Back–Office Integration for Online Services between Organizations

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INTRODUCTION

The issue of back-office integration has gained increasing importance within the political e-government debate and e-government research, after the original optimistic expectations for quick gains or digital wonders could not be realized. The term *back office* is defined from the position of a customer or client and distinguishes tasks and processes in relation to a front office, which may be a real office or, in the context of e-government, an additional Web interface for the online delivery of governmental services. Surveys of the European Commission show that by now almost all governmental agencies have their Web sites, offer information about their services in these virtual front-offices and can be contacted by e-mail (CEC, 2004, 2005). Many forms can be downloaded and often filled in online and sent electronically. But only in a few cases, permits and certificates are delivered electronically in return. Incoming electronic forms quite often go to an electronic in-basket and public servants print them or enter data, by copy and paste, in the regular IT systems for the respective service, the so-called legacy system.

From the point of view of the customers (citizens or business), this state of online offers is a lack of fulfillment and service quality; to the administration it means additional cost without savings on other costs by the online tools. The reason for these shortcomings is the missing integration of the Web front ends with the existing legacy systems (i.e., the lack of back-office integration).

Within the recent e-government reviews and analyses, this diagnosis is explained by models of development stages. According to most of these models, the development of e-government systems (and similarly e-commerce systems) follows four stages, but differently defined. With regard to the functions offered online on the governmental Web sites, consulting companies such as Arthur Anderson or the Gartner Group distinguish information,

communication and transaction as stages which are developed one after the other, followed by "transformation" as a fourth stage, where the organization (process and/or structure) of the governmental units is changed in order to fully exploit the potential for increase of service quality and/or cost reduction. The OECD report on E-Government (OECD, 2003) introduces a slightly different stage model, distinguishing (1) information, (2) interactive information, (3) transaction, and (4) data sharing, and pointing to the interorganizational dimension of back-office integration. In an early stage model Layne and Lee (2001) distinguish (1) catalogue, (2) transaction, (3) vertical integration, and (4) horizontal integration predicting progress towards higher levels of integration between different levels and branches of government. In order to provide full online service delivery via the virtual front-office, it is in many cases not sufficient to integrate the front-office with only one back office, but also with back offices of other agencies or to exchange information between two or more back offices of different agencies. Full exploitation of the potential of the Internet therefore in many cases affords interorganizational integration which in turn requires interoperability between the systems involved and perhaps transformation of the network of the agencies concerned.

While there is high agreement about the importance of interorganizational integration, the subject is still not well researched, the different options and their benefits and risks not well analyzed. According to Scholl, back-office integration so far has remained grossly understudied (Scholl, 2005b, p. 7), "which is not surprising given the limited experience with online services at this stage" (OECD, 2003, p. 73). There is research on electronic data interchange between private enterprises and interorganizational information systems in the business sector for more than 20 years (Cash, 1985; Eom, 2005; Kubicek, 1993; Porter & Millar, 1985), but only a few

Figure 1. Dimension of integration in e-government
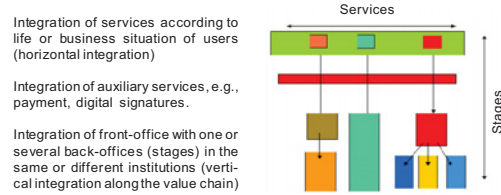
contributions deal with interorganizational information systems in government. In some respect, research on collaboration and information sharing between governments (Dawes, 2003) is relevant, but adopts a slightly different focus. Unfortunately, insights from the business sector cannot be generally transferred to the public sector because interorganizational relations in particular are quite different. Private enterprises necessarily exchange information with many suppliers and many customers under the pressure of market competition, while governmental units on all levels most frequently have their geographical or subject-related jurisdiction in a form of monopoly. Therefore traditionally there was not much need for data exchange with many other agencies. Scholl, in addition, points to the fact that the public sector is subject to a system of deliberate checks and balances with a strong demand for a division of power which also sets limits to open flows of information and interoperability of systems (Scholl, 2005a). The silo type of organization within government is manifested in incompatible IT systems and closed proprietary networks. The Internet has brought technical interoperability and the private service sector has raised expectations with regard to customer orientation of public services. Therefore, the need for progress in this direction is stressed on all political levels.

Within the European Union, the Ministerial Conference on E-Government in 2001 already asked for support of back-office integration and the Commission ordered a qualitative benchmarking of good practice cases in back-office integration, which was carried out by the authors of this article in 2003. The approach adopted in the study as well as some of the findings can contribute to a more differentiated understanding of the new and multi-faceted issue of back-office integration in and between governmental agencies. In this article, four types of back-office integration are presented which have been employed in a comparative good practice analysis in the European Community in 2003 (Millard, Iversen, Kubicek, Westholm, & Cimander, 2004). Three organizational models will be identified which serve as alternative options in order to achieve a higher degree of back-office integration by reorganizing back-offices. While two of these are derived

from established organization theory (centralization and standardization), the third model "clearinghouses" has gained increasing importance in practice but rather neglected in the literature on interorganizational information systems and back-office integration.

BACKGROUND

Starting from the assumption that a higher degree of back-office integration yields greater benefits for the agencies involved as well as for their customers, it is necessary to distinguish and measure different degrees. For the European Benchmarking Study, four types of back-office integration have been distinguished, each differentiated by different degrees of digitization or automation. This typology starts from the more basic differentiation between three dimensions of integration a back-office can achieve (see Figure 1).

A back office may be defined as an organizational unit using an ICT application to provide a governmental service to customers or other back offices by receiving, processing and distributing information in electronic form. When two or more back offices are involved in order to produce the respective service, they may belong to the same or different government agencies. In contrast to a back-office, a government agency is a formal organization with a formal purpose and a separate legal standing and a ruling body at the top of the hierarchy (e.g., a city government, a regional board or a ministry). An agency usually includes several back offices as departments or other kind of subunits devoted to different services. If two or more back offices of one agency are involved, we speak of intraorganizational integration; when they belong to different agencies, we speak of interorganizational integration.

The term *integration* relates to the organizational and technical flow of information and the related workflows or processes within and between the respective back offices. Back-office reorganization or transformation according to the terminology of the stages models happens

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