

PERCEIVED TRUSTWORTHINESS WITHIN THE ORGANIZATION:
THE MODERATING IMPACT OF COMMUNICATION FREQUENCY
ON TRUSTOR AND TRUSTEE EFFECTS

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Abstract

This paper investigates the antecedents of intra-organizational trust and, more specifically, how the frequency of communication between trustor and trustee moderates the impact of these factors on perceived trustworthiness. Data on 157 dyadic relationships among 50 senior managers within a multinational corporation confirm that the effect of both trustor as well as trustee characteristics on the level of perceived trustworthiness is moderated by the frequency of communication between the two parties. As communication frequency increases, the trustor's general attitudinal predisposition towards peers becomes less important as a determinant of his/her evaluation of trustworthiness of other managers within the organization. In contrast, as communication frequency increases, the trustor's as well as the trustee's linkages to the organization become more important determinants of perceived trustworthiness.

Keywords

Management, trust within an organizational setting, intra-organisational trust, communication frequency, organization linkages.

Introduction

In recent years, the concept of trust has gained an important place in management research (Kramer and Tyler, 1996; Rousseau, Sitkin, Burt, and Camerer, 1998). Trust facilitates relationships between and within organizations, reducing transaction costs and potentially becoming a source of competitive advantage (Chiles and McMackin, 1996; Barney and Hansen, 1994). The benefits of trust are widely accepted within the literature, though there is only scarce empirical research about how trust can be built within organizations (Mayer and Davis, 1999).

When the nature and the antecedents of trust have been analyzed in the social sciences, the differences in approaches are striking. For instance, psychologists have studied trust as a fundamentally chronic personality trait (Rotter, 1971), economists have focused on the calculative process that captures the decision to trust others and they have attempted to design organizational arrangements that will yield "trust-like" behavior (Dasgupta, 1988; Williamson, 1993), while sociologists have emphasized the importance of social relations beyond individual characteristics and formal organizational arrangements (Granovetter, 1985). Thus, to analyze the antecedents of trust between managers, we need to draw from a combination of the different individual, contextual, and social factors considered by these three approaches.

In this paper, our goal is to investigate the antecedents of trust within an organizational setting, including the individual attitudes of managers, their specific context within the organization, and the frequency of communication in their relationships with their peers. We argue that the perceptions of trustworthiness of other managers within the organization are driven by the individual characteristics of the two sides of the dyad as well as by their linkages to the organization in which managers perform their activities. However, we expect that the influence of these individual and contextual characteristics will be moderated by the extent of communication between managers, as a critical element of dyadic relationships. It is the moderating role of communication in the determinants of trust that constitutes the main focus of this study. Thus, we want to study how the perceptions of peer trustworthiness arise in an intra-organizational context and, more specifically, how communication frequency moderates the extent to which it is the trustor's or the trustee's individual and contextual characteristics what drive these perceptions.

In the next section, we develop the theoretical arguments regarding the perceived trustworthiness of managers in an organizational context and present the hypotheses to be tested. The methodology section describes the multinational enterprise setting within which this study was conducted as well as the data collection process, the measures, and the sample. The following section presents the results of the empirical analysis based on a sample of 157 dyadic relationships among the top 50 managers of this multinational corporation. The paper concludes with a discussion of the results and their implications for future research as well as practice.

The Antecedents of Perceived Trustworthiness

Research on trust has been characterized by a substantial diversity in disciplinary background, methodologies, and definitions (Bigley and Pierce, 1998). Among other approaches, trust has been defined as a general disposition toward others (Rotter, 1971), a rational decision about cooperative behavior (Dasgupta, 1988), an affect-based evaluation about another person

(McAllister, 1995), and a characteristic of social systems (Barber, 1983). Rousseau et al. (1998) argue that the differences among scholars in the definitions and levels of analysis are less divergent than what may appear at first sight. Based on their analysis of the trust literature, these authors suggest that trust is a "psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another" (Rousseau et al. 1998: 395). In this section, we will analyze the factors that lie behind the extent to which managers believe that their peers are trustworthy, that is, how the subjective expectations of the intentions and behaviors of their peers within the organization are generated. Thus, we will study the subjective evaluations of peer trustworthiness rather than the actual risk-taking behavior of the trustor that may result from these evaluations.

Most definitions of trust, such as the one above, are based on the dyad as the underlying unit of reference. Depending on the issue to be analyzed, it can be aggregated to the trustor's perspective on one side (i.e., propensity to trust) and the trustee as a reference on the other side (i.e., his/her actual trustworthiness). A statement about trust, therefore, always concerns at least two parties - be they individuals, groups, organizations, institutions, or entire societies. The analysis of trust ultimately needs to build on how individuals (at a certain level of aggregation) trust and are trusted by other sets of individuals. From our perspective, this distinction between the *trustor* (who holds certain expectations about another party and may or not be willing to be vulnerable to the actions of the other party) and the *trustee* (who is assessed by the trustor) is critical to any analysis of the antecedents of trust.

Based on this fundamental trustee-trustor dyad, the trustor's expectations about the trustee's trustworthiness may arise from three basic sets of variables: (1) the trustor, (2) the trustee, and (3) their dyadic relationship (i.e., the interaction between both individuals through their relationship). In the intra-organizational context that we study in this paper, the trustor and trustee effects can be further disaggregated into the individual characteristics of the two managers as well as their specific linkages to the organizational network. The hypothesized relationships are summarized in Figure 1 and developed below in greater detail.

The core idea in the model is that the relative effect of the trustor and the trustee on the former's expectations regarding the latter's trustworthiness depends on one critical characteristic of their dyadic relationship: the frequency of communication between them. This argument is consistent with Rotter's (1971) claim that an individual's propensity to trust should influence his/her level of trust in specific others, but mainly when the trustor has little knowledge about them. Thus, if there is little contact between trustor and trustee within an organization, the level of trust can be expected to depend largely on the *trustor's* own characteristics and position within the organization. Similarly, the effect of the individual characteristics and the organizational context of the *trustee* would be expected to be smaller, since limited contact would make these characteristics barely observable to the trustor.

In contrast, with greater frequency of communication, the trustee's individual characteristics as well as context within the organization would become more visible to the trustor and can be expected to play a greater influence in his/her evaluation of the trustee's trustworthiness. In this case, the trustor can be expected to rely more heavily on the larger amount of information directly available to him/her about the trustee's intentions and behavior in their relationship. Thus, when the amount of communication between them increases, we would anticipate a transfer in the extent of influence from the trustor's perspective to the trustee's individual characteristics and

position within the organizational network. This moderating effect of communication frequency on the influence of the individual characteristics and context of the trustor and the trustee on perceived trustworthiness is developed further in the hypotheses below.

Attitudinal Predisposition Towards Peers

Research in psychology has shown that individuals have different propensities to trust others, which results from their early childhood, their personality, and their experiences through life (Erikson, 1953; Rotter, 1967; Wrightsman, 1971). In our study, we are particularly interested in relationships within the organizational network and how managers' individual attitudes towards peers may affect the perceptions of trustworthiness within the organization.

Consistent with Olson and Zanna (1993) and other attitude researchers, psychologists Eagly and Chaiken (1992) define attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor." A positive attitudinal predisposition towards peers basically means that the manager sees his/her peers from a more positive standpoint, in terms of positive affect, cognition, and behavioral intentions towards the manager making the evaluation. It appears reasonable to expect that a general positive predisposition towards peers is likely to be associated with the managers' positive evaluations of the trustworthiness of specific peers within the organization, particularly in a low communication context. Once the trustor has more communication with the trustee, this general attitude towards peers can be expected to become less important and the specific attributes of the trustee and the history of the relationship with him/her can be expected to become more significant.

Hypothesis 1: (a) In low communication contexts, there will be a positive association between the *trustor's* attitudinal predisposition towards peers and his/her perception of the trustee's trustworthiness. (b) In high communication contexts, this association will be either less strong or insignificant.

On the other hand, a trustee with a positive attitudinal predisposition towards peers should also be perceived as more trustworthy, at least when high communication allows the trustor to observe such a positive attitude. In this case we would expect that the trustor may feel more comfortable, and thus have a more positive evaluation of his/her peer's trustworthiness, when dealing with a colleague who has positive affect, cognition, and behavioral intentions towards his/her own peers, including, obviously, the trustor.

Hypothesis 2: (a) In high communication contexts, there will be a positive association between the *trustee's* attitudinal predisposition towards peers and the trustor's perception of the trustee's trustworthiness. (b) In low communication contexts, this association will be either less strong or insignificant.

Linkages to the Organization

In addition to attitudinal predisposition towards peers as a key individual characteristic of the trustor and the trustee, the organizational context in which managers perform their activities can also be expected to affect the level of trust present in their relations with other managers. For instance, the design of organizational arrangements to monitor and motivate managers suggested

by transaction cost economics and agency theory can be expected to have an important impact on the manager's behavior and intentions towards peers (Ghoshal and Moran, 1996; Shapiro, 1987). The variables that reveal the type and the strength of the linkages of a manager to the organization can be expected to have important consequences on the perceptions of trustworthiness of the managers within an organization, since they reflect the manager's interests and socialization within the organization. We will focus on three variables that broadly characterize the context for individuals as players within a social structure: organizational tenure, decision-making autonomy, and bonus intensity.

Organizational tenure. We expect that organizational tenure is likely to affect a manager's expectations about others within the organization, since tenure is well recognized as a good gauge of the richness and strength of a manager's "embeddedness" within an organization (Granovetter, 1985). Managers with longer tenure within the organizational network are presumably more socialized and familiar with the written and unwritten rules (Finkelstein and Hambrick, 1996). This greater knowledge of the company and links with many peers is likely to facilitate more positive evaluations of the trustworthiness of colleagues, particularly in the case of low frequency of communication between the trustor and the trustee.

Hypothesis 3: (a) In low communication contexts, there will be a positive association between the *trustor's* own organizational tenure and his/her perception of the trustee's trustworthiness. (b) In high communication contexts, this association will be either less strong or insignificant.

We now focus on the organizational tenure of the trustee. It is widely accepted in research on top management teams (Finkelstein and Hambrick, 1996) that managers with longer tenures tend to be more embedded within the organizational network and more committed to the organization and its status quo (Wiersema and Bantel, 1992). This greater commitment to the organization can be expected to result in the establishment of a trustworthy reputation as trustee. Since we posit that the trustee characteristics will matter more when communication between trustor and trustee is high, these arguments yield the following hypothesis.

Hypothesis 4: (a) In high communication contexts, there will be a positive association between the *trustee's* organizational tenure and the trustor's perception of the trustee's trustworthiness. (b) In low communication contexts, this association will be either less strong or insignificant.

Decision-making autonomy. By definition, managers with greater autonomy have greater control over their own actions and are less affected by others' actions (Deci and Ryan, 1987). Given that greater autonomy makes managers less exposed and vulnerable to the actions of their superiors and peers, managers with greater autonomy can be expected to be more willing to trust other individuals within the organizational network (Frost, Stimpson, and Maughan, 1978). Researchers have already suggested that managers with a more internal locus of control (Deci and Ryan, 1987) and greater self-efficacy (Whitener et al., 1998) are more predisposed to trust others. Thus, we expect that the trustor's organizational autonomy would also be positively associated with the evaluations of the trustworthiness of peers and that this relationship would be moderated by the frequency of communication between the trustor and the trustee.

Hypothesis 5: (a) In low communication contexts, there will be a positive association between the *trustor's* own decision-making autonomy and his/her perception of the trustee's

trustworthiness. (b) In high communication contexts, this association will be either less strong or insignificant.

We now focus on the decision-making autonomy of the trustee. It is arguably harder to rely on peers who do not have control over their actions. Their positive intentions and promises can be overturned by a superior if they have low autonomy, therefore limiting their trustworthiness. Taking into account the moderating effect of communication frequency, these arguments yield the following hypothesis.

Hypothesis 6: (a) In high communication contexts, there will be a positive association between the *trustee's* decision-making autonomy and the trustor's perception of the trustee's trustworthiness. (b) In low communication contexts, this association will be either less strong or insignificant.

Bonus intensity. Managers with larger individually-based bonuses can be expected to behave in their own self-interest to a greater extent than if their compensation was fixed or based on group-level goals (Finkelstein and Hambrick, 1996). The achievement of individually-based goals is likely to affect their relationships with other individuals within the organization. This self-interest of those managers with competitive rewards can be expected to make them less trusting of their peers (Ferrin and Dirks, 2001). These arguments coupled with the moderating effect of communication frequency result in the following hypothesis.

Hypothesis 7: (a) In low communication contexts, there will be a negative association between the *trustor's* own bonus intensity and his/her perception of the trustee's trustworthiness. (b) In high communication contexts, this association will be either less strong or insignificant.

Focusing now on the trustee, performance-contingent compensation plans can be expected to increase "political behavior" and self-interested attempts even to manipulate accounting systems or personal reputations (Finkelstein and Hambrick, 1996). The behavior of those managers with large individually-based incentives is, thus, likely to be less trustworthy than the actions of managers with less bonus intensity. However, this behavior can be expected to become far more apparent when the communication between trustor and trustee is high.

Hypothesis 8: (a) In high communication contexts, there will be a negative association between the *trustee's* bonus intensity and the trustor's perception of the trustee's trustworthiness. (b) In low communication contexts, this association will be either less strong or insignificant.

Methodology

The Organizational Setting

To investigate perceived trustworthiness within the organizational network, we approached one highly-globalized multinational corporation with whom one of the researchers had had contact for several years. This prior contact was considered necessary to obtain a high response rate about a sensitive topic such as trust and to limit the effect of social desirability in the answers. The CEO of SAF Group (a pseudonym) agreed to provide us with access to the firm's top managers worldwide. SAF has production facilities in Brazil, France, Scandinavia, South Africa,

and the U.S. and it directly employs about 4,000 individuals worldwide. In the last few years, SAF's sound financial performance has been in line with the average for the industry and their products hold worldwide market share leadership in several segments.

The SAF Group, an important player in the construction equipment industry, was formed in the late 1980s after the merger of three equal-size companies: one Scandinavian, one American, and one French. At the time of the study, the corporation was organized into six divisions, three Global Product Centers (GPC) and three Market Areas (MAs). The three GPCs had worldwide responsibilities for R&D, production, and broad marketing strategy for their respective lines of products. The three MAs had sales, marketing, and service responsibilities within their respective geographical areas: Europe, North and South America, and Asia-Pacific. Ties with direct contact between managers from different divisions took place largely between GPCs and MAs in this customer-supplier type of relationship along the value chain. Direct contact among the three GPCs or among the three MAs was very rare.

The Survey

After conducting 26 initial interviews to develop a better understanding of the concept of trust in this organizational setting, we designed a survey to measure trustworthiness within the organization and its hypothesized antecedents. The presidents of each of the six divisions identified the top managers directly reporting to them, mostly subsidiary presidents for the MAs and product managers for the GPCs, plus some top-level divisional staff (all male). A total of 68 managers received a questionnaire in which they were asked about their relationships with specific managers from other divisions. The questionnaire was pretested with one GPC president and one MA president. After incorporating minor modifications dealing mostly with wording, the English-language questionnaires were sent out. A letter explaining the objectives of the research project and guaranteeing full confidentiality accompanied the questionnaire. After two reminders, 59 questionnaires were received (87% response rate), including the six division presidents and three additional members of the top management team. These nine top managers were excluded from the analysis since the dynamics of trust between them were expected to be different than at lower levels within the corporation, given the importance of power and politics for managerial work at the top management team level (Finkelstein and Hambrick, 1996).

The survey contained questions about the individual respondents and their dyadic relations with other managers across the organizational network. Each manager was asked a set of questions about himself, including individual characteristics and his own position and role within the organization. In addition, they were asked about their relationships with specific named managers from other divisions. A total of 31 top managers from the GPCs provided evaluations of the presidents of the ten largest subsidiaries and other key MA managers, while 19 top managers from the MAs evaluated the nine product managers and senior GPC staff.

Data were collected on a total of 243 dyads. However, after randomly discarding one of the reciprocal evaluations in dyads where both parties evaluated each other (to avoid autocorrelation of observations) and excluding dyads where both managers were from the same division, the sample was reduced to 157 unique dyads between managers with direct contact from different divisions. The directionality of observations (GPC to MA vs. MA to GPC) was statistically controlled by a dummy variable, since the relationship at the division level could affect the amount of trust between the individual managers. Most of the instruments for these variables

have been previously validated in the literature. Each measure and its reliability (Cronbach alpha) are presented below when appropriate.

Measures

Basic data were gathered for each manager, including **Organizational tenure** (number of years since they joined the firm). The respondents also indicated whether they worked for either a **Production unit (GPC)** or a **Marketing unit (MA)**, which was dummy coded as 1 in the former case and used as a control variable in the dyadic evaluations between GPC and MA managers.

Attitudinal predisposition towards peers was measured by the Least Preferred Co-worker (LPC) instrument developed by Fiedler (1971). Though initially intended to assess a relationship-oriented leadership style versus a task-oriented style (Fiedler, 1971), Stogdill (1974) has argued that the LPC really measures a general attitudinal predisposition towards peers, which is what we want to assess in this study. The instrument consists of 18 items anchored by two contrary adjectives (e.g., cooperative-uncooperative) at the end of a seven-point scale along which the respondents need to assess their least preferred peer. This is one of the most widely used methods to measure attitudes in psychology (Olson and Zanna, 1993). A higher score indicates a more positive attitude with regard to others within the organizational network.

Autonomy ($\alpha = .79$) was measured using four items from Griffin, Moorhead, Johnson, and Chonko (1980) based on the autonomy dimension of the Job Diagnostic Survey (Hackman and Oldham, 1975). For this question, the manager was asked to assess the degree to which there are specific autonomy-related characteristics in his/her job (from "A minimum amount" to "A maximum amount"). The four items were: The opportunity for independent thought and action, The control I have over the pace of my own work, The freedom to do pretty much what I want, and The overall degree of autonomy.

Bonus was measured as a percentage of maximum possible bonus to total compensation. The managers were asked to indicate the percentage amount of their bonus to total compensation for the current year if they were to actually receive the maximum possible bonus amount. It should be noted that all bonuses referred only to the manager's individual performance based on set of specific goals for the manager, including in some cases the performance of his/her own division, but not other divisions or corporate-level goals.

Frequency of communication ($\alpha = .94$). Each manager assessed the frequency of communication with a set of managers from other divisions within the organizational network. Five items obtained from Gupta and Govindarajan (1998) were used to measure how often the managers communicated through different modes in a 5-level Likert-type scale (Very Rarely, Most months within a year, Several times within a month, Every week, and Most Days). The five items referred to Face-to-face meetings, Over the telephone, Through email, Through ad hoc written memos, and Through periodic formal written memos.

Perceived trustworthiness. From the many different existing operationalizations of trust, the instrument developed by Mayer and Davis (1999) was chosen because it was specifically designed to measure the three main dimensions of perceived trustworthiness (benevolence, integrity, and competence) and it has obtained excellent psychometric properties. Though many different dimensions of trustworthiness have been proposed in the past, these three dimensions

parsimoniously capture the key aspects of the expectations about others' intentions and behaviors (Mayer, Davis, and Schoorman, 1995). All variables are estimated from the trustor's point of view with regard to the trustee. Twelve items measured the three key dimensions of trustworthiness based on a 7-point Likert-type scale from "Strongly Disagree" to "Strongly Agree". The twelve items were aggregated to compute an overall measure of trustworthiness ($\alpha = .94$). As discussed in the next section, data analysis was conducted based on the overall assessment of trustworthiness as well as each of its three different dimensions.

The items and the reliability of the subscales were as follows. For **Benevolence** ($\alpha = .87$), the items were: My needs and desires are very important to this manager, This manager really looks out for what is important for me, This manager is very concerned with my welfare, and This manager will go out of the way to help me. For **Integrity** ($\alpha = .89$), the items were: This manager tries hard to be fair in dealings with others, This manager has a strong sense of justice, I never have to worry about whether this manager will stick to his word, and Sound principles seem to guide this manager's behavior. For **Competence** ($\alpha = .83$), the items were: This manager has much knowledge about the work that he needs to do, This manager is very capable of performing his job, I feel very confident about this manager's skills, and This manager is known to be successful at the things he tries to do.

Results

Descriptive statistics for the variables and their zero-order correlations are shown in Table 1. There is wide variation across the managers in the sample for the measured variables, so that range restriction does not constitute a problem in the analysis. Perceived trustworthiness varies substantially across the dyadic relations within the sample. It was actually zero in some dyads with regard to benevolence and integrity. It should also be noted the positive and significant correlation between Communication frequency and the four trustworthiness variables. Though we were interested in the moderating role of Communication frequency and not in its direct effect on the perceptions of trustworthiness, we can see that more positive evaluations of trustworthiness take place in relationships where there is more frequent communication.

The moderating effect of Communication frequency on the association between two other variables (e.g., trustor's tenure and trustworthiness) can be tested through one of two approaches: moderated hierarchical regression with an interaction term or subgroup analysis. In this study we have chosen to utilize the subgroup analysis approach for the following two reasons:

1. The hierarchical regression approach would have required the entry of eight interaction terms in addition to the main effect variables. This would have introduced severe multicollinearity problems among the interaction terms and thus made the interpretation of the results quite difficult.
2. The moderator variable, communication frequency, has a distribution which is quite different from a normal distribution. Data on this variable ranged from 0 to 15 with an average of 2.71, suggesting that there was very little communication in many dyads. More detailed examination indicated that the observed amount of communication was actually 0 (i.e., "very rare") in the case of 64 dyads. The distribution is, thus, highly skewed to the right with decreasing number of

observations as communication frequency increases (skewness of 1.39), which would make the interaction analysis based on this variable very unreliable.

In order to conduct the subgroup analysis, we broke the sample into three groups based on the frequency of communication, discarded the group in the middle, and tested the hypotheses through regression analysis in the high and the low communication subsamples separately. To make the two subsamples approximately comparable in size, the low communication group included the 64 dyads with very rare communication frequency and the high communication group included the 55 dyads with communication frequency equal to or greater than 4, thus discarding for the analysis the 38 dyads with communication frequency from 1 to 3.

The results from the regression analyses are presented in Table 2. For each dimension of trustworthiness and its overall composite measure, the table shows the standardized coefficients for both the high and low subgroups as well as a test of significance of the difference between the coefficients based on Fisher Z transformations. Bivariate subsample analysis of each independent variable and Perceived trustworthiness showed virtually identical results (result not shown).

The results show clear support for hypothesis 1 regarding the effect of the trustor's Attitude towards peers on perceived trustworthiness and the moderating effect of communication frequency. The trustor's attitude toward his peers is significant and positive for the low communication subgroup in the four regression analyses of trust, and the coefficients are significantly smaller for the high communication subgroup in three of the analyses. Thus, there is strong evidence that the trustor's attitude toward peers as measured by the LPC scale is an important determinant of perceived trustworthiness and that this relationship is moderated significantly by communication frequency.

In contrast, the trustee's Attitude towards peers is not a significant predictor for either subgroup in any of the four analyses, as hypothesis 2 argued. This unexpected result may be due to the focus of the trustor not so much in the trustee's general attitude towards his peers, but on his/her attitude with respect to the trustor specifically.

The empirical results for the effect of the trustor's and the trustee's own organizational context from hypotheses 3 through 8 are quite similar and can be interpreted jointly. Hypotheses 3, 5, and 7 about the trustor's linkage to the organizational network were contradicted for the most part. With the exception of bonus intensity for trust in benevolence, which had the expected negative sign, the coefficients for the trustor context variables were always insignificant for the low communication subgroup, therefore not supporting part A of each hypothesis. Furthermore, the change in the coefficient from the low communication to the high communication was in the opposite direction for the trustor's decision making autonomy, bonus intensity, and organizational tenure. In other words, contrary to our predictions, the trustor's linkages to the organization become more important as antecedents of perceived trustworthiness in a high communication dyadic context. Although the moderating effect of communication frequency is contrary to our expectations, the effect of these variables is always in the expected direction, positive for organizational tenure and autonomy, and negative for bonus intensity.

On the other hand, the results confirm our expectations for the trustee-related variables. The trustee's linkages to the organizational network also become more relevant when communication with the trustor is high, in this case as hypotheses 4, 6, and 8 predicted. The trustee's

organizational context variables are indeed always insignificant when communication is low. Also, as predicted, their coefficients significantly increase in the expected direction when communication is high, though the results are only clear for benevolence and competence, and not for integrity.

These results merit further discussion. The general attitude towards peers as measured by the LPC variable captures a large portion of the extent to which managers perceive others within the organization as trustworthy when communication with those peers is low. In this case, the assessment of trustworthiness basically reflects the trustor's predisposition to trust his colleagues regardless of the specific organizational context of the trustor and the trustee. In contrast, when communication is high, the nature of the linkages that both managers have to the organizational network absorbs part of the explanatory power that the general attitude towards peers loses. Thus, when there is frequent communication, the context within the organization of both members of the dyad (rather than just that of the trustee) becomes more relevant. Why do trustor-related contextual variables also become more significant when communication is high? It is likely that with little communication between the two managers, the trustor may not know how his/her own interests and context within the organization may affect a more intense relationship with the trustee and, thus, not be able to assess the peer's trustworthiness beyond his/her own general attitude towards his/her peers. In other words, when communication is low, there is less contact between trustor and trustee, and their specific positions with the organization may not cause them frictions, generate interest confrontation, or otherwise smooth their infrequent dealings, therefore leaving only the general attitude toward peers as the trustor's critical determinant of his/her assessment of his/her peers' trustworthiness. In contrast, when communication between the two managers is frequent, their relative interests and specific linkages to the organization are now more apparent to both managers and have a greater effect on how each one behaves within their dyadic relationship, therefore affecting the trustee's trustworthiness from the perspective of the trustor.

From the eight hypotheses, there was support for five of them and, in the other three regarding the trustor's linkages to the organizational network, the moderating effect of communication frequency was exactly contrary to what we expected. However, the underlying premise in all hypotheses that more frequent communication shifts the relative weight in the level of trust from the trustor to the trustee has not been directly tested yet and it needs additional analysis. Now we are not interested in the individual characteristics of the trustor and the trustee, and how their impact changes when communication increases, but in the overall weight that each party has in the perceived level of trustworthiness. Basically, we need to estimate how much of the variance in the level of perceived trustworthiness is attributable to the trustor and how much to the trustee for the two subgroups, high and low communication. This can be done with a components of variance analysis. The results for this analysis are reported in Table 3.

We first discuss how the components of variance analysis was conducted. The sample consists of 157 dyads among 50 managers within the organizational network. Each observation has one trustor and one trustee, which are the two effects that we want to assess. To estimate the relative weight of the trustor and the trustee we could assign one dummy variable to each trustor and another to each trustee, and conduct the analysis as a fixed-effects ANOVA (equivalent to classical hierarchical regression analysis). This methodology requires a very large number of dummies and thus becomes inappropriate for this study. A more efficient method with regards to degrees of freedom is a random-effects ANOVA (components of variance), which is considered

more suitable than fixed-effects ANOVA when the levels of each effect (the dummies for trustee and trustor) are supposed to be randomly drawn from a larger population rather than exhausting all of their possible values. The analysis is done first for overall trustworthiness as the dependent variable and later for each dimension separately. Further discussion of this technique versus classical hierarchical regression analysis can be seen in Rumelt (1991).

The empirical results from the full sample in Table 6 show that, since perceived trustworthiness is a cognitive evaluation performed by the trustor, the personal biases and surroundings of the trustor have a substantial effect on his/her evaluations of other managers' trustworthiness within the organization. The results from the subsample analysis make clear that indeed only the trustor's own propensity to trust matters when communication is rare and the trustee's presumed trustworthiness (stable through all dyads where the trustee is the same manager) is virtually irrelevant, since the trustee's intentions and actual behavior cannot be sufficiently noticed and interpreted by the trustor. This is fully consistent with the results from the earlier regression analysis, where the trustor's Attitude towards peers was the only important predictor of perceived trustworthiness and none of the trustee variables was significant when communication was low.

In contrast, in the high communication subsample, the effect of the trustor is always smaller and that of the trustee always greater than in the results from the low communication subgroup. In fact, the trustee even becomes more relevant than the trustor for the evaluations of overall trustworthiness and two of its dimensions when communication is more frequent. However, even in the case of high communication, the trustor's unique context within the organization still has an important impact on how much he trusts his peers. This is also consistent with the regression analysis above, where we found that both the trustor's and trustee's linkages to the organizational network are significant when communication is high, though the trustor's general attitude towards peers becomes significantly less relevant. In this analysis, however, we have the additional insight that greater communication indeed shifts a substantial part of the relative weight in explaining the level of trust from the trustor to the trustee.

Discussion

Overall, the empirical analysis provides support for several of the expected antecedents of perceived trustworthiness and the presence of a significant moderating effect by communication frequency. The extent to which managers believe that their peers are trustworthy results from a combination of the managers' attitudes toward their peers and the place within the organizational network of the two parties in a dyad. The effect of these antecedents of trust is clearly moderated by frequency of communication. These results lend support to an eclectic view of how trust can be created, based on individual attitudes, organizational factors, and relational variables. Thus, it does not seem correct to negate the effect of individuals and their individual characteristics (e.g., attitudes toward peers) in the perceived trustworthiness of their peers within business relationships (Williamson, 1993), nor disregard the impact of organizational instruments such as autonomy or incentives to build trust (Sitkin and Roth, 1993).

The individual attitudes of managers towards their peers are the critical determinant of intra-organizational trust in a context of low communication. As communication increases, the general predisposition towards peers loses relevance and, instead, the specific linkages of the trustor and the trustee to the organizational network become more important as drivers of perceived

trustworthiness. Thus, we did not find support for the expected decrease in the importance of all the trustor-related variables as communication increases. However, the components of variance analysis showed that indeed the trustee gains weight in the evaluations of trust in high communication contexts, but the trustor characteristics do not lose all impact. Basically, the trustor's general attitude towards peers decreases in significance, but his/her specific linkages to the organization gain part of it in exchange. When communication frequency is high, it is the relative interests and organizational contexts of both trustor and trustee that are behind the evaluations of trustworthiness within the organization.

These results have several contributions for organizational research on trust. First, the study explores the perceptual and subjective nature of trust as a "psychological state" that takes place in the mind of managers (Rousseau et al., 1998) and how the perceptions of trustworthiness arise within the organization (Mayer et al. 1995). The paper allows us to disentangle the trustor's own circumstances within the organizational network from the trustee's characteristics and their effects on the trustor's evaluations about the trustworthiness of his/her peers. Though perceived trustworthiness is initially in the eye of the beholder, as communication grows the specific interests and organizational contexts of both trustor and trustee become more relevant. Thus, we found clear evidence for the claim of Rousseau et al. (1998) that "context is critical to understanding trust." Second, we found clear empirical evidence of the important role of communication in explaining perceived trustworthiness. Though the role of this variable in creating trust had been identified by the literature (Lewicki and Bunker, 1996; Whitener et al., 1998), its moderating effect on other variables had not yet been studied.

The results also have implications for how trust can be created within organizations. In order to increase trust within a network of managers, it may be more effective to attempt to change managers' attitudes about others, particularly in a low communication context. In contrast, if communication is high, it may be more appropriate to try and change their linkages to the organization, so that their behavior will be observed by their colleagues for trust to grow. In other words, when communication is low, a "push" strategy to build trust by intervening in the attitude of managers as trustors may be more effective than an indirect "pull" strategy. In contrast, when communication is high, the indirect "pull" strategy may be more effective.

In this study, we focused on the impact of several individual, organizational, and relational factors on the level of intra-organizational trust. There are at least two limitations that need to be acknowledged. First, we have studied only a limited number of variables across lateral relationships. Many other variables may also be important antecedents of perceived trustworthiness within organizations, particularly dyadic variables, such as power asymmetry and degree of homophily. Future research may address how these other variables may drive the emergence of trust between the managers of an organization, including other levels (e.g., trust at the top management team level) and types of relationships (e.g., vertical relationships within boss-subordinate dyads). Second, this study was conducted on a sample of dyadic relationships within one organization. Though there is no reason to believe that the antecedents of trust in this company are different from those within any other company, generalizations based on data from one company need to be taken with the customary precaution.

Figure 1. The hypothesized moderating effect of communication frequency on trustor and trustee effects

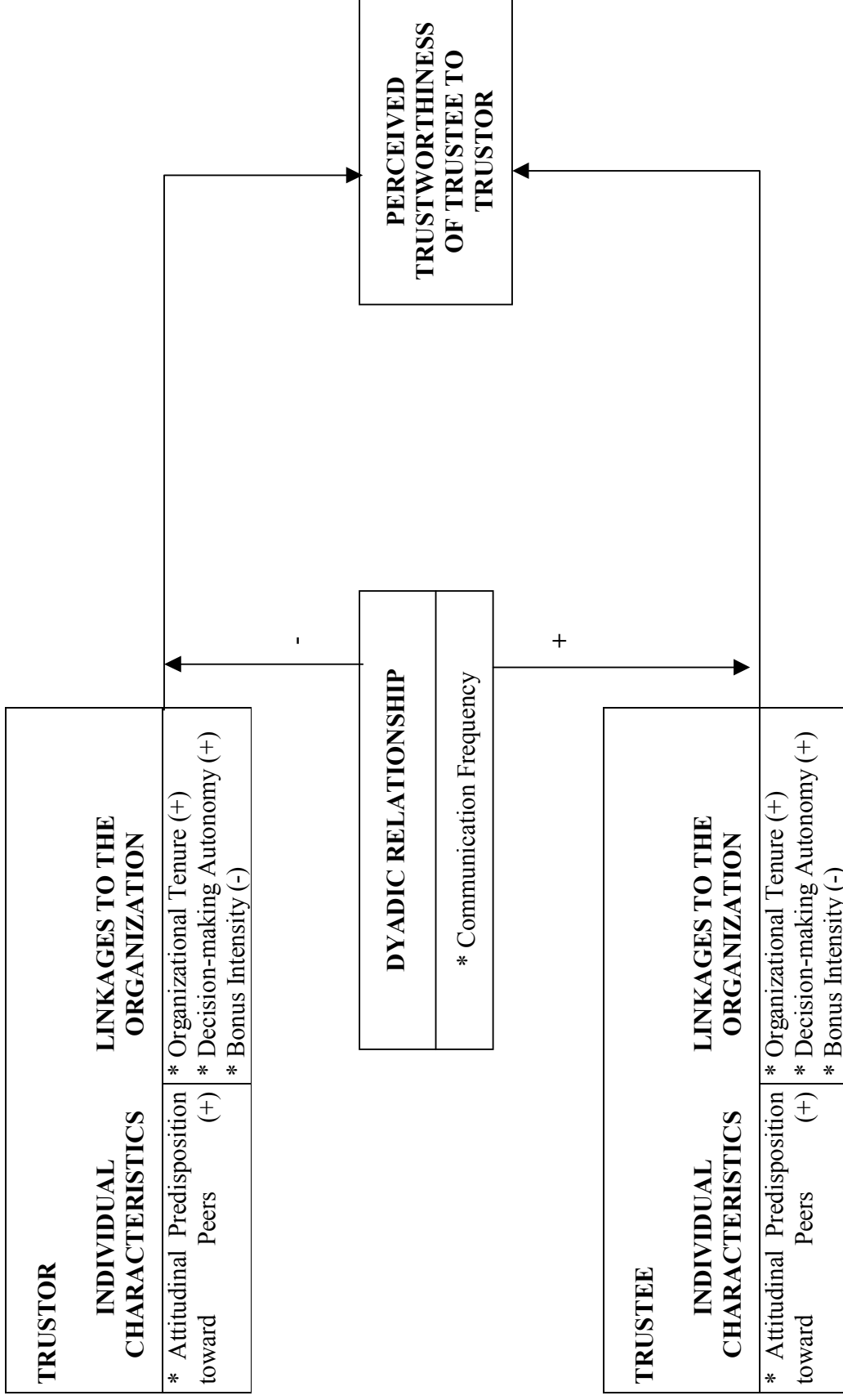


Table 1. Summary Statistics and Zero-Order Correlations

	Mean	St. Dev.
Individual variables (50 managers)		
- Attitudinal predisposition	60.77	18.92
- Tenure	12.40	8.08
- Autonomy	19.38	4.13
- Bonus	23.22	10.25
Dyadic variables (157 dyads GPC ⇔ MA)		
- Frequency of communication	2.71	3.41
- Trust between managers	14.03	4.10
- Overall trust	11.69	4.83
- Benevolence	15.17	4.32
- Competence	15.22	4.85
- Integrity		

Correlations	Trustor					Trustee					Trust Evaluations				
	GPC	Comm	Attitu	Auto	Bonus	Tenure	Attitu	Auto	Bonus	Tenure	Overall	Bene	Compe	Inte	
- GPC															
- Communication	.07														
Trustor variables															
- Attitude	-.08	.04													
- Autonomy	.07	-.12	-.03												
- Bonus	.16	-.01	.24**	.09											
- Tenure	.27*	.03	-	.16*	.03										
Trustee variables															
- Attitude	.13		-.03	.06	.16	.10									
- Autonomy	.25**	-.09	-.08	.07	.01	.08									
- Bonus	.30**	.11	-.07	-.02	-.01	.05									
														.64**	

- Tenure	.05	.06	-.06	-.06	-.02	-.01	-.05	-.01	.02									
Trust variables																		
- Overall trust	.01	.35**	.36**	.13	.05	.08	.16*	-.12	-.11	.12								
- Benevolence	-.08	.31**	.38**	.08	-.05	-.02	.18*	-.18	-.15	.04	.88**							
- Competence	.04	.25**	.31**	.14	.13	.12	.11	-.02	-.02	.25*	.85**	.60**						
- Integrity	.06	.34**	.27**	.13	.05	.11	.14	-.11	-.11	.06	.90**	.71**	.66**					

N = 157 dyads; * p<.05; ** p<.01

Table 2. Antecedents of Perceived Trustworthiness in Low vs. High Communication Contexts

Indep. variables	Overall Trustworthiness			Benevolence			Competence			Integrity		
	Low Comm a	High Comm b	Differ. c	Low Comm a	High Comm b	Differ. c	Low Comm a	High Comm b	Differ. c	Low Comm a	High Comm b	Differ. c
<i>Control Variable:</i>												
- Product Division (GPC dummy)	.16	.56	.20	.17	.53	.15	.19	.60*	.32*	.09	.34	.11
<i>Trustor Variables:</i>												
- Attitude Predisp.	.67**	.40*	-.33*	.83**	.16	-.78**	.51**	.63**	.31	.45**	.25	-.27*
- Autonomy	.10	.22	.10	.01	.14	.12	-.15	.30	.41*	.37	.12	-.15
- Bonus Intensity	-.08	-.51*	-.38*	-.35*	-.30	.12	.08	-.54**	-.68**	.06	-.46	-.45*
- Tenure	.08	.41	.33*	-.04	.29	.30*	.35	.43*	.28	-.05	.36	.35*
<i>Trustee Variables:</i>												
- Attitude Predisp.	.15	.19	.05	.23	.24	-.10	.01	.17	.22	.16	.10	-.14
- Autonomy	.06	.51	.24	.07	.47	.15	-.05	.86*	.59**	.13	.18	-.06
- Bonus Intensity	-.06	-1.04*	-.40*	-.04	-1.31*	-.37*	.10	-	-.74**	-.19	-.50	.03
- Tenure	-.06	.41	.44*	.02	.38	.31*	-.13	.70**	.90**	-.06	-.01	.08
R ²	.62**	.45		.65**	.40		.47**	.64**		.59**	.29	
Adj. R ²	.51	.24		.56	.16		.32	.50		.48	.02	

^a N = 64. Subgroup with Frequency of communication valued as 0 (= Very rare).

^b N = 55. Subgroup with Frequency of communication valued as 4 or greater.

^c Test of difference between coefficients computed after transformation of partial correlations into Fisher Z scores: High communication score minus Low communication score.

* p<.05

** p<.01 (Two-tail tests. For Fisher Z tests, these are one-tail significance tests)

Table 3. Components of variance of perceived trustworthiness**A) Full sample**

	<u>Overall trustworthiness</u>	<u>Benevolence</u>	<u>Competence</u>	<u>Integrity</u>
Trustor	33.02 %	50.81 %	39.99 %	21.85 %
Trustee	7.25 %	4.78 %	8.40 %	9.63 %
Error	59.73 %	44.41 %	51.61 %	68.52 %

NOTE:

Results shown above control for the Frequency of Communication between trustor and trustee
n = 157 dyads

B) Sub-samples analysis

- *Low Communication Sub-sample (n = 64 dyads)*

	<u>Overall trustworthiness</u>	<u>Benevolence</u>	<u>Competence</u>	<u>Integrity</u>
Trustor	66.55 %	84.81 %	50.47 %	47.51 %
Trustee	6.87 %	1.83 %	12.17 %	11.34 %
Error	26.58 %	13.35 %	37.36 %	41.15 %

- *High Communication Sub-sample (n = 55 dyads)*

	<u>Overall trustworthiness</u>	<u>Benevolence</u>	<u>Competence</u>	<u>Integrity</u>
Trustor	20.19 %	21.33 %	26.70 %	33.53 %
Trustee	38.19 %	24.89 %	38.72 %	27.10 %
Error	41.62 %	53.78 %	34.59 %	39.37 %

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