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Actor-to-actor dissemination of electronic procurement (EP) adoption: an exploration of influencing factors

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Abstract

The merits of electronic procurement (EP) tools have been widely acknowledged. Achieving these benefits remains a challenge, as companies are experiencing difficulties with human adoption during the implementation of such tools. In this article we focus on the intra-organizational spread of EP adoption from one actor to another. Based on exploratory interviews with experts and representatives of large Dutch purchasing organizations, we have identified nine categories of influences on actor-to-actor dissemination: perceived advantage, communication, demonstration, enforcement, training, involvement, risk reduction, reward, and disposition. This study is beneficial to companies engaging in the implementation of EP tools as it provides a portfolio of interventions that can be used to stimulate the spread of adoption. This article addresses a new area in EP research and opens up possibilities for future research in EP implementation.
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1. Introduction

In the past few years, electronic procurement (EP) has proliferated and has been applied in an ever-extending set of domains, including industry, health care, and government. More and more companies are making investments in EP tools, but with varying degrees of success.

In the literature, the benefits and applicability of EP tools in specific situations have been widely explored (e.g. Hartmann, 2002; Harink, 2003) and an extensive base of cases is available showing benefits, like increased efficiency and effectiveness in the purchasing process (Knudsen, 2002; De Boer et al., 2002; Subramaniam and Shaw, 2004). However, cases showing the difficulties in achieving these benefits are also abundant. Apparently, choosing the 'right' tool is not enough to reap the potential benefits. Industry research shows that the biggest 'headache' during the implementation of EP tools are issues of change management and user adoption (Mitchell and Shaw, 2001). This conclusion is also recognized by various purchasing organizations (e.g. Institute of Supply Management) and academia (e.g. Orlikowsky and Baroudi, 1991; Willcocks and Smith, 1995; Osmonbekov et al., 2002; Hartmann, 2002; Santema, 2003).

Three brainstorm sessions with 15 representatives of leading Dutch buying organizations were held to determine current issues in the field of purchasing. These sessions confirmed that insights into the 'soft' human factors in EP implementation are lacking. The question *how* human factors can be addressed in order to persuade or move individuals towards adoption was found to be particularly relevant.

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Human aspects of the EP implementation process can be studied on different levels. On the level of the individual, innovation adoption behaviour has been studied extensively for the last several decades in the psychological and sociological field, yielding a variety of influential theorems (see e.g. Oliver, 1980; Davis, 1989; Ajzen, 1991; Rogers, 1995; Goodhue and Thompson, 1995).

The support for these different adoption models in explaining adoption behaviour on an individual level is high; however, they are less suitable for explaining the adoption behaviour on an organizational level (Frambach and Schillewaert, 2002; see also Joo and Kim, 2004). Studying organizational adoption of EP tools constitutes a whole new challenge.

Important aspects in organizational adoption are complex social interactions between groups and individuals and the joint development of structure, roles and systems. These issues have been addressed in the literature on organizational change, such as organizational development (Burke, 1994) and organizational learning (Pentland, 1995). They are also dealt with in the literature on implementing technology or technology-driven change, such as studies on the implementation of EDI and ERP systems (Mabert et al., 2003).

In-between the macro-level of organizational change and the micro-level of individual adoption, there is a meso-level of individual actors influencing each other's adoption behaviour which shapes the process of organizational adoption and change. This interplay between individual adoption and organizational change has remained largely unexplored, especially in technology-driven change, like the implementation of EP. In between the state where no-one has adopted the new tool and where all relevant organization members have adopted the tool, a complex process of multiple parallel and sequential individual adoptions takes place. Individual adoption, being largely dependant on social influences (cf. Rogers, 1995; Ajzen, 1991), spreads from one person to the next as a result of active or passive persuasive actions (Cooper and Zmud, 1990).

How adoption spreads from one actor to another depends upon the type and effectiveness of the influences one has on the other. People influence each other using both formal and informal techniques. The process of internal dissemination of adoption behaviour could be thought of as a 'viral' spread of adoption throughout an organization. This notion of 'viral spread' underlies what is known in the marketing domain as 'word-of-mouth' (Martilla, 1971) and 'viral marketing' (Helm, 2000), and it is known in social network theory as 'social contagion' (Jones and Jones, 1995; see also Kamann and Bakker, 2004).

The importance of researching the spread of adoption is confirmed in a recent study where various factors influencing individual adoption were identified (Reunis et al., 2004). In that study, confirmation was found that the majority of controllable factors are related to the social context: adopters can influence non-adopters through various types of influences prior to the actual adoption decision being made by the non-adopter. The dissemination perspective of adoption spreading from actor to actor appears to be a useful means of studying the organizational adoption of EP. The types of influences that take place between individuals to spread adoption from one actor to another provide an interesting opportunity for research.

The objective of this exploratory study is to identify different types of influences on the dissemination of EP adoption between actors in an organization. We build on the notion of 'viral spread' to study the influences on the dissemination of EP adoption. Initially the research focus is limited towards the dyadic dissemination from an individual adopter, actor A, to an adoptee, actor B. In this setting, actor A has previously adopted EP and is influencing actor B to adopt as well. Actor A can exert both passive and active influence to stimulate adoption by actor B. When actor A benefits directly from actor B's adoption of the tool, actor A can be expected to actively influence actor B. This could be the case when actor A is a project leader and actor B is a member of the purchasing function involved in the implementation process of an EP tool. Passive influence can occur when actor A's use of the tool in itself already influences actor B's adoption decision, without any active persuasive efforts from actor A.

In order to identify different types of influences we have executed a total of 42 interviews with both purchasing experts and senior purchasing representatives of large Dutch purchasing organizations. From these interviews, nine categories of influences on the spread of EP adoption from one actor to another were identified. These influences include perceived advantage, communication, demonstration, enforcement, training, involvement, risk reduction, reward, and disposition.

This article starts with a brief theoretical background on EP, intra-organizational dissemination, and adoption behaviour. Then, the method of data collection is explained and the nine categories of influencing factors are presented. Finally, the findings are discussed, and limitations as well as areas for further research are identified.

2. Theoretical background

The core concepts in this study are EP, EP tools, adoption and different forms of adoption behaviour, and actor-to-actor intra-organizational dissemination of adoption behaviour, for a variety of actor types.

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