The dilemma of internal audit function adaptation—the impact of ERP and corporate governance pressures

1   INTRODUCTION

The expanding opportunities for the IAF have been highlighted through the increased interest in better corporate governance practices (Ebaid, 2011). This claim is supported by real-life cases which elucidate clearly the implications of underestimating the role that the IAF can and should play (Boyle, 2012). Moreover, CG creates heated debate since noticeable failures of accountability have been highlighted by the financial scandals and the economic crisis. Certainly, the IAF has attracted the attention of boards those face external pressure for assurance about corporate governance practices. Internal auditing is receiving attention unlike ever before (Carcello *et al*., 2005). For over a decade, the global emphasis on the need for sound corporate governance triggered an increased interest in the IAF's legitimacy (Radu, 2012; Ebaid, 2011; Goodwin and Yeo, 2001).

One of the important innovations in the world of IT has been Enterprise Resource Planning (ERP) systems (Kanellou and Spathis, 2013). The implementation of ERP systems requires organisational business process reengineering (Grabski *et al.*, 2011). This implies new ways for designing tasks, jobs, communications within the organisation and leads to new work structures and procedures (Kallinikos, 2004). ERP systems create new opportunities as well as new challenges to the overall focus of the IAF (Saharia *et al*., 2008). Therefore, the IAF must be adaptable and creative. According to institutional theory, failing to be equipped to respond to new challenges will lead to legitimacy problems (Power, 2003). Institutional theory (Oliver, 1991; Powell and DiMaggio 1991) offers a suitable base to analyse the concurrence between ERP's control logic and CG pressures and there effect on the IAF as discussed later in section 4.

Due to ERP systems' sophistication and highly integrated nature, they have been regarded as great potential to reshape the structure and practices of the IAF (Elbardan and Ali, 2013; Avgerou, 2001; Barrett *et al.*, 2001). Internal auditors have a number of potential strategies in responding to the new institutional logics and pressures. Understanding potential conflicts is essential to analyse internal auditors' responses to new ERP systems. This suggests that internal auditors' response to an ERP implementation will be more pluralistic than a singular response that is often portrayed in the literature (e.g. Madani, 2009; Saharia *et al*., 2008).

The IAF has significantly changed to cope with evolutions in corporate governance (Bailey *et al*., 2003) as well as IT evolution (Allegrini *et al*., 2006). However, it remains an ongoing challenge for the IAF to prove its added value to organisations through improving corporate governance in the extensive IT environment (ibid).

The paper starts with an introduction to the research background with the aim to highlight the research gap and provide justification for the proposed conceptual framework. The paper ends with extractions of key conclusions and recommendation for future research.

2   RESEARCH BACKGROUND

ERP systems pose new risks and challenges to internal control; triggering changes to the IAF's structure and practices. Throughout the following four sections, the authors explore how ERP systems implementation acts as a catalyst for the IAF change, by affecting the internal control and risks within organisations.

2.1   Internal audit change

The internal auditors execute governance related activities. These activities include: risk assessment, control assurance, compliance assessment and consulting services (Gramling *et al*., 2005). The internal audit structure and practices undergoing changes have been broadly acknowledged in the literature (e.g. Ebaid, 2011; Robson *et al*., 2007; Carcello *et al*., 2005; Nagy and Cenker, 2002).

Increasing public interest in corporate governance, particularly the changing concept of internal controls (IFAC, 2006), has driven organisations to review their expectations of the IAF. Moreover, with the development of risk management as an integral aspect of corporate governance, changes have taken place in internal auditors' roles. The wider approach of internal control offers the IAF the opportunity to claim expertise in the area of risk management. As a result, the importance of the IAF as a key component of good corporate governance has increased (Boyle, 2012; Spira and Page, 2003).

It cannot be ignored that the overall risk-control landscape affects the IAF. The risk-control landscape is affected by ERP systems implementation. Consequently, the IAF will need to be remodelled. Its relationship with all other parties will also be affected (Paape *et al.*, 2003).

Some studies find that internal auditors have lost control of their traditional role as evaluators because this role is now built in to IT and their auditing knowledge has become easily transferable to information systems staff (Spathis and Constantinides, 2004). Others suggest that internal auditors not only continue to do their traditional function but are also expanding their role into other functional areas (Madani, 2009; Lightle and Vallario, 2003; Bierstaker, 2001).

The aforementioned studies provided no clear indication of how ERP systems implementation changes the internal audit structure and practices in order to enhance its legitimacy. To investigate how ERP systems change the IAF, it is necessary to explore how these systems affect internal control and risks within organisations. This will be highlighted in the following sub-sections.

2.2   ERP systems - internal control and risk landscape

ERP systems eliminate human interaction with data flows; thereby they enhance the information security and accuracy. As a result, the transparency in business processes is increased. While the internal control objectives remain the same, the mechanisms of control are changed (Madani, 2009). ERP systems bring changes to internal control, business process and segregation of duties (Wright and Wright, 2002; Hunton *et al.*, 2001). Moreover, they affect many control issues such as control planning and monitoring, authorizations, user authentication, time restriction, integrity of data, reconciliations and segregation of duties (Sia *et al*., 2002).

It has been proposed that full automated ERP systems enhance control through more transparency across the whole business process. Therefore, they facilitate matching of documents and make individuals' actions visible. As the system depends on one centrally controlled database, privacy violation can be controlled more easily (Orlikowski, 1991). However ERP control has become a popular subject in the audit profession (Wright and Wright, 2002); there are a lot of related problematic issues.

On the one hand, ERP systems tighten internal control. O'Leary (2000) asserts that ERP enhance control through standardized and accessible information that makes any deviation visible. In addition, Chapman and Kihn, (2009) and Emerson *et al*. (2009) argue that ERP systems facilitate automation; leading to the reduction of manual tasks and enabling stricter control. On the other hand, the business practices which are embedded in the ERP and the resulted transparency simultaneously give more power to employees, greater control relaxation and more job discretion than their functional needs (Elmes *et al*., 2005). As depicted by Madani (2009) and Bae and Ashcroft (2004), implementation risks could result in inadequate new business controls due to the reengineering process. Traditional controls could therefore be eliminated without being replaced with new effective controls.

There have been many studies concerned with the impact of ERP systems on the risks within organisations (e.g. Aloini *et al*., 2007; Scott and vessey, 2002); brining different dimensions and perspectives to risk management. In addition to such variation, the complexity of ERP integrated systems generates additional risks. These unique ongoing risks include business interruption, process interdependency, privacy and confidentiality, data content quality and system security risks. For instance, an error introduced in one part of the system can disrupt the whole business operations (Saharia *et al*., 2008).

The aforementioned debate brings to sight a dilemma related to the needed changes in the IAF in order to assure effective internal control system that mitigates risk within ERP-based organisations and to enhance its legitimacy. It is also important for internal auditors to be aware of the unique risk associated with ERP systems in order to plan and execute an assurance function. However, the changes needed in the IAF to help in risk management have been overlooked in ERP systems environment.

2.3   ERP systems and internal audit function change

ERP systems present new challenges and opportunities to the IAF (Wright and Wright, 2002; Hunton *et al*., 2001) which is perceived to be proactive and on-going. The study by Spathis and Constantinides (2004) examined the changes brought by implementing ERP systems in the accounting process, revealing that the only notable change in accounting practices is related to the increased use of the IAF. Furthermore, ERP systems are sophisticated and highly integrated; having the potential to greatly influence the IAF structure and practices (Avgerou, 2001; Barrett *et al*., 2001). Chen (2009) suggests that ERP systems should be considered not only as an Information System (IS), but also as an important integral part of the corporate governance system.

The traditional IAF will not be sufficient following ERP systems' implementation (Madani, 2009). The traditional boundaries of internal auditing are challenged as ERP systems complicate the IAF (Saharia *et al*., 2008). Due to the real-time nature of ERP systems, many internal auditors may not be well prepared to accomplish their governance mission in such a complex working environment.

On the other hand, ERP systems have led to a significant shift in the overall focus of the IAF. Internal audit professionals are developing a broader role for themselves. They are being in charge of less data checking, leading to several assignments being eliminated, and a rather increase in consultation work. At the same time internal auditors' capabilities have been expanded (Saharia *et al.*, 2008) which induced high costs and required skills other than those needed for a standardized basic service (Paape *et al.*, 2003).

It can be therefore highlighted that auditors need to expand their skills to perform effectively and efficiently within the ERP working environment. Failing to do so, they may have to face the erosion of their preserve by other competing professional groups.

3   RESEARCH GAPS

The insights gained to date have a number of limitations that constitute the research gap that the authors will address in the proposed framework:

- There have been a limited number of studies that address the internal audit function change as a response to ERP systems implementation (e.g. Madani, 2009; Saharia *et al*., 2008).

- Auditing research has stayed relatively away from trying to be understood in its social context, particularly in terms of theoretical and empirical analysis of contemporary internal audit practice (Robson *et al*., 2007). Auditing research has stayed away from addressing the internal audit strategic response to the concurrence between the ERP institutional logics and the corporate governance structure in use as discussed in section 1.

- While the majority of ERP previous studies studies were at the organisational level of analysis, there is a room for contributions at organisational sub-systems levels of analysis such as groups, departments and processes (Mignerat and Rivard, 2005) as the internal audit function. Organisations that respond to the ERP system implementation are conceived as singular actors, where the institutional forces embodied by the system are not in alignment with all the functions within the organisation (Gosain, 2004; Soh and Sia, 2004). Organisations encompass multiple and nested institutional logics, so there is a need to go profoundly beneath the view of an entire organisation's adaptation and focus on specific responses associated with particular routines (Yoo *et al.*, 2007) as the IAF.

- Most of the previous research has focused on addressing the changes in external auditing, while very few are driven by internal auditing perspective (Abdolmohammadi and Boss, 2010).

4   CONCEPTUAL FRAMEWORK

The authors propose a conceptual framework for analysing IAF adaptation for the introduction of ERP systems in the corporate governance context. The framework is intended to explore the changes in the IAF associated with ERP systems implementation and to derive conclusions that support policy-makers, auditors, managers and organisations. To achieve these aims, institutional theory (Scott, 2008; Mignerat and Rivard, 2005; Gosain, 2004; Oliver, 1991; Powell and DiMaggio, 1991) was found to be a suitable theoretical lens as the study focuses on translating ERP inscribed logic in the organisational context where governance institutional arrangements related to the IAF exist.

Contemporary institutional theory is employed to examine systems ranging from micro interactions to macro frameworks (Scott, 2008). According to Powell and DiMaggio (1991), institutional theory suggests several routes by which institutional change leads to shifts in organisational structure. Once in place, the new institution, such as ERP systems and CG regulations, can change work roles and activities, which require substantial modifications of the function's existing technological base (Barley, 1990). In addition, institutional theory offers theoretical perspectives to analyse goals, values and prescriptions that legitimate behaviours of groups (Powell and DiMaggio, 1991) such as internal auditors. New technologies first alter tasks and skills, and then these changes generate opportunities and pressures for changing organisational structure (Barley, 1990). The paper argues that ERP systems have embedded institutional logics which are significant catalysts for the evolution of the IAF.

Each institution can be characterized in terms of the 'institutional logic' of its structures (DiMaggio, 1997). DiMaggio (1997) views that logics conflict comes from applying inconsistent cognitive schemata simultaneously to the same situation. ERP systems embody specific institutional logics and corporate governance has institutional pressures both could misalign with the IAF. Therefore, it is important to investigate the IAF response.

Orlikowski and Barley (2001) suggest that *"the transformations currently occurring in the nature of work and organizing cannot be understood without considering both the technological changes and the institutional contexts that are reshaping economic and organisational activity"*(p.145). In order to investigate the transformation currently occurring in the IAF this paper considers both ERP systems implementation and the new technological tools used by the internal auditors as the technological changes, while using the corporate governance as the institutional contexts that are reshaping economic and organisational activity.

Figure 1 presents the proposed conceptual framework to the IAF change as a response to ERP implementation by drawing upon the institutional theory of Oliver (1991). The framework explains the reciprocal interplay between the macro external governance pressures, micro internal institutional logics inscribed in the ERP systems and their effect on IAF practices and structure within organisations. The following sections will present and discuss the different framework components in detail.
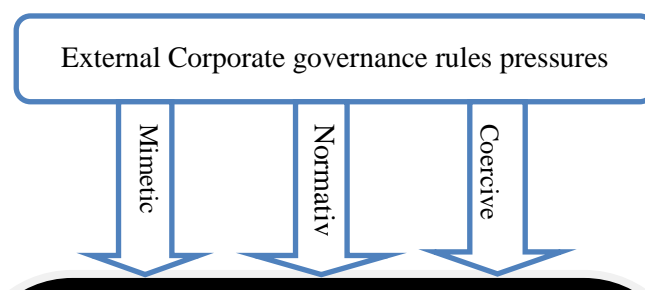
Figure 1.Proposed Conceptual Framework for Internal Audit Function Adaptation

4.1 External corporate governance institutional pressures

The IAF is considered a key mechanism of modern corporate governance. Surprisingly, the existing knowledge on the IAF relation to the governance process is scarce (Eulerich et al., 2013). In the highlight of the recent financial crisis and corporate failures in the USA (e.g. Enron, WorldCom), as well as in other parts of the world have led to growing concern over the role and responsibility of different governance mechanisms (Elbardan and Ali, 2013). The role of the IAF in corporate governance is undisputed in both management theory and business practice, which is highlighted by many extensive external pressures of reforms initiated to strengthen and improve the quality of corporate governance mechanisms (e.g. Sarbanes-Oxley Act 2002 in the USA; Combined Code 2010 in the UK and IFAC, 2006). These reforms increased the recognition of the IAF as one of the cornerstones of corporate governance (Gramling et al., 2005). Therefore, it would be irrational to investigate the IAF adaptations while overlooking the external governance pressures.

The corporate governance regulations on internal controls constitute external formal pressures that can influence the IAF. These pressures are control mechanisms exerted on organisations to constrain their behaviour (Haggerty and Golden, 2002). Corporate governance as an institution is a social structure which provides professional groups guidelines of orientations, while controlling and constraining them. These constraints imposed on organisations are called "institutional pressures", and are defined as follows (DiMaggio and Powell, 1983):

- *Coercive isomorphism:* Coercion occurs through mechanisms of corporate governance guidelines, rules, laws and legitimation to change IAF not only to assure internal control system adequacy, but also to engage in a wider review of the efficiency and effectiveness of the organisation's activities, risk management and the overall organisational performance.

- *Mimetic isomorphism:* occurs when organisations recognise that the IAF change will contribute to an improvement in control and operational performance.

- *Normative isomorphism:* arises from an increase in internal audit professionalization within organisations.

4.2   ERP as an institution and potential misalignment

IT has been characterized as a trigger for organisational structuring (Barley 1986), as a carrier of institutional logics (Scott 1995) and as a form of institution (structure) in itself (Orlikowski 1992). Institutional logics define the norms, values and beliefs that structure the cognition of actors in organisations (DiMaggio, 1997). ERP systems embody institutional logics which act as a template for the performing of the organisation's activities. ERP systems are "*important embodiment of institutional commitments and serve to preserve these rules by constraining the actions of human agents*" (Gosain, 2004, p.151). ERP systems embody institutional logics of the organisation's activities, which enable some activities while denying legitimacy to others (Gosain, 2004). Moreover, Avgerou (2000) considers ERP system as an institution that justifies and enacts organisational change. ERP systems imply several assumptions about how organisational processes should work, however the fit to organisational needs is often lacking.

ERP systems can be seen to represent a particular rationalized logic, structure or procedural focus. The principles associated with ERP systems are control and efficiency. These principles/objectives are achieved through standardization, visibility, best practice and integration. ERP systems are provided with assumptions inherited from reference industries, countries and managerial interests, which reflect the identity of bureaucratic and hierarchical administrative practices (Yoo *et al.,* 2007). The institutional logics associated with ERP can be summarized in table 1, as follows:

Dimension	Characterization of ERP's logic	Selected sources
Principles	Efficiency and control.	Ciborra, 2000; Hanseth *et al.,* 2001; Davenport, 1998; Sia *et al*., 2002; Newell *et al*., 2003; Kallinikos, 2004; Boudreau and Robey, 2005; Allen, 2005
Assumptions	Efficiency through standardization and integration. Control through visibility.	Robey *et al*., 2002; Davenport, 1998; Markus *et al*., 2000; Markus and Tanis 2000; Soh *et al*., 2000; Boudreau and Robey, 2005; Wagner and Newell, 2004; Elmes *et al*., 2005; Sia *et al*., 2002; Allen, 2005
Identity	Top-down structure implies rationalized bureaucracy in line with functional managerial interests; user discipline.	Davenport, 1998; Soh *et al*., 2000; Pollock and Cornford, 2004; Boudreau and Robey, 2005; Soh and Sia, 2004; Gosain, 2004; Webster, 1991
Domain	Highly explicit and repetitive administrative routines.	Davenport, 1998; Soh *et al*., 2003; Kallinikos, 2004; Markus and Tanis, 2000; Wagner and Newell, 2004

Table1. Institutional logic commonly associated with ERP (Adopted from Yoo et al., 2007)

ERP systems vendors draw on their view of the world, which is influenced by the institutional properties of their knowledge, resources and norms. Consequently, this is reflected in the structural features of the technology. The designers' context may differ from the context of many other potential implementers (Avgerou, 2001; Barrett *et al*., 2001).Therefore, it is important to investigate the sources of contextual differences in each function that contribute to misalignments between the package and the different functions within the organisation.

Studies have documented the potential misalignment between the incumbent institutional logics and those embedded into ERP systems. Sia *et al*. (2002) define misalignments as "*differences between the structures embedded in the organisation and those embedded in the package*" (P.376). Soh *et al*. (2003) explore the misalignments between the structures embedded in ERP systems and the existing organisational structures. It can be anticipated that the institutional logics of ERP systems can conflict with those incumbent in the internal audit practices, which may not align to standardization, integration, rationalization and routinization.

4.3   Internal audit change to maintain legitimacy

Organisations need to be very aware of the conflicts between alternative institutional logics, hence internal auditors respond using a number of potential strategies (Gosain, 2004). Such organisational awareness is essential to analyse a range of typified internal auditors' responses. Oliver (1991) proposes a whole set of legitimating strategies and tactics associated with institutional logics, namely:

Acquiescence strategy is a conscious intent to conform. It is expressed through the tactics of habit, imitation and compliance; *Compromise strategy* is used when own interests are promoted through tactics such as balancing, pacifying and bargaining; *Avoidance strategy* is an attempt to prevent the need to conform to an external pressure using avoidance tactics such as concealing, buffering and escaping; *Defiance strategy* is the rejection of institutional norms using defiance tactics, which include dismissing, challenging and attacking; *Manipulation strategy* is the purposeful and opportunistic application of the tactics of co-opting, influencing, or controlling an institutional pressure. These strategies help to understand how legitimacy will be managed under institutional pressures.

The IAF discretion in the form of strategic responses is bounded by the institutions that gave rise to it. Therefore, responses to institutional pressures should be consistent with the existing institutions (Goodrick and Salancik, 1996). In order to determine the strategic response of the IAF to ERP systems implementation and the potential misalignment, the IAF *structure* and *practices* need to be investigated.

First, the IAF *structure* characteristics include the IAF sourcing, budget, size and skills. Putting them into perspective:

Depending upon priorities and availability of resources needed to execute post ERP implementation audits, a number of audits may need to be *outsourced* (Burnaby and Hass, 2009). In addition, the internal audit *cost* has become unavoidable in most organisations as a result of the complexity of recent ERP-related IT and the increasingly importance of the IAF as an effective corporate governance mechanism (Abdolmohammadi and Boss, 2010; Petter *et al*., 2008). To engage in more IT audits in the ERP system working environment the internal audit department *size* would be reviewed (Abdolmohammadi and Boss, 2010). Consistently with the evolution in the role of the IAF within organisations triggered by ERP systems introduction, internal audit professional bodies should re-design the *skills* needed for their profession (Arena and Azzone, 2009).

Second, the IAF *practices* include scope of the IAF services, tools, position and relationship with the external auditors. Putting them into perspective:

The *scope of the IAF services* could be expanded to involve more activities following an ERP system implementation. It would no longer have a narrow focus based on evaluating internal controls (Cohen *et al*., 2004). Moreover, the ability to perform highly effectively within the ERP working environment using fewer resources is depended on having the right *tools*. In addition, attention should be paid to determine the internal audit *position* within the organisation after the ERP systems adoption since this can influence its effectiveness (Arena and Azzone, 2009). Changes in the IAF triggered by ERP systems implementation are likely to impact *external auditors*' reliance decisions (Munro and Stewart, 2010).

Process change represents an opportunity for groups to extend their knowledge basis to reinforce their professional legitimacy (Caglio, 2003). Internal auditors have extreme aspirations and efforts aiming at revamping their legitimacy in consistent with corporate governance initiatives (Power, 2003) as well as with the new IT prevailed usage. Based on the institutional theory and the literature review the research question can be formulated as follows:

"How does the IAF change as a response to the corporate governance institutional pressures, the ERP systems institutional logics and the occurred misalignment in order to secure its legitimacy?"

5 CONCLUSION

Internal auditing is the outcome of complex conjunction of external and internal associated constituents. It is this constellation of connected elements that justifies a function level approach to the analysis of the IAF change. The IAF change process can therefore be viewed as a response to the new ERP systems. ERP systems constrain the activities of the organisation and shape the cognitive processes of internal auditors. Consequently, it constrains corporate governance's institutional forces that influence specific trajectories of the configuration of the IAF. Between these two main aspects is the resolution process of institutional misalignments through the strategic response to the institutional pressures.

The paper proposed a conceptual framework, which aims to bridge the gap between the CG pressures, ERP control logic and their impact on the IAF. The framework will be validated through multiple in-depth case studies method, to explore and interpret the ambiguous IAF change deriving from the implementation of ERP systems. The framework would help a multitude of stakeholders, including organisation implementing ERP systems, internal audit practitioners, auditing standard setters, and academics in gaining full understanding of the internal audit abilities to preserve its status as a value-adding function which improves the effectiveness of governance process in the ERP system working environment.

References

Abdolmohammadi, M. and Boss S. 2010. "Factors associated with IT audits by the internal audit function". *International Journal of Accounting Information Systems*, 11(3), pp. 140-151.

Allegrini, M., D'Onza, G., Melville, R., Paape, L. and Sarens, G. 2006. "The European literature review on internal auditing". *Managerial Auditing Journal*, 21 (8), pp. 845-853.

Aloini, D., Dulmin, R., and Mininno, V. 2007. "Risk management in ERP project introduction: Review of the literature". *Information & Management*, 44, pp. 547-567.

Avgerou, C. 2000. "IT and Organisational Change: an Institutionalist Perspective". *Information Technology and People*, 13(4), pp. 234-262.

Avgerou, C. 2001. "The significance of context in information systems and organisational change". *Information Systems Journal*, 11, pp. 43- 63.

Bae, B. and Ashcroft, P. 2004. "Implementation of ERP Systems: Accounting and Auditing Implications", *Information Systems Control Journal*, 5, pp.1-6.

Bailey, A. D., Gramling, A. A. and Ramamoorti, S. 2003. "Research Opportunities in Internal Auditing". Altamonte Springs, FL: The IIA Research Foundation.

Barley, S. 1986. "Technology as an Occasion for Structuring: Evidence from Observations of CT Scanners and the Social Order of Radiology Departments". *Administrative Science Quarterly,* 31, pp. 78-108.

Barley, S. 1990. "The alignment of technology and structure through roles and networks". *Administrative Science Quarterly*, 31, pp. 61-103.

Barrett, M., Sahay, S. and Walsham, G. 2001. "Information Technology and Social Transformation: GIS for Forestry Management in India". *The Information Society*, 17, pp. 5-20

Bierstaker, J., Burnaby, P. and Thibodeau, J. 2001. "The impact of information technology on the audit process: an assessment of the state of the art and implications for the future". *Managerial Auditing Journal*, 16 (3), pp. 159-164.

Boyle, D. M.,Wilkins, A. M. and Hermanson, D. R. 2012. "Corporate governance: preparing for the expanding role of the internal audit function", *Internal Auditing*; 27 (2). pp. 13-18.

Burnaby, P. and Hass, S. 2009. "A Summary of the global Common Body of Knowledge 2006 (CBOK) study in internal auditing", *Managerial Auditing Journal*, 24 (9), pp. 813-834.

Caglio, A. 2003. "Enterprise Resource Planning Systems and accountants: towards hybridization?". *European Accounting Review*, 13(1), pp. 123-153.

Carcello, J., Hermanson, D. and Raghunandan, K. 2005. "Changes in Internal Auditing During the Time of the Major US Accounting Scandals". *International Journal of Auditing*, 9, pp. 117-127.

Chapman, C. and Kihn, L. 2009. "Information system integration, enabling control and performance", *Accounting, Organizations and Society*, 34, pp. 151–169.

Chen, J. 2009. "An exploratory study of alignment ERP implementation and organisational development activities in a newly established firm". *Journal of Enterprise Information Management*, 22 (3), pp. 298-316.

Cohen, J., Krishnamoorthy, G. and Wright, A. 2004. "The corporate governance mosaic and financial reporting quality". *Journal of Accounting Literature*, 23, pp. 87-152.

DiMaggio, P. 1997. "Culture and Cognition". *Annual Review of Sociology*, 23, pp. 263-287.

DiMaggio, P. J. and Powell, W. W. 1983. "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organisational Fields". *American Sociological Review*, 48(2), pp.113-123.

Ebaid, I.E. 2011. "Internal audit function: an exploratory study from Egyptian listed firms", *International Journal of Law and Management*, 53 (2), pp. 108-128.

Elbardan, H. and Ali, M. 2013. "Internal Auditing Legitimacy and ERP Systems Implementation: An Institutional Case Analysis of a Multinational Bank" Proceeding of (BAFA), Newcastle, UK, April.

Elmes, M., Strong, D. and Volkoff, O. 2005. "Panoptic empowerment and reflective conformity in enterprise systems-enabled organisations". *Information and Organisation*,15(1), pp. 1-37.

Emerson, D., Karim, K. and Rutledge, R. 2009. "SOX and ERP Adoption", *Journal of Business & Economics Research*, 7 (4), pp. 51-56.

Eulerich, M., Theis, J., Velte, P. nad Stiglbauer, M. 2013. "Self-perception of the internal audit function within the corporate governance system – empirical evidence for the European Union", *Problems and Perspectives in Management*, 11 (2), pp. 57-72.

Goodrick, E. and Salancik, G. 1996. "Organisational Discretion in Responding to Institutional Practices: Hospitals and Cesarean Births". *Administrative Science Quarterly*, 41(1), pp. 1-28.

Goodwin, J. and Yeo, T. 2001. "Two factors affecting internal audit independence and objectivity: Evidence from Singapore". *International Journal of Auditing*, 5(2), pp. 107-25.

Gosain, S. 2004. "Enterprise Information Systems as Objects and Carriers of Institutional Forces: The New Iron Cage?". *Journal of the Association for Information Systems*, 5 (4), pp. 151-182.

Grabski, S. V., Leech, S. A. and Schmidt, P. J. 2011, "A Review of ERP Research: A Future Agenda for Accounting Information Systems", *Journal of Information Systems*, Vol. 25, No.1, pp. 37–78.

Gramling, A.A., Maletta, M.J., Schneider, A. and Church, B.K. 2005. "The role of the internal audit function in corporate governance: a synthesis of the extant internal auditing literature and directions for future research". *Journal of Accounting Literature*, 23, pp. 194-244.

Haggerty, N. and Golden, B. 2002. "Theorizing Technological Adaptation as a Trigger for Institutional Change". ICIS Proceedings, pp. 1- 22

Hunton, J., Wright, A. and Wright, S. 2001. "Business and audit risks associated with ERP systems: knowledge differences between information systems audit specialists and financial auditors". 4th European Conference on Accounting Information Systems (ECAIS), Athens.

International Federation of Accountants (IFAC) 2006. "Internal Controls – A review of Current Developments". Information paper: Professional Accountants in Business Committee, www.ifac.org.

Kallinikos, J. 2004. "Deconstructing information packages: Organizational and behavioural implications of ERP systems". *Information Technology & People*, 17 (1), pp. 8-30.

Kanellou A. and Spathis C. 2013, "Accounting benefits and satisfaction in an ERP environment", *International Journal of Accounting Information Systems*, http://dx.doi.org/10.1016/j.accinf.2012.12.002

Madani, H. 2009. "The role of internal auditors in ERP-Based organisations". *Journal of Accounting & Organisational Change*,5 (4) , pp. 514-526.

Munro, L. and Stewart, J. 2010. "External auditors' reliance on internal audit: the impact of sourcing arrangements and consulting activities". *Accounting and Finance*, 50, pp. 371-387

Nagy, A. L. and Cenker, W. J. 2002. "An assessment of the newly defined internal audit function". *Managerial Auditing Journal*, 17(3), pp. 130-137.

O'Leary D. 2000. "Enterprise resource planning systems: systems, life cycle, electronic commerce, and risk". (NY) 7 Cambridge University Press.

Oliver, C. 1991. "Strategic responses to institutional processes". *Academy of Management Review*, 16, pp. 145-79.

Orlikowski W.J. and Barley, S.R. 2001. "Technology and institutions: what can research on information technology and research on organizations learn from each other?". *MIS Quarterly*, 25 (2), pp. 145-165.

Orlikowski, W. J. 1991. "Integrated information environment or matrix of control? The contradictory implications of information technology". *Accounting, Management & Information Technology*, 9-42.

Orlikowski, W. J. 1992. "The duality of technology: Rethinking the concept of technology in organisations". *Organisation science*, 3(3), pp. 398-427.

Paape, L., Scheffe, and Snoep P. 2003. "The Relationship between the Internal Audit Function and Corporate Governance in the EU – a Survey". *International Journal of Auditing*, 7, pp. 247-262.

Petter, S. DeLone, W. and McLean, E. 2008. "Measuring information systems success: models, dimensions, measures, and interrelationships". *European Journal of Information Systems*, 17, pp. 236-63.

Powell, W. and P. DiMaggio. 1991. "The new institutionalism in organizational analysis", University of Chicago Press.

Power, M. K. 2003. "Auditing and the production of legitimacy". *Accounting, Organisations and Society*, 28(4), pp. 379-394.

Radu, M. 2012. "Corporate governance, internal audit and environmental audit - the performance tools in Romanian companies", *Accounting and Management Information Systems*, 11(1), pp. 112-130.

Robey, D., Ross, J. and Boudreau, M. 2002. "Learning to Implement Enterprise Systems: An Exploratory Study of the Dialectics of Change". *Journal of Management Information Systems*, 19 (l), pp. 17-46.

Robson, K., Humphrey, C., Khalifa, R. and Jones, J. 2007. "Transforming audit technologies: Business risk audit methodologies and the audit field". *Accounting, Organisations and Society*, 32, pp. 409-438.

Saharia, A., Koch, B. and Tucker, R. 2008. "ERP systems and Internal Audit". *Issues in Information Systems, XL* (2), pp. 578-586.

Scott, J., and Vessey, I. 2002. "Managing risks in enterprise systems implementations". *Communications of the ACM*, 45(4), pp. 74-81.

Scott, W.R. 1995. Institutions and Organisations: Foundations for Organisational Science, Sage, London.

Sia, S., Tang, M., Soh, C., and Boh, W. 2002. "Enterprise Resource Planning (ERP) Systems as a Technology of Power: Empowerment or Panoptic Control?". *The DATA BASE for Advances in Information Systems*, 33(1), pp. 23-37.

Spathis, C. and Constantinides, S. 2004. "Enterprise resource planning systems' impact on accounting processes". *Business Process Management Journal*, 10 (2), pp. 234-247.

Spira, L. F. and Page, M. 2003. "Risk management: The reinvention of internal control and the changing role of internal audit". *Accounting, Auditing and Accountability Journal*, 16 (4), pp. 640-61.

Wright, S. and Wright, A. 2002. "Information System Assurance for Enterprise Resource Planning Systems: Unique Risk Considerations". *Journal of Information Systems*, 16, pp. 99-113.

Yoo, Y., Lyytinen, K. and Berente, N. 2007. "An Institutional Analysis of Pluralistic Responses to Enterprise System Implementations". *International Conference on Information Systems*, pp.1-19.