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Initial Design of a Maturity Model for Electronic Invoice Processes

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Basic Information	BPMM	BPMMM	PEMM	SOGE
Source	Weber, Curtis, Gardiner, 2008	de Bruin, Rosemann, 2005	Hammer, 2007	McKay, Marshall, Prananto (2000)
Domain	BPM	BPM	BPM	e-business
Purpose of use	Descriptive, prescriptive, comparative	Descriptive, prescriptive, comparative	Descriptive, prescriptive, comparative	Descriptive, prescriptive
Maturity components	Five levels (initial, managed, standardized, predictable, innovating); different process areas for level 2-5	Five levels (initial state, defined repeatable, managed, optimised); dimensions (strategic alignment, governance, methods, IT, people, culture)	Four levels; Separation of five process enablers (design, performers, owner, infrastructure, metrics) and four enterprise capabilities (leadership, culture, expertise, governance)	Six levels (no presence, static on-line presence, interactive on-line presence, internet commerce, internal integration, external integration), seven dimensions (strategy, structure, systems, staff, style, skills, superordinate goals)
Requirement				
Overall aspects	●	◐	◐	◐
Management processes	●	◐	○	○
Improvement path	●	◐	◐	◐
Detailed IS aspects	○	○	○	●
All industries	●	●	●	●
All sizes of company	●	●	●	●
caption	○ not fulfilled	◐ partially fulfilled	● fulfilled	

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Evaluation and Discussion of a Maturity Model for Electronic Invoice Processes

Abstract

Dematerialization and automation of invoice processes are an essential opportunity for companies to pare down expenses, optimize administrative tasks, and in turn, increase efficiency and competitiveness. But electronic invoices are characterized by various software solutions, legal uncertainty as well as heterogeneous demands, know how, and information system infrastructure incompatibilities. A holistic map of electronic invoice processes must be presented, especially to demonstrate different levels of process integration and optimization. A maturity model for electronic invoice processes puts this into practice and provides companies with a tool to identify the current situation and derive recommendations for optimizing it. In this paper, such a model is designed theoretically and then evaluated with an explorative expert survey. The key dimensions are strategy, acceptance, and technology.

Keywords: e-invoicing, e-business, maturity model, business process management, e-invoice processes

1. Introduction

The digitalization of business processes is an essential method for cutting administrative costs, improving productivity in business processes, and achieving process transparency [7]. In order to improve efficiency and provide competitive advantages to companies, it is crucial to use information systems (IS) to support their business processes [1], [29] and processes with trading partners [30]. Administrative business processes, that provide low added value, should be kept to a minimum.

Although the invoice processes do not create value in the majority of cases, the electronic exchange of invoices is expected to generate significant economic benefits, especially if the electronic invoice (e-invoice) provides structured data for automated processing. E-invoices promise savings of both cost and time, because they reduce manual work, input errors, printing, and transport costs [7], [8], [29]. Migration from paper invoices to e-invoices within the European Union (EU) “will generate savings of around EUR 240 billion over a six-year period” [8]. Despite the obvious benefits, the market penetration of e-invoices in the EU is only about 5% for business-to-business (B2B) transactions [8]. This number is rather low. Companies have to deal with various solutions and technologies for electronic invoicing and processing. Other barriers to participation in electronic processes are the lack of awareness and the lack of adequate IS for process optimization, as well as high investment costs and heterogeneous demands of the trading partners [30]. Therefore companies need tools and methods to see the benefits and to cope with the barriers. They need support for implementing e-invoice processes, including identification of their actual situation, deduction, and prioritization of improvement. Maturity models fulfill these needs and support companies to determine the maturity level of their as-is situation in a specific area and indicate areas of improvement [1], [5].

The purpose of this research is to evaluate whether an electronic invoice processes maturity model (EIPMM) is useful, and also to develop the main components of such an EIPMM. Consequently, the following research question is addressed: *How can the maturity of electronic invoice processes be measured and what recommendations for companies can be drawn?*

A theoretical approach to maturity model conception, and results from an explorative survey with experts are used to achieve this research objective. In the first step, the theoretical background (section 2) and the research design (section 3) are introduced. In section 4, the development of the EIPMM, including the results of the expert survey, are presented. Finally, the discussion of the results and conclusions (section 5), and the limitations and an outlook on further research complete this article (section 6).

2. Theoretical background

2.1. Maturity models

All in all the EIPMM shows companies that the e-invoice participation is a process with different levels of integration and automation. Companies have to select the solution that fits best. Not all companies benefit from having fully automated invoice processing. There are various stages of process integration, depending on the invoice type: paper invoice, e-invoice as an unstructured attachment to an email, structured data received by invoice scanning solutions, and e-invoices in structured formats. The benefits for a company depend on the starting point of maturity and the planned level of maturity. Invoice processing is a complex process with a lot of stakeholders and factors to be considered. There is no single “e-invoice” but a lot of different versions. EIPMM demonstrates these specific coherences by extending existing maturity models.

6. Limitations and Outlook

The EIPMM is currently not complete. The dimensions and maturity levels of the EIPMM, as well as its usefulness, were evaluated. But in this stage an easy application for companies is not possible and no statements about generalization of the EIPMM’s application concerning different company sizes or industry sectors can be made. Although only a small number of experts were interviewed, the survey has revealed that a maturity model for e-invoice processes is useful and that each country faces different approaches. After completion, the EIPMM should be classified [21], [26]. The next iteration for developing the EIPMM is to refine the measurements in each dimension with regard to sub-dimensions and maturity level. Good/best practices for application, quality, and effectiveness need to be determined. Furthermore, the objective of each section should be provided, together with the possibility of better determining the company’s status quo. The first step is to collect input from the expert interviews and from a further literature research. Afterwards a validation of the developed model needs to follow. Not only should the validation prove the model and its applicability across different industries, it should also reveal the maturity of the companies with regard to the e-invoice processes. After that the transfer and evaluation concept has to be determined, followed by the implementation of transfer media [1]. The EIPMM should be provided to the previously defined user groups in a suitable manner. Finally, the EIPMM should be evaluated against achievements of the previously defined objectives [1]. For EIPMM, the objectives include explaining the complexity of the e-invoice processes and providing a map for trading partners to evaluate a suitable solution for exchanging e-invoices. Furthermore, companies should be able to identify the as-is situation, including cost drivers and should also be able to derive recommendations for optimization.

7. References

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