

A New Perspective on IT Governance in SMEs

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Abstract

Purpose: The concept of IT Governance is gaining more attention in organizations. The concepts of Governance, Risk and Compliance (GRC) are derived from the principles of corporate governance and are mainly implemented in large public companies. The purpose of this work is to expand our knowledge and understanding of SMEs and the adoption of GRC.

Design/Methodology: In this article we bring a literature overview based on 33 recent invited research papers on GRC, IT and SMEs. The papers will be brought together in a contributed volume that will be published by Springer in 2013. This volume will establish and explore existing and emerging theories on GRC and IT in SMEs, presenting the latest empirical research findings in that area of IT research, and explore new technologies and practices.

Findings: It has always been unspecified that GRC is achieved through control of IT, with Control Theory and Agency Theory acting as a foundations for conceptualizing GRC. However caution is needed in applying the mechanisms of GRC in an SME environment. We argue that in an SME environment, other constructs are of more importance in explaining the complex GRC phenomena than the constructs of Agency Theory and Control Theory.

Practical Implications: SMEs are of crucial importance to most economies all over the globe. Although there is no single generalized definition for a SME, they are most widely seen as companies with less than 500 (US & Canada) or 250 (Europe and elsewhere) employees. SMEs provide since 2000 everywhere more than 50% of all employment (or 67% of employment outside the financial industry).

Originality: There is much debate if the principles of GRC are also applicable in small and medium-sized enterprises (SMEs). This work is based on new empirical material that was never published before. It is brought together and categorized in a volume that uniquely focused on IT and SMEs. Its value is even important for researchers as for IS practitioners.

Keywords: SMEs, IS, IT Governance, Risk and Compliance (GRC), Control Theory, Agency Theory, Research.

Paper Classification: Literature Review

1. Introduction

The business value of information technology (IT) and information systems (IS) has been debated for a number of years now (Brynjolfsson et al. 1998). While some authors have attributed business performance improvements in terms of profitability to IT (Mithas et al. 2012), others report that IT has not had any substantial impact on the business at all (Carr 2003). However, it is widely accepted that IT is a catalyzer for innovation and business performance in organizations (Hopkins et al. 2010; Lyytinen et al. 2003). As research has revealed, it is not easy to link profitability and IT investments (Hitt et al. 1996). While numerous econometric studies have established that there is significant business value from IT investments through IT governance at an aggregate level (Weill 2004), it is often much less clear how this value accrues specifically on at a more microeconomic level (e.g. enterprise, organizational unit) (Devos et al. 2012). This becomes even more elusive if you take only small and medium-sized enterprises (SMEs) into consideration since IS research in that domain is very scarce. Although the academic literature acknowledges the differences between large and small business they fail to define systematic what separates and binds both types of organizations. It is also found that small and medium-sized enterprises (SMEs) do not constitute a homogenous group (Devos 2011). Ideal we should take an idiographic stance to study SMEs. The predominant thinking on IT in SMEs is that IT success is related to size (Eindor et al. 1978). The size of the organization is related to the availability of resources (e.g. financial, managerial time, IT expertise) (Alpar et al. 1991; Cragg et al. 1993) and it is said that SMEs suffer from 'resource poverty' (Welsh et al. 1981).

Practitioners tend to see value of IT governance as the contribution to business performance and try to measure this contribution in terms of firm profitability, since this can be easily expressed in monetary units. Large public enterprises, with their natural propensity to control all business processes and to reduce risks and costs, heavily support this governance approach. In this work we want to focus on entrepreneurial SMEs and look how they deal with the governance of IT. According to Mintzberg an entrepreneurial organization is generally unstructured and is a simple organizational form that typically includes one large operational unit, with one or a few individuals in top management (Mintzberg 1989).

IT governance is a concept that has been evolving rapidly over the last few years, especially in practitioners' communities. The IT Governance Institute is taking a leading role in the debate (IT Governance Institute 2003). Many aspects of IT governance have been described and detailed but little work has been done to pull it all together. From an academic perspective, research on IT governance is emerging as an important area of enquiry (Bernroider 2008; Huang et al. 2010).

There is not so much IS research conducted in SMEs, although the importance of these organizations for our European (and worldwide) economic wellbeing is paramount. We took an initiative to invite scholars and researchers on SME and IT governance to contribute their knowledge and work to a contributed volume. The

papers offers a novel way of investigating the complex and cumbersome phenomenon's of GRC and IT in SMEs. The papers will be brought together in a contributed volume that will be published by Springer in 2013 (Devos et al. 2013). This volume will establish and explore existing and emerging theories on GRC and IT in SMEs, presenting the latest empirical research findings in that area of IT research, and explore new technologies and practices in this area.

This paper is structured as followed. In the next section we will elaborate on the characteristics of entrepreneurial SMEs through an IT governance lens. In section three we will bring some preliminary results of the investigation of the 33 chapters of the contributed volume on SMEs and IT. We close this paper with a conclusion.

2. Entrepreneurial SMEs

Research and literature have highlighted the definitional problems of SMEs. Companies differ in size, location, ownership structure, financial performance, maturity and management style. There are many characteristics to identify an SME. A widely accepted working definition of an SME emanates from the 1971 Bolton Committee Report (Bolton 1971) and has both qualitative and quantitative elements. The qualitative elements (e.g. number of employees, turnover) differs amongst countries. The European Commission took an initiative to define a SME in terms of microeconomic characteristics like turnover (not exceeding 50 million euro), annual balance sheet total (not exceeding 43 million euro) and headcount (fewer than 250 persons) (Commission 2003). This definition is made from a legal and economic point of view and is not always accurate when it comes to the study of the entrepreneurial SMEs. There are approximately 23 million SMEs and 43000 large companies in the EU. About half of all enterprises are self-employed entrepreneurs (Commission 2011a). The Small Business Administration (SBA) in the U.S. tends to hold a much broader definition of an SME and brings this in a "size standard" (SBA 2011). The size standard is expressed either as the number of employees or the average annual receipts of a business concern. The size standard depends on the industry of the SME. The SBA states that a small business concern is "one that is independently owned and operated and which is not dominant in its field of operation." This is in line with the Bolton Committee qualitative elements who defines an SME as: 1) one that has a relatively small market share, 2) one that is managed by its owners or part owners in a personalized way, not by an organized managerial structure and 3) one that is independent with the owners/managers having control of the activities of the business. According to Levi and Powell there are some important characteristics: independence, personal influence, flexibility and innovation that makes up an SME (Levy et al. 2004).

Independence

Independence means that the company is not owned by a larger firm, nor does it depend for its decision-making on a larger entity. To our believe, ownership of a company is paramount to constitute an entrepreneurial SMEs. The funding capital is often the personal capital of the owner, which is called an entrepreneur. The concept

of entrepreneur is sometimes used in large organizations to implement a business culture of flexibility. However these corporate-entrepreneurs do not take an entrepreneurial risk into account and are to be excluded from our target group. So SME-entrepreneurs have a more than average appetite for risk. It might come as a surprise but this does not mean that risk management is a well-developed practice in an entrepreneurial SME. Au contraire, risk management is far more developed in large organizations. An entrepreneur insists on his right of ownership and on his right to control. However, both rights are not well separated nor is control is very well formalized in these organizations. The idea of corporate governance is therefore not so well known in entrepreneurial organizations. This holds also for IT governance. Entrepreneurial organizations are often young and small according to the size standard (number of employees). Older entrepreneurial organizations are sometimes called family firms, indication that the ownership of the company rest within a closed group of family related persons. Although a family-owned firm is not so reliant on external financial sources as banks they can constitute a sustainability and durability when the ownership rights are well managed.

Personal Influence

The management of an SME is strongly influenced by the personal attitude of the CEO to the business (Levy et al. 2004). The business literature assumes a strong linkage between CEOs and organizational outcomes but research is somewhat critical on that (Daily et al. 2003). There are contextual as well as contingency factors that may interfere with that linkage. When it comes to adopting IT, literature found, almost unanimity that the influence of the CEO is paramount for success (Caldeira et al. 2003; Levy et al. 2008; Thong et al. 1995; Thong et al. 1996). The personal influence of the CEO is often a driver for a good deployed IT governance. The vital role of IT in enterprises has led to the view that IT governance must be implemented to sustain and enable business objectives and to mitigate associated risks. IT governance directly influences the benefits generated by organizational IT investments. This holds true for large as well as for small businesses. However, the mechanisms of IT governance are applied much more extensively in large enterprises than in SMEs (Huang et al. 2010). Existing mechanisms of IT governance, such as the way critical IT processes are conducted, the creation of management guidelines to accompany these IT processes, and the assignment of responsibilities and accountability seem to fail in SMEs, where decision making is mostly centered round one person (Levy et al. 2008). The failure or success of IT governance depends almost entirely of the attitude of the CEO towards the concept. This attitude is influence by personal beliefs (Ajzen 1991).

Flexibility and Innovation

It is often assumed that SMEs are per definition innovative organizations that are able to exploit new business opportunities and markets. However research has revealed that innovations and flexibility depend on other factors (Lefebvre et al. 1993). Manufacturing SMEs often show a lack of innovativeness due to costs and a lack of R&D (Madrid-Guijarro et al. 2009; Raymond et al. 2010). Innovation in SMEs is regarded as due to the attitude of the CEO. Also SMEs as organizations can

lack managerial and technical capabilities which inhibit their effectiveness. It is widely accepted that IT is a catalyzer for innovation and business performance in organizations (Hopkins et al. 2010; Lyytinen et al. 2003). However it is not clear if this hold also for SMEs. Plomp et al. found that within the IT domain, SMEs are traditionally less mature and innovative than their larger counterparts (Plomp et al. 2013).

3. Findings from the contributions

Table 1 gives an overview of the contributed chapters. First of all we have to mention that this is work in progress and the current presented findings are still under review.

There were thirty-three contributions coming from twenty-two different countries. Portugal contributes the most with five chapters, followed by Belgium with four chapters. Seventeen chapters are dealing with issues of SMEs in developing countries and sixteen chapters coming from developed countries. Twenty-three chapters were based on empirical findings and nine chapters contained theoretical work. A qualitative research methodology was used in sixteen of the twenty-three empirical chapters. The case study (seven chapters) is most used qualitative research method, followed by six chapters where a literature review was conducted and three chapters with interviews as the research method. The survey (seven chapters) is the most used quantitative method.

Table 1 – Overview of the contributed chapters

Name	Country	Topic	Category	Research methodology
Ahuja, V.	India	IT/IS and SME in developing countries	Adoption	Case study
Antlova, K.	Czech Republic	Main factors of ICT adoption in the Czech SMEs	Adoption	Interviews
Anunciação, P.	Portugal	E-Business in Portuguese SMEs: an empirical perspective and analysis	E-business	Literature review
Azab, N.	Egypt	Different use of information systems by SMEs in Egypt	Adoption	Interviews
Bernaert, M & Poels, G.	Belgium	Enterprise Architecture for Small and Medium-Sized Enterprises	EA	Theoretical
Cerquitelli, T.	Italy	Internet technologies to support SME internationalization	Internet technologies	Theoretical
Degerli, M. & Ozakan, S.	Turkey	Factors Influencing the Acceptance of Processes in Small and Medium-sized Enterprises	Capabilities	Survey
Devos, J.	Belgium	Literature overview of IS research on SMEs	General	Literature review
Eryigit, C.	Turkey	Marketing Related Information Systems: Practices in Small and Medium Sized Enterprises	ERP - CRM	Theoretical
Eze, S.	U.K.	IT/IS adoption in SMEs	Adoption	
Gellert, F.J. & Velthuisen, H.	Netherlands	Offshoring: a matter of bridging cultural differences	Outsourcing	Interviews
Guldentops, E.	Belgium	CobIT 'Lite' (Quickstart v1 en v2).	IT Governance	Theoretical
Hakikur, R. & Ramon, I.	Portugal	Open Innovation in SMEs: Prospects and Challenges	Innovation	Literature review
Heavin, C. & Adam, F.	Ireland	Exploring Knowledge Capabilities in SMEs: Cases in Five Irish Software SMEs	Capabilities	Case study
Igonor, A., Harindranath, G.	Canada	IS in SMEs: Issues of Strategy, Adoption and Capability	Adoption	Survey
Kimwele, M.W.	Kenya	Information Technology (IT) Security in Small and Medium Enterprises	Security	Survey
Korvela, H.	Finland	Forums and Blogs and Wikis, Oh My! - AN analysis of On-line Sources of Support for End-User Development	EUD	Theoretical
Menzel, M. & Reiners, T.	Germany	Customer Relationship Management System: A Case Study on Small- and Medium-sized Companies in North Germany	ERP - CRM	Survey
Muñoz Gallego, P. et al.	Portugal/Brazil	M-banking of the Brazilian entrepreneurs and self-employees	Adoption	Survey
Olsen, D., & Hustad, E.	Norway	ERP Implementation in an SME: a Failure Case	ERP - CRM	Case Study
Petrov, J.	Macedonia	SME, and Open Source and cloud	Open Software	Theoretical
Pierson, J.	Belgium	Micro-enterprises and GRC	General	Theoretical
Plomp, M.G.A, Batenburg, R.S. & den Hertog, P.	Netherlands	ICT Policy to Foster Interorganisational ICT Adoption by SMEs: The Netherlands Goes Digital Case	Government	Survey
Radut, C.	Romania	ERP Implementation and Integration in SMEs	ERP - CRM	Literature review
Ruivo, P. et al.	Portugal	Empirical study on differences and similarities in ERP usage among European SMEs	ERP - CRM	Survey
Sezgin, Emre	Turkey	Assessment of Information technology Use in Small and Medium-sized Enterprises: Empirical Investigation in Five Cases	Use	Case study
Silva, C.	Portugal	Database marketing as a tool that enhances strategic advantage and consumer driven products	ERP - CRM	Literature review
Stefanou, C.	Greece	Adoption of Free/Open Source ERP Software by SMEs	Open Software	Theoretical
Thandar Wynn, M.	Australia	Business Process Management in Small Business: A Case Study	EA	Case study
Thompson, S.	Jamaica	When the Opportunistic Adoption of Internet Technology by SMEs Segues into Strategic Use: Case from a Developing Country Context	Internet technologies	Case study
Vega, A. & Chiasson, M.	U.K.	Government Support to IS innovation on SMEs	Government	Case Study
Verjus, H. et al.	France	Business Agility and Flexibility in Enterprise Service-based Information Systems: Application on PLM Systems	ERP - CRM	Theoretical
Wielicki, T.	U.S.	Business digital divide	Adoption	Literature review

IT for SMEs in developing countries

Research in the more developed countries (UK, US, EU) have a tendency to overlook the importance of SMEs and focus on large organization where IS fashion waves tend to emerge and ‘fads and fancies’ tend to characterize IS/IT (Baskerville et al. 2009). We could notice that a large number (16) of the contributions come from researchers from developing countries or countries with weak economic performances. All of them stressed the importance of SMEs for their economies.

Outsourcing

Although IT/IS outsourcing is a common practice in SMEs due to their lack of resources and expertise, not a lot of research is conducted in that area (Dibbern et al. 2009). The outsourcing of the IS function in SMEs is mainly characterized by a project management outsourcing, by which the SME outsourced a complete IS project to an independent software vendor (ISV) (e.g. implementation of an ERP or CRM system). It is well known that outsourcing leads to extra risks due to the introduction of an external agent (Devos et al. 2012). Well known risks are opportunistic behavior and vendor locks. On the other hand it was also shown that IT/IS outsourcing cannot transfer all risk to the ISV-agent (Devos et al. 2008). The principal (e.g. CEO of the SME) has to exhibit sufficient commitment towards the outsourced IS project to avoid an IT failure. This is shown again by the research of Hustad and Olsen (Hustad et al. 2013). They found that the improper handling of the top management support together with project management and use of consultants had severe ramifications for the success of the implementation project.

Gellert and Velthuisen did an investigation to trust in relationships among SMEs with different governance and cultural backgrounds (Gellert et al. 2013). They conducted 16 interviews in selected companies from the Northern European area and found that all participating SMEs highlighted the importance of trust in a relationship with regard to outsourcing. The findings are consistent with these of Bekmamedova and Devos et al. (Bekmamedova et al. 2008; Devos et al. 2009).

Government incentives and support

Governmental support for IT in SMEs is a well-known practice in most countries all over the world. It is based on the belief that SMEs are of vital importance for current economies and societies all over the globe and that IT plays a critical role in nurturing industrial innovation and economic growth. The macro-economic measurements of SMEs in most countries are indeed impressive. In Europe, SMEs represent 99.8% of all enterprises and generate 57.9% of the EU-27's non-financial business economy value added and provide 67% of the jobs in the private sector (Commission 2011b). In U.S. SMEs represent 99.7% of all employer firms, employ about half of all private-sector employees, pay 43% of total U.S. private payroll, and have generated 65 % of net new jobs over the past 17 years from 1993 till 2009 (Asministration 2012). Most countries have a ministry or department devoted to support SMEs. The support can be delivered from different levels: local, national and supra-national (e.g. EU) or federal (U.S.) and on a variety of theme's (e.g. capital funding, tax issues, legal aspects and regulations, intellectual property and IT). We take an interest here in support for IT. Most of the governmental programs IT focus on IT adoption, since SMEs are considered as lagging behind of their larger counterparts. Although the support for IT in SMEs is mostly on the agenda of governmental initiatives, the outcomes of these initiatives and the benefits for the SMEs on a firm level are not so clear (Plomp et al. 2013). There is a stream of

literature indicating that a lot of government programs who are set up to help SMEs with IT adoption, are not so successful (Commission 2004; Cuadrado-Roura et al. 2004; Dagdilelis et al. 2003; Klonowski 2010; Martin et al. 2001; Vega et al. 2008). In a study of a governmental program for interorganisational ICT (IOS) in SMEs, Plomp et al. build a conceptual model to investigate the effects (Plomp et al. 2013). Their conclusion is that the use of IOS is more in SMEs that participated in the program and that participating SMEs state considerably more frequently that IT has enhanced their company's performance. They conclude that participation in a governmental program does not result in more effective information systems, but that governmental programs lower the barriers to adoption and make it more attractive for SMEs.

Vega et al. state that policies focus for SMEs has been modified repeated times according to the view of governments regarding the global economic environment and the outcome of previous policies (Vega et al. 2013). A same conclusion can be made for the successful KMO-IT program in Belgium. After more than ten years of experience gathering and optimizing an ICT support program for SMEs, the local government decided to take another approach and brought ICT under a broader umbrella of industrial support programs. The reason for this focus change was a shortage in future budgets. Vega et al. tried to understand the public IS support programs for SMEs in terms of the existence of discretion and the contexts that influence the decisions and actions of program personnel. They found evidence that program personnel exert considerable discretion which effectively change their role from policy-implementers to policy-makers. According to their findings program personnel considerably modified, ignored, extended and interpreted policies. The reason for doing so is that policy-makers tend to set high targets and formulate broad and ambiguous policies but provide few resources. This influences the auditing and evaluative designs on politically relevant metrics instead of content and quality aspects of the IS support initiatives (Vega et al. 2013). The authors come to another interesting finding that the presence of the SME sector in the political landscape is generally irrelevant.

4. Conclusion

Although the concept of IT governance is gaining more and more attention in all organizations, IT governance becomes more and more a concept for large public enterprises, mainly in the financial sector and so the IT governance mechanisms are modeled accordingly. The concept of IT governance originates from the discussion of strategic IT planning and IT management, but its link to an overall corporate governance structure seems to be a bridge too far for most SMEs. Recently there has been since criticism on the concepts of IT governance (Devos et al. 2012). The reasons for the critical review of the IT governance concepts is not only academic, but stems from the large number of IT failures reported from literature (Cerpa et al. 2009; Conboy 2010; Devos et al. 2008; Eveleens et al. 2010). According to Hoogervorst the problems with IT governance are to be found in the poor realization of strategic IT alignment with the business (Hoogervorst 2008). Ciborra criticized the way strategic thinking about IT in organizations is often presented as a linear, top-down, rational and cognitive process (Ciborra 2002). When put into use by practitioners strategic planning is a process of disassociation from the theoretical foundations. The trajectory from IT strategy formulation down to implementation is not an intentional process of design, but a chain of evolutionary processes that involve serendipity and muddling through elements of surprise.

The predominant perspective on IT governance is stirred by a way of thinking that is inspired by a very mechanical view of an organization. The organization is thereby seen as a

cybernetic machine that can be engineered and controlled at any time. The effectiveness of IT governance is then related to the implementation of a formal control system. The implementation of IT governance follows a linear, top down approach based on decision making processes and supporting structures. It is thereby implicitly assumed that the implementation process is based on causality of events and phenomenon's. The set of IT governance mechanisms (e.g., IT steering committee, IT organizational structure, ...) required to implement IT governance are all designed according to a top down principle (IT Governance Institute 2003).

Other concerns on IT governance comes from the field. Research has revealed that COBIT – Control Objectives for Information and related Technologies, ITIL – The Information Technology Infrastructure Library and CMMi – Capability Maturity Model Integration are the most applicable best practices and standards for implementing IT governance mechanisms. However it was also reported that the major drawback of these practices is the lack of know-how. Organizations and specially SMEs with less IT staff require external expertise for implementation and training. This may not be understated since the aggregate cost, including time, training, fees and licenses can go beyond affordable boundaries for most SMEs (Sezgin 2012). Another issue coming from the field is the observation that the IT governance practices are too generic and focus too much on “what must done” and less on “how it should be done”. (Morimoto 2009).

The findings clearly show that the role of GRC and IT is different in SMEs than in large companies. SMEs require simple and informal control systems with adequate reporting and a higher focus on people. The CEO is the crucial stakeholder of an IT project in a SME, and very often, this CEO lacks commitment, time and knowledge. This suggests an important unit of analysis for future empirical research. We argue that practitioners as well as researchers should incorporate a more idiosyncratic profile of SMEs in their way of thinking when dealing with SMEs and GRC.

References

- Ajzen, I. 1991. "THE THEORY OF PLANNED BEHAVIOR," *Organizational Behavior and Human Decision Processes* (50:2) Dec, pp 179-211.
- Alpar, P., and Eindor, P. 1991. "MAJOR IS CONCERNS OF ENTREPRENEURIAL ORGANIZATIONS," *Information & Management* (20:1) Jan, pp 1-11.
- Asministration, S. B. 2012. "Frequently Asked Questions," SBA.
- Baskerville, R. L., and Myers, M. D. 2009. "FASHION WAVES IN INFORMATION SYSTEMS RESEARCH AND PRACTICE," *Mis Quarterly* (33:4) Dec, pp 647-662.
- Bekmamedova, N., Prananto, A., and McKay, J. Year. "Towards a Conceptualisation of Trust in IS Outsourcing," ICIS, AIS, Paris, 2008.
- Bernroider, E. W. N. 2008. "IT governance for enterprise resource planning supported by the DeLone-McLean model of information systems success," *Information & Management* (45:5) Jul, pp 257-269.
- Bolton, J. E. 1971. "Small Firms: Report of the Committee of Inquiry on Small Firms," Department of Trade and Industry, London.
- Brynjolfsson, E., and Hitt, L. M. 1998. "Beyond the productivity paradox," *Communications of the Acm* (41:8) Aug, pp 49-55.
- Caldeira, M. M., and Ward, J. M. 2003. "Using resource-based theory to interpret the successful adoption and use of information systems and technology in manufacturing small and medium-sized enterprises," *European Journal of Information Systems* (12:2) Jun, pp 127-141.
- Carr, N. G. 2003. "IT doesn't matter," *Harvard Business Review* (81:5) May, pp 41-+.
- Cerpa, N., and Verner, J. M. 2009. "Why Did Your Project Fail?," *Communications of the Acm* (52:12) Dec, pp 130-134.
- Ciborra, C. 2002. *The Labyrinths of Information: Challenging the Wisdom of Systems*, (Oxford University Press, USA.
- Commission, E. 2003. "Commission Recommendation 2003/361/EC," *Official Journal of the European Union* (46:L 124), p 6.
- Commission, E. 2004. "Go Digital Awareness Campaign 2001-2003: The Main Lessons to be Learnt."
- Commission, E. 2011a. "EU Trade Policy and SMEs, Fact sheet," p. 2.
- Commission, E. 2011b. "Fact and Figures about the EU's Small and Medium Enterprise (SME)," in *Small and medium-sized enterprises*.
- Conboy, K. 2010. "Project failure en masse: a study of loose budgetary control in ISD projects," *European Journal of Information Systems* (19:3) Jun, pp 273-287.
- Cragg, P. B., and King, M. 1993. "SMALL-FIRM COMPUTING - MOTIVATORS AND INHIBITORS," *Mis Quarterly* (17:1) Mar, pp 47-60.
- Cuadrado-Roura, J. R., and Garcia-Tabuenca, A. 2004. "ICT policies for SMEs and regional disparities. The Spanish case," *Entrepreneurship and Regional Development* (16:1) Jan, pp 55-75.
- Dagdilelis, V., Satratzemi, M., and Evangelidis, G. 2003. "Implementing a nationwide system for training very small enterprises for ICT innovation: the Greek case," *Educational Technology & Society* (6:1) Jan, pp 26-31.
- Daily, C. M., Dalton, D. R., and Cannella, A. A. 2003. "Introduction to special topic forum corporate governance: Decades of dialogue and data," *Academy of Management Review* (28:3) Jul, pp 371-382.
- Devos, J. 2011. *IT Governance for SMEs*, Ghent University, Gent.
- Devos, J., Van Landeghem, H., and Deschoolmeester, D. 2008. "Outsourced Information Systems Failures in SMEs: a Multiple Case Study," *Electronic Journal of Information Systems Evaluation* (11:2), pp 73-84.

- Devos, J., Van Landeghem, H., and Deschoolmeester, D. 2009. "IT Governance in SMEs: Trust or Control?," in *Information Systems - Creativity and Innovation in Small and Medium-Sized Enterprises*, G. Dhillon, B. C. Stahl and R. Baskerville (eds.), pp. 135-149.
- Devos, J., Van Landeghem, H., and Deschoolmeester, D. 2012. "Rethinking IT governance for SMEs," *Industrial Management & Data Systems* (112:1-2), pp 206-223.
- Devos, J., Van Landeghem, H., and Deschoolmeester, D. 2013. *Information Systems and Small and Medium-sized Enterprises - State of art of IS research in SMEs*, Springer.
- Dibbern, J., and Heinzl, A. 2009. "Outsourcing of Information Systems Functions in Small and Medium Sized Enterprises: A Test of a Multi-Theoretical Model," *Business & Information Systems Engineering* (1:1) Feb, pp 101-110.
- Eindor, P., and Segev, E. 1978. "ORGANIZATIONAL CONTEXT AND SUCCESS OF MANAGEMENT INFORMATION-SYSTEMS," *Management Science* (24:10), pp 1064-1077.
- Eveleens, J. L., and Verhoef, C. 2010. "The Rise and Fall of the Chaos Report Figures," *Ieee Software* (27:1) Jan-Feb, pp 30-36.
- Gellert, F. J., and Velthuisen, H. 2013. "Offshoring: a matter of bridging cultural differences," in *Information Systems and Small and Medium-sized Enterprise - State of art of IS research in SMEs*, J. Devos, H. Van Landeghem and D. Deschoolmeester (eds.), Springer.
- Hitt, L. M., and Brynjolfsson, E. 1996. "Productivity, business profitability, and consumer surplus: Three different measures of information technology value," *Mis Quarterly* (20:2) Jun, pp 121-142.
- Hoogervorst, J. 2008. "De ongemakkelijke waarheid omtrent IT-goverance," *Informatie* (03/2008).
- Hopkins, M. S., and Brynjolfsson, E. 2010. "The Four Ways IT Is Revolutionizing Innovation," *Mit Sloan Management Review* (51:3) Spr, pp 51-+.
- Huang, R., Zmud, R. W., and Price, R. L. 2010. "Influencing the effectiveness of IT governance practices through steering committees and communication policies," *European Journal of Information Systems* (19:3) Jun, pp 288-302.
- Hustad, E., and Olsen, D. H. 2013. "ERP Implementation in an SME: a Failure Case," in *Information Systems and Small and Medium-sized Enterprise - State of art of IS research in SMEs*, J. Devos, H. Van Landeghem and D. Deschoolmeester (eds.), Springer.
- IT Governance Institute, 2003. "Board Briefing on IT Governance," I. G. Institute (ed.), IT Governance Institute: Rolling Meadows.
- Klonowski, D. 2010. "The effectiveness of government-sponsored programmes in supporting the SME sector in Poland," *Post-Communist Economies* (22:2), pp 229-245.
- Lefebvre, L. A., and Lefebvre, E. 1993. "COMPETITIVE POSITIONING AND INNOVATIVE EFFORTS IN SMES," *Small Business Economics* (5:4) Dec, pp 297-305.
- Levy, M., and Powell, P. 2004. *Strategies for Growth in SMEs: The Role of Information and Information Systems*, Elsevier: Oxford.
- Levy, M., and Powell, P. 2008. "Small firm transformation through IS," *International Journal of Technology Management* (43:1-3), pp 123-141.
- Lyytinen, K., and Rose, G. M. 2003. "Disruptive information system innovation: the case of internet computing," *Information Systems Journal* (13:4) Oct, pp 301-330.
- Madrid-Guijarro, A., Garcia, D., and Van Auken, H. 2009. "Barriers to Innovation among Spanish Manufacturing SMEs," *Journal of Small Business Management* (47:4) Oct, pp 465-488.
- Martin, L. M., and Matlay, H. 2001. "'Blanket' approaches to promoting ICT in small firms: some lessons from the DTI ladder adoption model in the UK," *Internet Research-Electronic Networking Applications and Policy* (11:5), pp 399-410.
- Mintzberg, H. 1989. *Mintzberg on Management*, Free Press.
- Mithas, S., Tafti, A., Bardhan, I., and Goh, J. M. 2012. "INFORMATION TECHNOLOGY AND FIRM PROFITABILITY: MECHANISMS AND EMPIRICAL EVIDENCE," *Mis Quarterly* (36:1) Mar, pp 205-224.

- Morimoto, S. 2009. "Application of COBIT to Security Management in Information Systems Development," *Fcst 2009: Proceedings of the 4th International Conference on Frontier of Computer Science and Technology*, pp 625-630.
- Plomp, M. G. A., Batenburg, R. S., and den Hartog, P. 2013. "ICT Policy to Foster Interorganisational ICT Adoption by SMEs: The Netherlands Goes Digital Case," in *Information Systems and Small and Medium-sized Enterprises - State of art of IS research in SMEs*, J. Devos, H. Van Landeghem and D. Deschoolmeester (eds.), Springer.
- Raymond, L., and St-Pierre, J. 2010. "R&D as a determinant of innovation in manufacturing SMEs: An attempt at empirical clarification," *Technovation* (30:1) Jan, pp 48-56.
- SBA 2011. "Small Business Administration - Size Standards."
- Sezgin, E. 2012. "Assessment of Information technology Use in Small and Medium-sized Enterprises: Empirical Investigation in Five Cases," in *Information Systems and Small and Medium-sized Enterprises - State of art of IS research in SMEs* J. Devos, Van Landeghem, H. & Deschoolmeester, D. (ed.), Springer.
- Thong, J. Y. L., and Yap, C. S. 1995. "CEO CHARACTERISTICS, ORGANIZATIONAL CHARACTERISTICS AND INFORMATION TECHNOLOGY ADOPTION IN SMALL BUSINESSES," *Omega-International Journal of Management Science* (23:4) Aug, pp 429-442.
- Thong, J. Y. L., Yap, C. S., and Raman, K. S. 1996. "Top management support, external expertise and information systems implementation in small businesses," *Information Systems Research* (7:2) Jun, pp 248-267.
- Vega, A., and Chasson, M. 2013. "Government Support to IS innovation in SMEs," in *Information Systems and Small and Medium-sized Enterprises - State of art of IS research in SMEs*, J. Devos, H. Van Landeghem and D. Deschoolmeester (eds.), Springer.
- Vega, A., Chiasson, M., and Brown, D. 2008. "Extending the research agenda on diffusion: the case of public program interventions for the adoption of e-business systems in SMEs," *Journal of Information Technology* (23:2) Jun, pp 109-117.
- Weill, P. 2004. "Don't Just Lead, Govern: How Top-Performing Business Govern IT," *MIS Quarterly Executive* (3:1), pp 1-7.
- Welsh, J. A., and White, J. F. 1981. "A SMALL BUSINESS IS NOT A LITTLE BIG BUSINESS," *Harvard Business Review* (59:4), pp 18-&.