

Explaining e-business adoption

Innovation & entrepreneurship in Dutch SMEs

English summary

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In this study, it is assumed that a firm's ability to recognise business opportunities based on ICTs plays a central role in the adoption of e-business. It is the firm that decides how to apply technologies like the Internet and e-mail in order to improve existing business or create new business. In this study, e-business adoption on firm level is explained from this entrepreneurial viewpoint.

Three research questions are specified:

- 1 *What is e-business adoption?***
- 2 *Which firm characteristics explain e-business adoption in SMEs?***
- 3 *What are the differences in explaining e-business adoption from an innovation adoption perspective compared to an entrepreneurship perspective?***

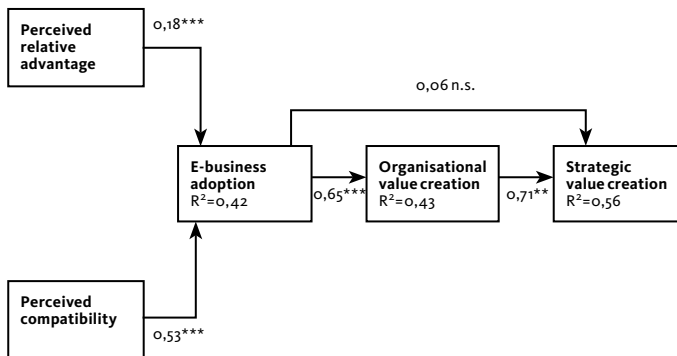
In order to answer these questions, firstly, 45 studies that conceptualise, measure and explain the adoption of e-business are reviewed. Most of these studies explain e-business adoption using perceived innovation characteristics as explanatory variables. In this innovation adoption research tradition, the innovation is mainly regarded as well defined and ready-to-use, and its adoption explained by the adopter's attitude towards the innovation. However, in this study it is argued that e-business is not a well defined, 'of the shelf' innovation. Moreover, perceptions of an innovation are formed in the firm's context and dependent on knowledge and experience, network influence, and attitude towards change. In this research, the conceptualisation and explanation of e-business adoption is based on the presumption that e-business adoption is about the discovery and development of business opportunities based on the use of ICTs, in order to create value. In the innovation adoption perspective, this entrepreneurial aspect of e-business adoption is not made explicit. Therefore, secondly, literature on entrepreneurship and opportunity recognition is studied to find out more about the recognition of business opportunities, the creation of new business, and factors facilitating that process. In an entrepreneur-

ship perspective, innovation adoption is instrumental in creating new economic activity. It puts innovation adoption into an intentional perspective, and clarifies why firms innovate. Firm factors facilitating the recognition of opportunities are a firm's knowledge and experience, network contacts and strategic posture.

The findings from the two theoretical perspectives are combined into 15 hypotheses. It is proposed that firm characteristics and perceived opportunity characteristics are related to e-business adoption, and e-business adoption is related to organisational and strategic value creation. In order to test the proposed relations, a questionnaire was presented to a business panel consisting of 1538 SMEs representing the Dutch SME population in nine sectors and three classes of size: 0-9, 10-49, and 50-99 employees. The response rate for the survey was 40%, resulting in 614 respondents. The operationalisation of constructs and the development of several new scales were supported by experts. Linear regression and structural equation modelling were used to analyse the data.

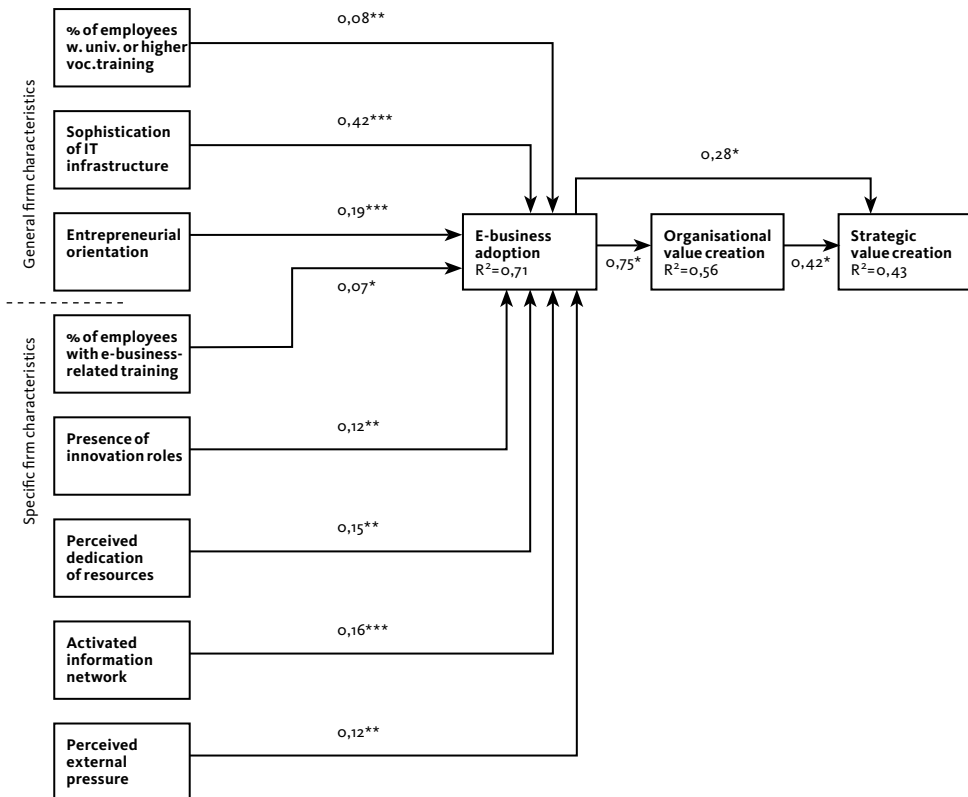
In this investigation, e-business adoption is measured by looking at which business processes are supported by e-mail and the Internet, weighed by the extent of their use. The empirical data give detailed information on the diverse use of e-mail and the Internet in a total of 25 business activities, and the dependence on these technologies in SMEs. Further, the empirical findings show that e-business adoption is significantly related to two types of value creation: organisational (related to efficiency and effectiveness) and strategic value creation (related to new products and markets). In this research, strategic value creation is considered entrepreneurial as it relates to the creation of new economic activity.

The perceptions model



To explain e-business adoption and value creation two models are compared. In the *perceptions model* e-business and value creation are explained from perceived opportunity characteristics. In the *firm characteristics model* e-business adoption and value creation are explained by a set of firm characteristics. The *perceptions model* represents a tradition in innovation adoption literature, which explains innovation adoption using perceived innovation characteristics as explanatory variables. The perceptions model fits well to the empirical data. The attractiveness of the perceptions model is its parsimony; only two explanatory variables explain 42% of the variance in e-business adoption. However, the perceptions model does not reveal any of the context in which the perceptions are formed.

The firm characteristics model



In the *firm characteristics model*, e-business adoption and value creation are explained using a set of firm characteristics. These firm characteristics are hypothesised to stimulate the recognition of business opportunities for ICTs and the subsequent creation of value. This model represents an entrepreneurship perspective on e-business adoption. In this perspective, e-business adoption is about recognising business opportunities to exploit e-mail and the Internet. In this model, the explanation of e-business adoption and value creation is based on a firm's ability to recognise these business opportunities. The results of the estimation prove that the model fits well on the data. The variance explained in e-business adoption is 71%, and the model indicates a coherent explanatory framework.

Overall, the empirical findings confirm what has been hypothesised from both theoretical perspectives. They show that the selected firm characteristics explain e-business adoption more effectively than the firm's perceptions of e-business opportunities. Further, it was found that firms that create strategic value from e-business by opening up new markets, or market channels, and introduce new products and services ('entrepreneurial' firms), differ significantly with respect to a wide range of firm characteristics from firms that 'only' improve the efficiency and effectiveness of their business processes ('optimising' firms). Hence, SMEs that are capable of creating new business from e-business adoption, exhibit distinct, entrepreneurial, behaviour.

Innovation adoption literature provides a valuable source of knowledge on the conceptualisation of innovation, innovation adoption behaviour, and related firm characteristics. However, in the innovation adoption perspective the role of entrepreneurship in innovation is underexposed. An entrepreneurship perspective on e-business adoption:

- Links e-business adoption to value creation, and clarifies why firms innovate
- Forms a relevant theoretical basis for explaining e-business adoption and value creation
- Gives insight into the characteristics of firms that enable them to create new business from e-business adoption
- Used as a comparable perspective, enables demonstrating the shortcomings of perceived innovation characteristics as explanatory factors.

The entire thesis is available in PDF-format on www.utwente.nl/nikos