



## Enterprise resource planning systems, management control and the quest for integration

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### Abstract

This paper analyses how two companies pursued integration of management and control through enterprise resource planning (ERP) systems. We illustrate how the quest for integration is an unending process and it is produced concurrently and episodically. Integration is not only about 'mere' visibility and control at a distance. ERP systems do not define what integration is and how it is to be developed, but they incur a *techno-logic* that conditions how control can be performed through financial and non-financial representations because they distinguish between an accounting mode and a logistics mode. A primary lesson from our cases is that control cannot be studied apart from technology and context because one will never get to understand the underlying 'infrastructure'—the meeting point of many technologies and many types of controls. ERP systems are particularly interesting for what they make impossible, and our cases illustrate how the two organizations in the quest for integration mobilized a number of 'boundary objects' to overcome systems-based 'blind spots' and 'trading zones'. The paper points out that management control in an ERP-environment is not a property of the accounting function but a collective affair where local control issues in different parts of the organization are used to create notions of global management.

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### Prologue

'By now, we have implemented virtually all modules from the R/2 package, and even

some from the R/3 package to do the supply chain. Now, the question is what do we want integration to be all about? (Informant from TimeCorp, one of our research sites<sup>1</sup>)

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<sup>1</sup> No. 2 during a pre-study meeting in November 98.

## Introduction

Enterprise wide resource planning systems (ERP systems) attempt to integrate all corporate information in one central database, they allow information to be retrieved from many different organizational positions, and in principle they allow any organizational object to be made visible. It has been suggested that such systems facilitate unprecedented levels of organizational integration (Davenport, 1995, 1998, 2000). Even if this is often appealing to firms, it is a formidable task. Some times this is justified as an investment (Deloitte Consulting, 1998; KPMG Consulting, 1997; PA Consulting Group, 1999), and sometimes it is dismissed due to the complexity of integration (Ciborra, 2000; Hanseth, Ciborra, & Braa, 2001).

Integration is surely at stake here. Is it possible and interesting to integrate the firm's activities by information systems? And will this enable management control? These are the questions that have been suggested in the past by various approaches among which we can identify at least three strands.

One strand of literature on ERP says that firms implementing ERP systems (have to) go through a learning curve and then benefit from their investment (e.g. Ross & Vitale, 2000). This strand of literature builds on the 'stage-maturity model' (Nolan, 1979; Hirschheim, Earl, Feeny, & Lockett, 1988), which in spite of its criticisms (e.g. Benbasat, Dexter, Drury, & Goldstein, 1984; Holland & Light, 2001; King & Kraemer, 1984) continues to have a lot of appeal and is often used as a basis for consultants' advice on ERP implementation (Deloitte Consulting, 1998; KPMG Consulting, 1997; PA Consulting Group, 1999).

A second strand of literature on ERP is concerned with performance and asks whether ERP works? Cautious tales suggesting that ERP will have positive financial and productivity effects *only* if installed correctly (e.g. Davenport, 1995, 1998, 2000; Koch, 1997) often dominate this strand of literature. Perhaps therefore the conclusions vary. Some find that ERP may drive general financial effects (Poston & Grabski, 2001), divisional performance (e.g. O'Leary, 2002), or even capital market reactions (e.g. Hayes, Hunton, & Reck,

2001; Hunton, McEwen, & Wier, 2002). Others remain sceptical (e.g. Poston & Grabski, 2001).

There are those who argue that the new ERP technologies illustrate the potential to become complete calculation machines governing all activities and affairs of the firm. Cooper and Kaplan (1998) for example envision profound effects on and for management control. Such effects, however, have yet been difficult to sustain with the available empirical evidence. Surveys (Booth, Matovsky, & Wieder, 2000; Granlund & Malmi, 2002; Spathis & Constatinides, 2002) suggest that ERP systems' impact remains 'very moderate', partly because they are not typically designed with change in mind. They replicate the structure of the existing systems. Others therefore suggest that ERP systems are enormously powerful juggernauts that not only may be difficult to control but that eventually also may strike back (Ciborra, 2000; Hanseth et al., 2001). The possibly disruptive effects of integrated information, which will cause disintegration, frighten this set of authors.

In contrast, a third strand of literature is now emerging that is concerned with how ERP technologies are made to work as 'systems'. Here the system is seen in the context of numerous organizational concerns and conditions that play themselves out in complex ways. Quattrone and Hopper (2001) for example argue that ERP never stabilizes and that change is constant. Caglio (2003) and Scapens and Jazayeri (2003) relate the impact of ERP to the transformation of the roles of management accountants, while Lodh and Gaffikin (2003) and Newell, Huang, Galliers, and Pan (2003) follow the implementation of ERP through social and technical networks. In contrast to the first two strands of literature, this set of authors identify noteworthy and sometimes huge effects of ERP systems both in the process of design and in the process of use. They also start to explain why the surveys are limited and thus unable to capture ERP systems' effects. To understand the impact of ERP requires a heightened attention to control as *practice* across the firm. This strand of literature suggests that clerical accounting work is shifted out of the accounting function (Caglio, 2003; Quattrone & Hopper, 2001; Scapens &

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