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Why adopt social enterprise software? Impacts and benefits

Benjamin Engelstätter *, Miruna Sarbu

Centre for European Economic Research (ZEW Mannheim), P.O. Box 103443, 68034 Mannheim, Germany

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ABSTRACT

This paper explores the performance impacts and benefits of the adoption of Social Enterprise Software (SES). SES forms a nested innovation, given that its adoption requires an already established infrastructure of Information and Communication Technology. To control for induced sample selection, we use a two-step estimation procedure. Based on German firm-level data our results confirm that firms which use business-to-business (B2B) e-commerce applications are more likely to adopt SES. The estimated correlations also provide weak evidence for complementarity between B2B e-commerce and SES. We show that two measures of firm performance, i.e. sales and labor productivity, are highest for firms using SES and B2B e-commerce applications in conjunction.

1. Introduction

In recent years, social software, e.g. wikis, blogs, microblogs or social networks, has increasingly appeared in both public dialogues and press releases. Social software is already extensively used in private households and increasingly adopted by firms. As for firms, more than 80% of the top 100 companies in the Fortune 500 maintain a presence on social network sites (Gartner, 2012). However, currently a new type of business software is emerging, which interrelates recent social software and firms' established enterprise systems, e.g. Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Customer Relationship Management (CRM). This so called Social Enterprise Software (SES) links firms' enterprise software systems and social software applications as in, e.g., social CRM solutions.

Overall, SES offers benefits in the areas of business-to-customer (B2C) and business-to-business (B2B). For B2C, SES supports tracking data from customer surveys, customer feedback, reviews or user profiles on social networks or blogs, thereby enabling firms to identify new customers, new market segments and observe recent trends. SES packages additionally feature various communication channels allowing for a two-way interaction between companies and their customers, by offering them a direct channel for providing their feedback. With specific customer data collected and direct customer interaction SES might facilitate the development of new products as it allows firms to observe customer tastes and build up meaningful customer profiles.

In the B2B segment benefits of SES emerge in form of enhanced collaboration and communication as employees and partners are connected in a way they can exchange information fast and freely. Stakeholders have real-time access to all areas they are interested in and can monitor and directly access interactions and inputs of others. SES further enhances process management and knowledge sourcing as knowledge consumers, like sales teams, can access information from knowledge providers, like product developers, in real-time saving time for each employee. With partners and clients of the utilizing firm connected, the benefits of SES are not limited to the boundary of the firm but may spread onto other business contacts.

* Corresponding author. Tel.: +49 (0) 621 1235 134; fax: +49 (0) 621 1235 333.
E-mail addresses: engelstaetter@zew.de (B. Engelstätter), sarbu@zew.de (M. Sarbu).

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Up to now there are no empirical studies on the emerging phenomenon of SES although these software packages began to come up in 2008 (Chess Media Group, 2010). Consequently, as SES is still an uncertain new technology in its infancy, empirical evidence about determinants of its adoption and its potential impacts on firm performance is still lacking. Also, up to now it is still unclear which distribution segment, i.e. B2B or B2C, benefits the most once SES is adopted.

We aim at filling this research gap by empirically evaluating the determinants of SES adoption and exploring its impacts on firm performance. In the analysis, we distinguish between benefits and impacts in the area of B2B and B2C. Our analysis is based on a unique database consisting of German manufacturing and service firms. Since SES requires a firm to first adopt particular Information and Communication Technology (ICT) before it can upgrade them to SES, it represents a so-called "nested innovation" (Greenstein and Prince, 2007). This "nested" structure induces sample selection which has to be taken appropriately into account in the estimation procedure.

Our study adds to the empirical literature in a number of ways. To our knowledge we are the first to explore the performance impacts of most recent SES and investigate the determinants of its adoption. Second, considering that ICT might act as complements (Aral et al., 2012) or even substitutes (Kretschmer et al., 2012) in their impact on performance our results offer a weak test for complementarity based on correlations between the usage of established ICTs, i.e. B2B e-commerce applications, and the adoption of most recent ICTs, i.e. SES. Third, our paper presents a valid empirical method with which to model the data generating process in the case of a "nested innovation", i.e. the probit with sample selection (Berinsky, 2004; Gourieroux and Jasiak, 2007)

Our results show that firms using B2B e-commerce applications are more likely to adopt SES. B2C e-commerce applications fail to impact the adoption decision. The estimated correlations also provide weak evidence for complementarity between B2B e-commerce applications and SES. Concerning impacts on firm performance, we show that mean sales and labor productivity are highest for firms using SES and B2B e-commerce applications in conjunction.

The paper proceeds as follows: Section 2 summarizes the empirical literature of ICT, its complementarities and performance impacts and explains SES, its classification as a "nested" ICT innovation and its benefits. Section 3 presents the dataset whereas Section 4 highlights the empirical model. Section 5 provides a detailed explanation of the selected exogenous variables and the necessary exclusion restriction. The estimation results and additional robustness checks to clarify the validity of the results are presented in Section 6. Finally, Section 7 concludes.

2. Background

2.1. Complementarities in and performance impacts of information and communication technology

In general, ICT is expected to enable productivity and performance gains by supporting the optimization of firms' business processes (Brynjolfsson and Hitt, 2000). Such performance gains are often documented for ICT-intensive firms (Brynjolfsson and Hitt, 2003). Thus, there is firm-level based evidence of performance impacts for many different measures of ICT-intensity, e.g., the usage of B2B e-commerce applications (Bertschek et al., 2006), different enterprise software systems (Hitt et al., 2002; Shin, 2006; Aral et al., 2006) or broadband internet (Bertschek et al., 2013). As for the impact of ICTs on innovation as a crucial prerequisite for productivity gains (Hall et al., 2009), empirical analyses at the firm level usually report positive and significant impacts (Gera and Gu, 2004; Hempell and Zwick, 2008; Engelstätter, 2012; Engelstätter and Sarbu, in press). Still, the returns of ICT are not the same for all firms as there are substantial variations shown across firms (Brynjolfsson and Hitt, 1995). These variations are most likely due to performance premiums which firms with higher returns on ICT realize as they adopt complementary organizational practices (Bresnahan et al., 2002; Caroli and Van Reenen, 2001; Aral and Weill, 2007; Bloom et al., 2008). However, not only organizational practices might complement ICTs in their impact on performance. Recent ICT applications might act as complements among themselves regarding their impact on firm performance (Aral et al., 2012) or even function as substitutes (Kretschmer et al., 2012).

Although expected, potential performance impacts of recent SES have not yet been explored at all. Offering benefits in the areas of B2C and B2B this new kind of business software might as well form complementary benefits regarding its impact on firm performance with already established B2C or B2B e-commerce software solutions. Therefore, we examine performance impacts, potential complementarities with established e-commerce applications and the determinants of SES adoption.

2.2. Social enterprise software: benefits, complementarities and impacts

In general, SES links and combines the firms' established enterprise software systems with its social software applications in use. Thereby, SES seems particularly useful for managing customer relations, e.g., a so-called social CRM system can directly implement and exploit data and information from customer surveys, commentaries, reviews or user profiles on social networks or blogs. If these data are processed via SES, the utilizing firm can monitor recent trends and customer demands quickly, helping with the elaboration of sales forecasts, market development expectations or the development of new products. Appropriate targeting of customers based on their interests, so-called hyper-targeting (Shih, 2010), also becomes feasible. SES systems can add value back to the customer as they offer different channels like email, several instant messaging or chat applications for him to interact with the firm. Direct customer feedback on their ideas, wants, and needs may also contribute to the development of new or improved products and services or the observation of new trends and purchase intentions (Gartner, 2012). In addition, the established two-way interaction between the customer and the firm via SES might allow engaging