



Chapter XI

Evaluating the Management of Enterprise Systems with the Balanced Scorecard

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The management of Enterprise Systems (ES) software consists of two main tasks: the implementation and the use, stabilisation and change of this comprehensive software. The Balanced Scorecard, a framework originally developed in order to structure the performance measurement for an enterprise or a department, can also be used for the evaluation of ES software. Adapting the Balanced Scorecard and adding a new fifth project perspective allows the comprehensive evaluation of Enterprise Systems and represents an alternative IT evaluation approach. It supports the time consuming implementation of enterprise systems as well and the benefits realization stage. Furthermore, the application of the Balanced Scorecard for IT evaluation represents a novel application area for this strategic management concept.

INTRODUCTION

Enterprise Systems (ES) (synonyms are Enterprise Resource Planning (ERP), Enterprise-wide Systems, Integrated Vendor Software, Integrated Standard Software Packages, and Enterprise Application Systems) can be defined as customizable, standard application software which includes integrated business solutions for the core processes (*e.g.*, production planning and control, procurement) and the main administrative functions (*e.g.*, accounting, human resource management) of an enterprise (Rosemann 1999). In order to configure and use ES software efficiently, several components, like implementation tools (procedure models, reference information models, configuration guidelines, project management software), workflow functionality, tools for the development of add-on solutions and system administration, and office suites are usually embedded. ES software, which also includes integrated solutions for the management of transactions with business partners, especially supply chain management and customer relationship management, is called extended ES software. Currently, the main ES vendors are SAP AG, BAAN, J. D. Edwards, Oracle and PeopleSoft.

The GartnerGroup 1999) forecasts that the ES market will be greater than \$20 billion by 2002 (with a probability of 80%). More than 50% of this will be ES service revenue, while the total ES license revenue will cover approximately \$9 billion. They estimate that more than 90 percent of Fortune 500 enterprises have purchased a module or a set of modules from an ES vendor. 50 percent have made a commitment to one vendor, while only less than 20 percent went actually live. They also estimate that the SME market is the main customer group, as more than 50% of these enterprises still haven't selected a next-generation ES. For 2000 (2001, 2002) the GartnerGroup anticipates a market growth of 22% (25%, 28%). ES software accounts for more than half of the software licenses and maintenance revenues. In Western Europe, the top-tier ES vendors account for 64 percent of ES market revenue (see AMR Research Inc., Boston 1998, in Electronic Buyer). These figures show that ERP-initiatives are among the biggest investments enterprises are currently conducting. In addition to the huge initial investment, which often is beyond \$5 million US, the necessary ongoing costs for system maintenance, stabilisation and upgrades are enormous. Thus, enterprise systems represent a *long-term financial commitment*, and elaborated forms of evaluating this investment are required.

Furthermore, it is usually reasonable easy to collect the related costs, but far more difficult to estimate the benefits and opportunity costs related to ES. Classical indicators like ROI are not appropriate as they do take not the qualitative benefits of ES (service provision to the business, investment into IT infrastructure) into account. Therefore, an evaluation of ES has to *cover more than just financial indicators*.

Because of its comprehensive functionality, ES software is very complex. As an example, the following indicators demonstrate the complexity of SAP R/3. This enterprise system includes more than 20 industry specific solutions and covers the areas of material management, production planning, sales and distribution, human resource management, financial accounting, asset management, and cost controlling. Separated applications support among others customer relationship management, supply chain management, or knowledge management. Current state of the art technologies like workflow management, data warehousing and data mining, Internet-interfaces or Internet portals (mySAP.com) are parts of the SAP product family. Thus, ES software is not only regarding the necessary investment, but also its *comprehensiveness and complexity* in application, that demands sophisticated evaluation to gain transparency. As core business operating systems ES are of relevance for most IT applications.

This chapter suggests using a modified version of the Balanced Scorecard for the evaluation of enterprise systems. It will be discussed how the perspectives of the Balanced Scorecard can be used for an evaluation of software that goes far beyond financial figures. The next section introduces briefly the concept of the Balanced Scorecard and motivates its application in the area of IT evaluation in addition to the typical use for departments or other organisational units. Structured in the two main tasks of ES management, the next two sections discuss the application of the Balanced Scorecard for the ES implementation and the operational ES use. The chapter concludes with an overview of future trends in this area.

BACKGROUND: THE BALANCED SCORECARD

The management of ES software can be subdivided into two main stages of implementing ES software and its operational use. The Balanced Scorecard can be applied for the evaluation of both tasks (Beckman, 1999; Brogli, 1999; Reo, 1999; Walton, 1999; vander Zee, 1999). The Balanced Scorecard is a framework which aims to structure the relevant key indicators for performance management (Kaplan and Norton, 1992; Kaplan and Norton, 1993;

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