Management control and trust in virtual settings: A case study of a virtual new product development team

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ABSTRACT

In this case study, we draw on theory relating to the trust-control nexus to investigate how formal Management Control Systems (MCS) and inter-personal trust relate in Virtual Teams (VTs), and examine the implications of this interplay for VT outcomes. Taking a virtual new product development team as our research site, we evidence the reciprocal influences between trust and formal MCS in a virtual setting. We show that in addition to formal MCS helping uphold inter-personal trust, trust enables the adoption and workability of incomplete formal MCS, hence expanding and shaping the set of control alternatives that are available to a VT. We further extend prior theory by providing evidence of synergies between inter-personal trust and formal MCS that span both the decision-facilitating and decision-influencing MCS roles, indicating that the combination of trust and formal MCS enhances the informational and motivational effects of controls, as well as the motivational effects of trust, on VT outcomes. Overall, this study adds to the accounting literature by shedding light on how formal MCS help manage highly interdependent tasks in dispersed contexts where inter-personal trust is present.

1. Introduction

Virtual Teams (VTs) have become commonplace in contemporary organisations (Boudreau, 2012; Cascio, 2000; Lurey and Raisinghani, 2001; Martins et al., 2004; Montoya et al., 2009). In such teams, members who are geographically and/or temporally dispersed collaborate on highly interdependent tasks across boundaries through information and communication technologies to achieve common goals (Gibson and Cohen, 2003; Hertel et al., 2005; Malhotra et al., 2007; Schweitzer and Duxbury, 2010). Despite their many potential advantages – e.g. more widespread access to resource pools, cost savings, higher flexibility (Geister et al., 2006; Hunsaker and Hunsaker, 2008) – VTs face the significant challenge of effectively managing highly interdependent tasks in non-collocated contexts.

A line of research has pointed out the importance of inter-personal trust for ensuring the effectiveness of VTs (e.g. Jarvenpaa et al., 1998; Muethel et al., 2012; Staples and Webster, 2008). Other studies argue that VTs may be effective in the absence of trust if control practices are implemented (e.g. Gallivan, 2001). While both

the accounting and the broader management literatures have long established that trust and control often coexist in many organisational forms (e.g. Costa and Bijlsma-Frankema, 2007; Das and Teng, 1998; Dekker, 2004; Vosselman and van der Meer-Kooistra, 2009), little is known about how inter-personal trust and formal Management Control Systems (MCS) intertwine and collectively contribute to the effectiveness of VTs.[1] Given the idiosyncratic communication difficulties and organisational and motivational issues VTs have to cope with (Majchrzak et al., 2000; Piccoli et al., 2004; Powell et al., 2004), it cannot be taken for granted that prior knowledge about the trust-control nexus in non-virtual settings (e.g. Coletti et al., 2005; Velez et al., 2008) can be directly and uncritically applied to VTs. The limited research on the trust-control nexus in VTs has tended to focus on the effects of control practices on trust and less so on the effects of trust on control practices or on the synergies between them. Within this stream, some scholars indicate

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[1] Broadly defined, Management Control Systems (MCS) are constituted by procedures, processes, tools and practices that managers use to guide direction and ensure that their behaviours and decisions as well as those of their employees are consistent with the organisation's objectives and strategies (Merchant and Van der Stede, 2012). Formal MCS are a subset of MCS whose key characteristics include being consciously designed, officially sanctioned, codified and recurrent (e.g. budgets, metrics-based reports, rules and regulations, mission statemens, codes of conduct) (Cardinal et al., 2004; Collier, 2005; Davila and Foster, 2007).

that formal performance feedback is vital to build and maintain inter-personal trust in VTs (e.g. Jarvenpaa and Leidner, 1999) as well as VT effectiveness (e.g. Hertel et al., 2005). Yet, other studies suggest that the use of formal MCS is associated with the deterioration of inter-personal trust among VT members (e.g. Piccoli and Ives, 2003). Overall, the literature falls short of providing a rich and conclusive picture of the trust-control nexus in VTs.

With the aim of increasing knowledge on the trust-control nexus in VTs, we examine one category of VTs – those with high levels of initial inter-personal trust (Jarvenpaa and Leidner, 1999). It is common in contemporary forms of VTs that team members are recruited through interpersonal relations so that, even if they operate at a distance, they share similar ascribed characteristics (e.g. age, prior network ties), which results in familiarity and high interpersonal trust being present from the outset of the team's activities (Aldrich and Kim, 2007; Ruef et al., 2003). Nowadays, tens of thousands of instances of this organisational form operate on a global scale, particularly in the case of small, early-stage teams that engage in new product development (NPD) (Andres, 2002; Boudreau, 2012; Boutellier et al., 1998; Leenders et al., 2003). The VT setting we choose allows us to go beyond the investigation of how trust is affected by formal MCS to further look at how formal MCS and their implications are affected by trust.

In this study, we investigate the interplay between formal MCS and interpersonal trust and examine the implications of this interplay for VT outcomes. Prior VT literature has adopted different approaches to examine VT outcomes, including affective outcomes such as member satisfaction and performance outcomes such as effectiveness, speed of decisions and decision quality. In this paper, by VT outcomes, we refer to the information quality of the action choices and the degree of congruence in behaviours that underlie VT effectiveness (Martins et al., 2004; Powell et al., 2004). To this end, we examine the workings of HighTec, a nine-member innovation virtual team over a period of 13 months in the field. The team was in charge of the core project within a small, early-stage software incubator. In trying to maximize the likelihood of success of its innovative software design and future access to venture capital financing, the HighTec team faced the challenge of managing its highly interdependent NPD tasks in a context of geographical dispersion. During our field research, we observed a suite of formal MCS that gravitated around four emergent themes, i.e. coordination and knowledge integration, management of urgency, management of uncertainty, and motivation. These four themes can be meaningfully related to the theoretical notions of decision-facilitating and decision-influencing roles of MCS (Abernethy and Vagnoni, 2004; Baiman and Demski, 1980; Sprinkle and Williamson, 2007; Tomkins, 2001; Velez et al., 2008). Hence, after using theory on the trust-control nexus to position our study of the intertwining between formal MCS and inter-personal trust in virtual settings, we consider notions of decision-facilitating and decision-influencing roles relating to these formal MCS to shed further light on their relationship. These notions are relevant for our purpose because their respective informational and motivational effects relate to the communication difficulties (Powell et al., 2004; Stevenson and McGrath, 2004) and organisational and motivational issues (Lee-Kelley and Sankey, 2008; Piccoli et al., 2004) that underlie the potential pitfalls and challenges facing VTs. We argue in this paper that bringing these notions into the analysis and coalescing the distinction with the specificities of VTs contributes to a richer understanding of the inter-personal trust-control nexus in VTs.

This case study examines how formal MCS help manage highly interdependent NPD tasks in contexts of dispersion where inter-personal trust is present. Its contribution to the accounting literature is two-fold. First, it emphasizes the reciprocal influences between formal MCS and inter-personal trust. Prior literature has tended to concentrate on the effects of control systems on trust

(e.g. Das and Teng, 1998; Coletti et al., 2005; Velez et al., 2008), largely ignoring the influence of trust on control systems. In contrast, we extend prior findings to provide a richer picture that highlights their mutual links in a virtual setting. We show that in addition to formal MCS helping uphold inter-personal trust, trust enables the adoption and workability of incomplete formal MCS, hence shaping and expanding the set of available control alternatives. Second, we further contribute to the accounting literature by considering and separately examining the different roles of formal MCS and their interplay with trust in a virtual setting. Earlier studies explored the roles of control systems and their links with trust in non-virtual settings (Abernethy and Vagnoni, 2004; Velez et al., 2008). Studies in virtual settings looked at the roles of control systems, but without considering trust or showing an absence of trust (e.g. Gallivan, 2001; Gerdin, 2005). Finally, other studies examined the interplay of trust and control in virtual settings without considering the various roles of control systems (e.g. Coletti et al., 2005; Malhotra and Murningham, 2002). The simultaneous consideration of the different roles of formal MCS, presence of inter-personal trust and virtuality allows us to extend and qualify prior findings (Das and Teng, 1998; Velez et al., 2008) on the effects of the combination of MCS and trust on the outcomes of contemporary forms of VTs.

In addition to the above two accounting contributions, our study makes two other contributions to the trust-control nexus literature and the VT literatures. We contribute to previous organisational theory on the trust-control nexus by refining its postulates as they are examined in an idiosyncratic setting where highly interdependent tasks are combined with dispersion. Compared to earlier work in this stream (Malhotra and Murningham, 2002; Piccoli and Ives, 2003), our study further contributes by combining the examination of the mutual effects between formal MCS and interpersonal trust with the synergistic effects of their combination on VT outcomes. Finally, we add to the VT literature exploring control issues (Gallivan, 2001; Gallivan and Depledge, 2003; Knights et al., 2001; Piccoli et al., 2004) by capturing the distinction between the decision-facilitating and the decision-influencing roles of formal MCS. These notions have been largely ignored in the VT literature and acknowledging them sheds new light on how formal MCS and inter-personal trust collectively contribute to VT outcomes.

The remainder of the paper is organised in five sections. The first section reviews prior literature on the theoretical frameworks and concepts that underlie our case discussion. The second section outlines our research method, including case design and relevant case background. The third section reports our case findings. The fourth section discusses the findings, integrating case evidence into prior theory to analyse our observations. The fifth and last section sets out our conclusions and limitations of the study, as well as suggestions for future research.

2. Literature review

Our literature review first considers how organisational research defines VTs and specifies their associated advantages and challenges. Next, we identify prior accounting and broader management literatures that examine how inter-personal trust and formal MCS help VTs overcome these challenges. Finally, we review theory on the trust-control nexus, paying special attention to the limited literature studying this nexus in virtual settings.

2.1. Virtual teams

A Virtual Team (VT) is a group of geographically and/or temporally dispersed co-workers brought together across time and space through Information and Communication Technologies (ICT) to accomplish a common organisational goal (Duarte and Snyder,