceiver they are a symbolic representation of the organisation as an independent entity. Similarly, perceivers are not atomised, disconnected individuals – their organisation is also a human group and so they will construct interpretations in the context of interaction with colleagues. Beliefs and information are in part socially constructed through

interactions at work, there are incentives for conformity to group norms, and interpretations and meanings tend to converge. Consequently, an individual's level of trust in a target of another organisation will reflect qualities of the target, individual differences between perceivers, as well as characteristics of the workgroup and the organisation (with workgroup and organisation exerting a homogenising effect on individuals' judgements).

The Work Group or the Work Setting Level of Analysis

Work by Blunsdon and Reed (2003) shows that workplace levels of employees' trust in management *do* vary independently of the characteristics of individuals within that workplace. Large differences in trust levels are found between workplaces in different industries, with different workforce characteristics and with different management systems. It is also known that clarity of rules and policies, participation in decision-making and 'high-involvement' work practices all tend to increase employees' levels of trust (Lawler 1992, 1996; Vandenberg et al 1999). These examples conflate organisational level and work-group level effects but our main concern is in outlining a method for measuring work-group effects on perceivers trust judgements.

Work Groups are Nested in Organisations

To move towards a holistic understanding of trust, analyses need to be extended to incorporate organisational level effects. In particular, it is important to decompose influences on the trustor's judgement deriving from organisational (e.g. organisational culture), work group (e.g. workplace climate) and individual (e.g. personal disposition to trust) levels, from analogous effects on the trustee (e.g. organisational reputation, halo effect associated with a unit within the organisation, and qualities of the individual such as their prominence within a network). This is illustrated in Figure 1 below, a graphic representation of trust effects at different levels of analysis.

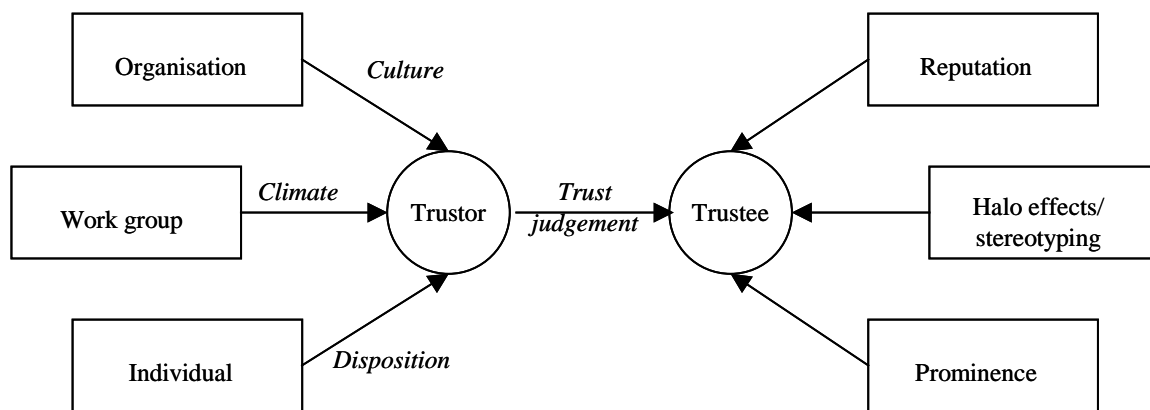


Figure 1. Example of effects on trust at different levels of analysis

Understanding trust in extended organisational networks requires a method to estimate multilevel statistical models of trust. We illustrate our theoretical model of inter-organisational trust with a research design which includes work groups from three organisations (a community legal centre, a branch of the State police, a community support group). These comprise a sub-sample of the much larger population of work groups within a network.

THE DEFINITION OF TRUST WITHIN OUR FRAMEWORK

Levi (1999) presents three components of cognitive belief that define trust in a way that is appropriate for this conceptual framework¹. These are the belief that: the trustee tends to keep promises (i.e. is reliable); the trustee has objective interests in common with the trustor (i.e. is benevolent); and is capable of performing the action that requires trust (i.e. competence). The framework of the three elements of the Social Relations Model distinguishes between trustfulness, trustworthiness and relational trust (analogous to perceiver, target, and relationships effects respectively). Trustfulness is the extent to which a perceiver tends to see all targets as reliable, benevolent and competent. Trustworthiness denotes the tendency of perceivers in general

¹ Levi's concern is with defining distrust, so we render the components as presences, where she proposes absences.

to believe that the target is reliable, benevolent and competent. Relational trust can be defined as the extent to which the perceiver believes that the target is generally willing and able to act in the best interests of the perceiver, because both perceiver and target have convergent interests.

Trust in inter-organisational networks

To study trust in complex inter-organisational networks requires data that:

1. Can be aggregated to provide measures that have functional equivalence at the collective-level (ie. work group or organisational level) to interpersonal trust (see Reed 2002 for an analysis of a comparable problem – measuring workplace morale from individual satisfaction ratings)and,
2. Incorporates relevant work-group and organisational level data that is independent of the individuals (e.g. age, governance systems, organisational structure).

RESEARCH DESIGN AND METHODS OF ANALYSIS

Our study will focus on inter-organisational networks that provide services to individuals who are “at risk”, such as child protection, domestic violence or patients with mental illness (Campbell, 1999). The delivery of such services is undertaken through a network because client needs cannot be standardised. Each organisation in the network contributes one or more of their particular group of services, rather than one agency handling the entire case. Clearly, the level of trust within such a system will have a major impact on its functioning, particularly given the emotional impact that it can have on the client (or clients) in question (Walker 2001). One example of this type of network is the organisation of child protection activities in Australia. Child protection is often facilitated through an inter-organisational network of courts, police, welfare agencies, government departments and legal aid operations. The design we propose will draw respondents from a community legal service, a specialist police unit, and a church-based welfare agency.

Research Method

The basic method is a ‘round robin’ design where each respondent rates all others, across the three workgroups. Data will be collected through computer-assisted personal interviews (CAPI).

This is appropriate because the questions need to be specified for named individuals, and because of the need to control for order effects in the question sequence. The CAPI system will be programmed to select at random, each of the three workgroups (one being the workgroup of which the respondent is a member), and to then present the targets from that group in random order. The order in which the questions will be presented will also be randomised.

Measurement

Respondents will be asked to rate all other respondents that they know personally, or have formed an impression of, based on interactions with others who know him/her. Ratings will attempt to assess the respondent's degree of certainty or confidence with respect to the target's reliability, benevolence and competence. Examples of the types of questions include:

- “If Jim were to provide you with information over the phone about a client, how confident would be that you could act on that information without checking?”
- “If Jenny asked if you could lend her \$50 for a client, how likely would you be to do that?”
- “How confident would you be Bill that would keep secret the address of a women's refuge?”
- “How confident are you that Mary will tell things the way they are, even if it conflicts with ‘official’ policy?”
- “If you wanted to find refuge accommodation for a client, would you call on Jane to help you out?”

CONCLUSION

Evidence has shown that understand trust is more than just understanding the relationship between two or more individuals. The challenge in understanding trust in inter-organisational networks illustrates the complexity in separating out effects at different levels of analysis: the individual, the workgroup and the organisation. Yet, the ability to understand trust in extended

and complex networks, such as emergency response teams and social service organisations, demands multi-level theorising, research designs and analysis techniques. The conceptual model presented here goes some way towards addressing these issues and the research design we outline provides the opportunity for theory testing and the development of more robust empirical studies.

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