

# Enterprise IT: socio-effects, and an alternative approach to deal with it

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## Introduction

The implementation and usage of the ERP (i.e. enterprise) software often have a bureaucratic effect on organisations (Govers, 2003). Furthermore, structure, culture, and power relations are affected by ERP computerisation. In order to understand the degree of bureaucratic anchoring ERP yields, it is important to understand the causes of this effect. Three perspectives, namely a socio-structural, a socio-cultural and a socio-political perspective, are proposed as a means to understand the causes of the bureaucratic effect. (Doorewaard & Van Bijsterveld, 2001; De Sitter, 2000; Pruijt, 1997; 1996; Frissen, 1989; Markus, 1984; Feldman & March, 1981; Galjaard, 1979).

## Socio-structural perspective

ERP requires standardisation and formalisation in a structural sense in order to be operational (Govers, 2006; 2003; Davenport, 1998). However, these requirements say little about how ERP structures the social system of an organisation. In order to gain insight on this, we need to focus on how business processes are modulated into a social structure or on how these processes have already been modulated into a social structure. Focusing on ERP software can provide an indication of how functional modular structure is incorporated in several business functions such as finance, logistics, sales, human resources, and marketing. These functional modules can be activated separately or in combination with one another. The degrees of activation freedom are limited by not only the abilities within the module but also by how the modules are anchored in the ERP software (Jacobs & Whybark, 2000). This anchoring forms an interaction structure, which enables the modules and the connected business functions to operate integrally. Therefore, the ERP software regulates the possible relationships between the modules. It also limits and arranges this by means of the formal harmonisation between business functions. Deviation can only occur by means of reprogramming the anchors within the system. In other words, the interaction structure of ERP software is fixated based on a predefined functional differentiation within ERP (Kallinikos, 2004; Jacobs & Whybark, 2000).

## Socio-cultural perspective

The socio-structural perspective implies that the social structure can not be chosen freely by organisations. The ERP software establishes the framework that determines how and when this will happen. Many organisations have, in practice, to adapt the views of that which is regarded as 'good' processing and/or as feasible according to the ERP software. Basically organisations are adapted to the ERP software rather than the software adapting to the organisation (cf. Davenport, 1998; Soh *et al.*, 2003). For this purpose, a new social reality needs to be constructed within the boundaries of the software by different organisational functions. This starts with the idea that behaviour is normative and programmable. Management of organizations and their techno-staffs (e.g. logistic, finance support staff) are often under the impression that people and processes can be organised efficiently. In other words, it is believed that behaviour can be calculated by enforcing obedience to a standard. This idea that behaviour is programmable appeared to be an illusion. Individuals in local situations do not always and, occasionally, are unable to behave in accordance with this uniformity. Circumstances that have to be handled locally have their own variety and dynamics which are in no way linked to the computerised standard. In spite of this, a uniformity approach arises to enforce the standard (Govers, 2006; cf. Allen, 2005; Wagner & Newell, 2004). This, in turn, leads to a spiral of formalisation and standardisation and



thereby exerts additional pressure on people to adapt to the standards on how to execute and control business processes as determined by the ERP software.

In other words, the processes by which sense is (or: will be) created in organisations are enforced *by, with and through* technology. With a technically stipulated ontology, ERP determines the way in which *organising* must be expressed in the organisation. This is mainly done by means of logistical and financial control in accordance with 'manufacturing resource planning' and 'management accounting'. These are two pre-eminent, and by the bureaucratic conception stipulated, characteristics (Roberts, 1993; Bertrand *et al.*, 1990). ERP adds the following to these characteristics: integrality, digitally, massiveness, controllable complexity and high speed (cf. SAP, Baan, and Oracle). These are characteristics that offer expressions of substantial rationalisation (Mannheim, 1935), such as autonomy, creativity and flexibility, under the pretence of complete control (Frissen, 1989) and, thereby, input functional rationalisation (Mannheim, 1935) into the process of creating sense.

After investigating the type of rationalisation utilized, we can contend that ERP computerisation itself is a structural and cultural expression and that the ambition and pretence of functional rationalisation is part and parcel to ERP computerisation. In an organisation where bureaucratic characteristics are present (which is the case in most organizations), this can lead to ongoing social exchange relationships with computerisation by which functional rationalisation is modernised in accordance with the bureaucratic conception considered appropriate by the ERP software. According to Castells, this is not surprising: "(C)ultural battles are the power battles of the information age" (Castells, 2000: 359).

Although we agree with Castells' position, one must be cautious and wary of the potential for technological reductionism (Baverman, 1974; Boersma & Kingma, 2006; Wood & Caldas, 2001; cf. De Mul, 2002). The rise of ICT and the coherent computerisation that results must be seen as a cultural expression that is not new but has been present for some time. ERP computerisation can be considered, within this, no more than a new phenomenon. Nevertheless, ERP software exercises, because of its omnipotence, a large influence on organisational values and standards. Many studies support this (e.g. Govers, 2003; Boersma & Kingma, 2005; Kallinikos, 2004; Wood & Caldas, 2001). Benders *et al.* (2006; cf. DiMaggio & Powell, 1983) speak of technical isomorphism, wherein organisations tend to rely on the application of the standards determined by the ERP software. This is termed "sticking to standards". This, however, does not mean that ERP computerisation maximises bureaucratisation.

Technological reductionism is not the only potential pitfall. Technological determinism (cf. De Mul, 2002) can also be problematic. The degree of bureaucratisation in organisation is not automatically determined. It is also, according to socio-political perspective, linked to the use of technology.

### **Socio-political perspective**

The often seen increasing degree of centralisation gives management (especially its logistical and financial techno-staff) additional power. The information instrument ERP appears usable as a power instrument as early as the implementation phase of ERP. The techno-staffs are vital because they have possession of actual knowledge relating to the business processes that needs to be synchronised with the software. With this, they not only acquire a informatics lead, they also are able to customise the software in ways they considered most convenient. It thus offers them the opportunity to anonymously obtain insight, understanding and control with respect to work processes and the process executants. Processes and people became 'remote controllable' (cf. Elmes *et al.*, 2005) in an extremely



subtle manner. Direct, physical supervision in the form of a hierarchy decreased and was replaced by a central, virtual supervision, made possible by means of the standardisation and formalisation of work processes (cf. Mintzberg, 1983). At the same time, this standardisation and formalisation can be used to contend that the system requires this kind of discipline rather than management. The ERP software is, in this way, classed as a powerful force instrument that has an asymmetrical influence on the balance of power. In an organisation where bureaucratic characteristics are present, the management and techno-staffs have the most ruling power. The ERP can be used to maintain or develop their desired power structure. Looking at the nature of rationalisation, it can thus be stated that ERP computerisation provides new possibilities and opportunities with respect to modernising the functional-rational identity of an organisation that, in turn, generates new bureaucratic structures and cultures.

### **Alternative approach**

Based on the foregoing, we must ask, to what extent can ERP software support de-bureaucratisation and thus 'timely adjustment'? We are convinced that this is indeed feasible. However, in order to create a situation in which ERP software supports de-bureaucratisation and organizational flexibility, the ERP software must be diffused by means of a variety approach instead of uniformity approach (Govers, 2006; cf. Allen, 2005; Wagner & Newell, 2004). Erroneously, many still believe that ERP requires *one universal, uniformed* standardisation and formalisation. This is incorrect. ERP does not require a uniformity approach at all. However, changing the approach from one that focuses on uniformity to one that focuses on variety is far from easy. A management misunderstanding exists and this is often strengthened by ERP vendors and consultancy firms (Govers, 2003). ERP software does, however, have the capacity to deal with several standardisations and formalisations. As a result, we can contend that the barrier to a variety approach is a matter of willingness rather than ability. Managers must employ and demand a different outlook and approach to ERP. The feasibility of this depends on the will to understand that business processes and changes cannot be centrally controlled and managed in a complex and dynamic environment (cf. Volberda, 2004; 1998). Additionally, with an ERP, it is difficult to execute process changes when processes have been constructed to be dependent on each other using a uniformity approach. This creates a snowball effect in which the desired or required process change triggers unexpected and undesired effects in other processes (cf. Van Oosterhout *et al.*, 2006). The snowball effect is exacerbated by previously built-in compromises in the operational ERP system. Furthermore, due to existing technical, organisational and political mechanisms, the realisation of these changes is generally time-intensive and expensive. As a result, organisations are slow in responding to change. They thus lack 'timely adjustment' (Govers, 2006).

In other words, if limiting bureaucracy is vital for management from a strategic perspective, ERP must be used as a power instrument to embrace variety rather than uniformity. The variety approach is required for two reasons: (1) only the same kind of variety requires the same kind of management control (e.g., a pilot does not prefer the control of a car to fly his plane); and (2) only the same kind of variety reacts in the same way to the dynamics that occur (e.g., a plane and a car react differently to wind and wind changes). These variety reasons or rules imply that organisations must not strive for one uniformed ERP computerisation but for several, smaller ones that are based on, for example, the product, the services, the customer and/or the marketing portfolio (Van Lieshout, 2002; Govers, 2003). This loosely coupled means of organising computerises tasks and functions of a specific process stream independently from other streams. For instance, the Belgium and Dutch market would be separately computerised. Based on an archipelago metaphor, Govers (2003; 2006) calls this 'archipel computerisation'. For each concrete situation, the dividing line between the different, independent computerisations must be based on the previously mentioned variety rules. An executive system must be set up on top of these



computerisations, e.g. by means of data warehouse technology, in order to facilitate overall management in conducting their tactical and strategic responsibilities.

### Conclusion

To be functional in an organisation, enterprise (ERP) software indeed requires formalisation and standardisation in order to effectively execute business processes. However, bureaucratisation is not an automatic outcome according to the socio-structural and socio-culture perspective of ERP software. Actual bureaucratisation depends on the commitment to and the usage of ERP software. This issue is part and parcel to the socio-political perspective of ERP software. Management and, in particular, the techno-staffs apply or can apply this to reinforce their central control of the organisation. In turn, a spiral of increased formalisation and standardisation is generated. Indeed, ERP enforces this uniformity approach. However, ERP does not require the uniformity approach. Obviously, it is logical and appealing to use this approach because it provides the technical means to control financial and material information flows remotely. Nevertheless, this is a managerial and political choice. It clearly shows that ERP software can be put to use as a power instrument. The three perspectives mentioned strengthened a functional-rational approach to organising and computerising. As a result, functional-rational values such as obedience and calculability are (or: will be) once again, with ERP software, anchored in a modern manner. At the same time, this also clears the path for a process of creating sense and meaning in the organisation within the limits of the system and its uses. In short, ERP computerisation required system-technical formalisation and standardisation and subsequently offered, on functional-rationalised grounds, opportunities to centralise the organisation in a subtle manner which, in turn, increases formalisation and standardisation. In the end, the conditions linked to ERP software often have a bureaucratic effect on organisations.

Nonetheless, limiting bureaucratisation with ERP is possible. It is essential that managers distance themselves from the idea and incorrect assumption that ERP software can only be diffused using a uniformity approach. ERP software can also be diffused using a variety approach. To do this, several independent ERP computerisations must be used instead of one uniformed computerisation. This archipelago approach, called 'archypel computerisation', is tailored to deal with the dynamic circumstances of an organisation. Archypel computerisation is only possible if managers are willing to diffuse and use ERP software non-bureaucratically and with a socio-political perspective (based on: self-organization and self-management). In order to do this, managers will have to distance themselves from the idea that ERP can provide a 'central-command cockpit' with which business processes, people and changes can be controlled and managed. Despite the fact that the notion of a central-command cockpit is actually an illusion, distancing oneself from this way of thinking is not easy.

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