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Deborah Bunker

The University of Sydney Business School, University of Sydney, Sydney, New South Wales,
deborah.bunker@sydney.edu.au

Catherine Hardy

The University of Sydney Business School, University of Sydney, Sydney, New South Wales,
catherine.hardy@sydney.edu.au

Abdul Babar

The University of Sydney Business School, University of Sydney, Sydney, New South Wales,
Abdul.babar@sydney.edu.au

Kenneth J Stevens

UNSW Business School, University of New South Wales, Sydney, New South Wales,
k.stevens@unsw.edu.au

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Recommended Citation

Bunker, Deborah; Hardy, Catherine; Babar, Abdul; and Stevens, Kenneth J, "Exploring Practitioner Perspectives of Sourcing Risks: Towards the Development of an Integrated Risk and Control Framework" (2015). *ACIS 2015 Proceedings*. 149.
<https://aisel.aisnet.org/acis2015/149>

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Exploring Practitioner Perspectives of Sourcing Risks: Towards the Development of an Integrated Risk and Control Framework

Deborah Bunker

The University of Sydney Business School
University of Sydney
Sydney, New South Wales
Email: deborah.bunker@sydney.edu.au

Catherine Hardy

The University of Sydney Business School
University of Sydney
Sydney, New South Wales
Email: catherine.hardy@sydney.edu.au

Abdul Babar

The University of Sydney Business School
University of Sydney
Sydney, New South Wales
Email: abdul.babar@sydney.edu.au

Kenneth J Stevens

UNSW Business School
University of New South Wales
Sydney, New South Wales
Email: k.stevens@unsw.edu.au

Abstract

Outsourcing of information and communication technologies (ICT) and related services is an established and growing industry. Recent trends, such as the move toward multi-sourcing have increased the complexity and risk of these outsourcing arrangements. There is a critical research need to identify the risks faced by both the organisations that outsource ICT and the vendors that provide it in this changing landscape. To address growing concerns regarding the best way to deal with risk and control in this environment, our research focuses on establishing a Sourcing Risk and Control Framework to assist organisations identify these risks and develop effective mitigation strategies. In this paper we report on the first stage of our research that sought to document how sourcing risk is represented and considered in practice. To date, limited empirical research has been conducted in an Australian context. Using a series of workshops involving client and vendor representatives, we identified a broad range of risks and developed a cohesive categorisation scheme that incorporates functional and multi-stakeholder perspectives.

Keywords

Outsourcing, risks, controls, practitioners viewpoint

1 Introduction - The Business and Research Imperative

The management of sourcing risks, and their various guises, has been a focal area of research in the information systems (IS) field for close to two decades (eg. Earl 1996; Willcocks et al. 1999; Warkentin and Adams 2007; Herath and Kishore 2009; Yim 2014). Gonzalez et al. (2013) argue that within the outsourcing domain, risk is second only to success in terms of importance. While sourcing risk has been extensively researched, it remains a theoretical and practical challenge, especially given the variation in risks due to differences in the scope of services sourced (Jain and Thietart 2013) and the increasing challenge of integrating services across multiple service providers (Deloitte 2013a; ISACA 2014). Recent technological developments such as cloud computing, and broadband and mobile technologies have revealed a dynamic and inter-dependent nature of risks, particularly in operational security risks (Rocco Grillo cited in Protiviti 2014), that is yet to be fully understood.

As the “scope, scale and complexity of vendor relationships and services increase,” (ISACA 2014, p.9), the effective identification of sourcing risks, their management and implementation of cost effective controls is paramount to organisational productivity, performance, growth and sustainability. Yet, recent industry surveys reveal that organisations are failing to adequately address these risks and lack the necessary capabilities to manage them effectively (Protiviti 2014). In addition, as global sourcing expands, so do the types of sourcing models and standards/regulations that guide these practices (e.g. Sandeep et al. 2013). These issues focus attention on the need for developing new approaches and a comprehensive risk management strategy to effectively manage these risks at a practical (e.g. Deloitte 2013b; ISACA 2014; Protiviti 2014) and theoretical level (e.g. Lacity et al. 2010; Mathew 2011).

In response to these challenges we have developed a major research project with the aim of developing an innovative and integrated framework that can support business to effectively conduct sourcing risk assessments and implement appropriate mitigation strategies. Concurrently, the research team is also developing an ontological representation of this framework with the objective of creating an interactive website to facilitate and incorporate ongoing input to the framework on both a local and global scale.

Overall our project has three objectives: 1) understanding the implications for the design and use of such a framework in organisations; 2) making the framework part of current sourcing risk identification and management practices of an organisation; and 3) developing an understanding of sourcing risk in an Australian context. We seek to address issues such as: critical uncertainties of sourcing arrangements; the power imbalance between supplier and customer; complex compliance and standards; the nature of the supplier and customer organisation and its effect on sourcing arrangements; the nature of the sourcing transaction; and leverage and negotiation mechanisms.

There are four stages to this research program, which we outline in section two. The aim of this paper is to report on the first piece of work from Stage 1, which is designed to address the following question: “How do organisations identify and classify risks in their sourcing arrangements and collaborations?”

The structure of the paper is as follows. Firstly, we provide background information about the research project. We then follow this discussion with the literature review. The third section outlines the overall project methodology and workshop format for Stage 1. This is followed by the preliminary risk classification arising from the workshops. Next the implications from the first stage of our research are discussed, followed by the conclusion and future directions for our research project.

2 Research Background

The overall objective of the project is to develop a new and innovative framework which can be applied by all parties to a sourcing transaction (supplier and customer) to 1) decrease the rate of failure of sourcing arrangements by ensuring that the most cost effective controls are implemented and used, and 2) decrease the transaction costs for sourcing by limiting the use of inappropriate or ineffective controls and by encouraging the selection of controls that are appropriate and effective. When established, the Sourcing Risk and Control Framework could be used for further research into novel control strategies including (but not limited to) incomplete contracts as well as strategies based on enhancing social interactions between suppliers and purchasers.

2.1 Project Background

In order to develop a Risk Management and Control Framework, a number of workshops with a cross-section of industry participants were conducted. The objectives of the workshop were to determine:

- how practitioners identify and manage risk complexity through their patterns of control within their sourcing arrangements; and
- the technical, social and institutional influences embedded in their risk perceptions.

Having developed the framework we would then test and continually improve it through a series of continuous case studies of organisations in different industrial settings as well as through the development of an interactive website to facilitate and incorporate ongoing input to the framework. We would do this in order to produce findings based on the identification of overall patterns or individual approaches to the topic and highlight the implications for ICT sourcing arrangements and collaborations from a risk management perspective.

The project has 4 distinct research stages outlined as follows:

Stage 1 - Develop sourcing risk identification and classification (workshops);

Stage 2 – Develop control patterns (i.e. identify enablers, inhibitors and mechanisms to control sourcing risks) (workshops);

Stage 3 – Integrate sourcing risks and classifications as well as control patterns in a framework (workshops); and

Stage 4 – Apply and test the framework to identify risks and controls as well as measure control effectiveness to inform decisions and improve the framework within each case organisation.

This paper outlines Stage 1 findings and reports on the workshops held with a cross-section of industry representatives, which were designed to:

- Address the current limited understanding of risks in organisational sourcing arrangements that is impacting upon effective decision making on outsourcing by organisations;
- Develop meta-level learning across organisations, which has the potential to reduce the impact and cost of sourcing risks;
- Encourage academic and industry information sharing about ICT sourcing risk identification, to facilitate learning; and
- Develop a risk classification as a basis for the long-term development of a Sourcing Risk and Control Framework.

Upon the completion of Stage 2 of the project (as outlined above), our framework will also include the development of risk controls that should be applied to sourcing risks, the overall objectives of these controls, as well as the perceived effectiveness of such controls in different sourcing situations.

2.2 Literature Review

Failure to effectively manage issues/factors such as the identification of appropriate providers, the identification of clear outsourcing objectives understood by all stakeholders, provider attention to client problems, frequent provider/client contact, value for money arrangements, top management support, and appropriate contract structures, present risks to a sourcing arrangement (Gonzales et al. 2008, Hirschheim 2009, Goo et al. 2009, Lacity et al. 2010, Gonzalez et al 2013). Various risk types and classifications have been proposed by numerous studies (see for eg. Herath and Kishore 2009; Nakatsu and Iacovou 2009; de Sà-Soares et al. 2014) and typically include categories such as client/vendor capabilities, supply risk, strategic, legal/regulatory risks, financial, geopolitical, technology, strategic, environmental and sustainability, reputation, employee morale and process and control risks. Whilst these risk classification studies are useful, they have mostly based on literature reviews. Empirical studies that have been undertaken have been conducted in the USA (eg. Kim and Chai 2014), Europe (see Lacity et al. 2010 review) or Asia (Lam 2011; Qin et al 2012). Few empirical sourcing risk studies have been conducted in Australia for example Cullen et al. 2005, Rouse & Corbitt 2003, and Rouse & Corbitt, 2007 . The importance of understanding contextual factors in analysing sourcing risks was highlighted by Willcocks et al. (1999) and is of increasing significance given the geographical dispersion of sourcing arrangements and possible risk exposures.

The increasing inter-connected nature of sourcing risks requires an inter-disciplinary and multi-stakeholder view to bring together the different perceptions and approaches that can be employed in risk management. Limited attention has been directed towards exploring: the relationship of these risk factors to one another and their prioritisation (Gandhi et al 2012); the type of controls that need to be put in place to mitigate the risk to an organisation's sourcing arrangements (Wullenweber et al. 2008; Mathew 2011); or how to measure the effectiveness of these controls. In addition, there have been calls for more "holistic and rich theoretical perspectives" to be used in the sourcing domain (Fregtag et al. 2012). Theories such as transaction cost theory, agency theory and resource-based theory have been dominant in explaining sourcing motivations and risks (see Appendix A in Gonzalez 2010). Whilst useful, these theories provide limited insight into risk perceptions influenced by cultural, socio-political, and cognitive factors such as past experiences (see for e.g. Gorla and Lau 2010). Perceptions of risks from multiple stakeholder groups, in different industry and national contexts are critical in informing empirical research and may provide insights for practitioners to understand 'each others' perceptions of risk.

3 Project Methodology

The project utilizes and applies a proven methodological approach (stakeholder workshops from a Discovery perspective) to develop and implement a Sourcing Risk and Control Framework. This

research approach is critical to the effectiveness of the data collection and analysis within this study due to the variable nature of organisational outsourcing requirements, diversity of risks associated with these requirements, the variation in control types that can be applied and the multitude of methods that can be used to assess them. That is to say, more quantitative methods of data collection (such as experiments, surveys and field studies) would not gather the most appropriate data for interpretation so to detect the subtleties and differences between organisations. The key generic components of Discovery and Action Research methodologies that are of particular relevance to the development and implementation of the Sourcing Risk and Control Framework are:

Workshops –The *diagnostic* component, involving researchers and key industry representatives in developing a shared interpretation of the Sourcing Risk and Control Framework objectives, assumptions, information, processes and support practices; diagnosis also involves problems related to implementation of a particular framework design and achievements of the framework objectives;

Workshops – The *intervention* component (also called therapeutic), involving the design and re-design of the Sourcing Risk and Control Framework objectives, assumptions, information, processes and support practices, based on diagnosis; and

Organisational Case Studies – The *learning* component, involving distinct, ongoing processes of reflection on consultative practices underway and learning from observations of changes in these practices in the design of the Sourcing Risk and Control Framework. This will be undertaken in the context of the critical argument theory.

While there are several different models and forms of action research, the most appropriate for this study is the canonical form as it implies a cyclic, reflective, iterative and rigorous process (Baskerville and Wood-Harper 1998). Each cycle in this process involves phases of diagnosing, action planning, action taking, evaluating and specifying learning (Fig 1).

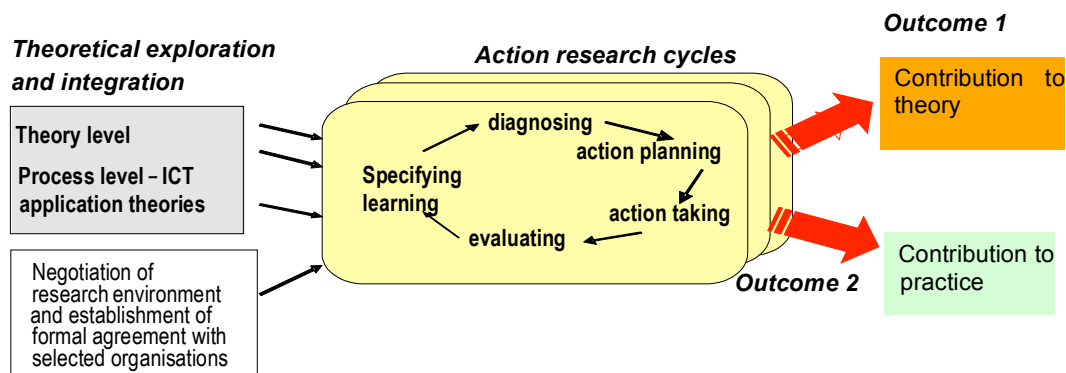


Figure 1: Research design - adapted from Bunker & Smith 2009

Data is being collected throughout the Discovery and Action Research cycles by the project team. Formal records of all the meetings with organisers and participants of consultations are being kept; the collaborative reflection and learning phases are being recorded (with the permission of participants); interviews are to be conducted with selected participants in a case consultation; and records of consultations are all being archived for subsequent analysis. This approach has been applied to other industry sectors for solution derivation and implementation as well as development of innovations (Bunker et al. 2007; Pang and Bunker 2005; Smith et al. 2010).

3.1 Stage 1 Diagnostic Workshops – Risk Identification and Classification

A number of workshops were held with practitioners in the latter half of 2014 so as to develop an understanding of risks and their relationships. In order to better prepare for the workshop activities, the research team conducted an “expert walk-through” with a skilled outsourcing practitioner where a preliminary list of risks was identified.

Two workshops were subsequently conducted with both practitioners and academics that had expertise in sourcing risk and control. As the opportunity to gather expert practitioners in a workshop setting was highly time-constrained it was decided to use the Quality Function Deployment (QFD) method to facilitate: 1) the development of the risk lists: and 2) their categorisation (e.g. Crow 1994, Akao 2004).

A third case-based role playing workshop was held with a few practitioners and academics to apply the risks and categories that were developed from the first two workshops and to test their rigour and relevance. Workshop participants are detailed in Table 1.

Practitioners	Count	Academics	Count (discipline)
Director	4	Professor	1 (IS)
Information security manager	1	Senior Lecturer	3 (IS, computer science)
Legal council	1	Lecturer	2 (IS, accounting)
Practice lead	1		
Project manager	1		
Architect/technical lead	2		
	10		6

Table 1. Workshop participants

The workshops participants were drawn from a number of industries, including consulting, banking and finance, and insurance as well as professional bodies and were selected for their considerable knowledge and experience in IT outsourcing.

Timing	Activities	Outcomes
First workshop	<ul style="list-style-type: none"> Explanation of the QFD method Discussion about risk requirements and categories Requirements classified into categories Risks identified and written on PostIt notes 	<ul style="list-style-type: none"> Framework requirements Risk categories identified Initial risks list
Second workshop	<ul style="list-style-type: none"> Additional risks identified All risks then categorised Connections identified (weak-medium-strong) between the categories Risks characterised as strategic or operational 	<ul style="list-style-type: none"> Risks mapped to risk categories Connection between the different risk categories
Third workshop	<ul style="list-style-type: none"> Case-based role playing to apply risks and categories to a specific scenario. 	

Table 2. Workshop activities

In *Workshop 1* participants identified design elements for a Sourcing Risk and Control Framework, e.g. as QFD has a product development orientation, participants were asked about the type of risk management characteristics important in the development of the framework. Participants then classified these requirements into categories and prioritised them. These were written onto PostIt notes. One category that was identified and formed a substantial part of the workshop discussion was “Defining categories for sourcing risks.” All sourcing risks identified throughout the discussion were also written onto PostIt notes (one per note).

In *Workshop 2* participants identified sourcing risks (on additional PostIt notes) building on the work from the previous workshop. These risks were then categorised into 16 high-level categories (see Appendix One). Relationships were then assigned between risk categories i.e. weak to strong relationships and characterised as strategic or operational. Analysis of the PostIt notes also highlighted risks that were more relevant to outsourcing vendors, rather than client organisations.

In *Workshop 3* the risk list and classification was reviewed by a small team of academics from different disciplines and practitioners through its application to a case study scenario. Workshop conversations and PostIT notes were transcribed into a spread-sheet format.

4 Findings, discussion and implications

The 16 categories of risks and 151 risk types (see Appendix One) identified in the workshops show that strategy related risks (91) are more prevalent than operational type risks (60). Comparison of these findings to the work of Gandhi et al (2012) and de Sá-Soares et al. (2014) are summarised in Tables 3 and 4 respectively. We compare our findings to these two studies as they provide the most recent comprehensive reviews of the literature.

Risk category	Schedule (1)	Technical (2)	Financial (3)	Vendor (4)	Culture (5)	Reputation (6)	Intellectual property (7)	Flexibility (8)	Compliance (9)	Quality (10)
Strategy		√	√	√		√	√	√	√	
Reputation				√	√	√√				
Design										
Vendor				√						
IP										
SLA	√	√		√		√				√
Staff							√			
Practice		√			√					√
Disaster recovery				√		√		√		
ROI			√							
Requirements		√								
Selection		√		√						
Cost risks	√		√							
Contract				√				√	√	√
Transition					√			√		
Psychological										

Table 3. Comparison of risk categories with Gandhi et al. (2012) – client perspective

In Table 3 we cross reference the 10 risk categories from Gandhi et al.'s (2012) study to the detailed table in Appendix One. Gandhi et al. (2012) did not survey vendor organisations, therefore, as shown in Appendix One (highlighted in bold), we did not map categories related to vendor perceptions. In addition, we shade the risk types that we could not match to Gandhi et al.'s (2012) category descriptions. Some of these unmatched areas could be explained by approaches taken to characterising the risks. For example, we have adopted the labels and classifications used by the participants in our focus group. Gandhi et al. (2012) identified the risks based on a literature review and then conducted a survey to prioritise the risks. Whilst these are important considerations, of particular interest in our findings is that the unmatched areas tend to represent governance related matters, such as accountability issues, control and assurance, strategic alignment and top management support. Further, 60% of the risks identified were characterised as strategic. This is in contrast to Gandhi et al.'s (2012), findings where more than 50% of the risk classifications were operational. These findings appear to point to Lacity et al.'s (2009, 142) 'glimpse' of the future, when they anticipated that a shift from management to leadership would be required if "governance, control, flexibility and superior business outcomes are to be the consequences" of increasing "globalizing and technologizing of the supply of business services." The governance focus is also supported in de Sá-Soares et al. (2014) study of risks of client organisations.

In addition, all but two of the risk categories (design and psychological) identified in our study could be mapped to Gandhi et al.'s (2012) categories. That is, at least one risk type within a category could be identified in Gandhi et al.'s (2012) risk category descriptions. The emotional type of risk represented in the psychological category appears to represent a common view expressed in the literature about the overwhelming number of potential sourcing risks. Lacity et al. (2009, 135) state that practitioners may find the "best way to mitigate risk is through experience." Current theory however tends to emphasise risk and its assessment via normative rules and probabilities, providing limited insight into this experiential view. Theories that represent risk as experiences and emotions (e.g. Slovic et al. 2004; Lupton 2013) as well as consider multiple institutional influences (e.g Thornton et al. 2012) may

provide better insights into the dynamics of risk and control related practices within and across organisations and help fuse different approaches to manage sourcing risk more creatively.

Gandhi et al. (2012, 61) found that risks were “somewhat individual” with a limited “extent of overlapping.” However, Gandhi et al. (2012, 63) did acknowledge possible interrelationships. For example, financial and reputation risks were identified as having a possible effect on vendor risk. Our results (as shown in Appendix One) indicate that all strategy related risks (both client and vendor) are strongly related to Return On Investment (ROI) and reputational damage and as the levels of strategy related risks increase, the possibility of negative ROI and reputational damage increases. The second highest number of risks (27) relate to contracts. Out of these, 5 risks relate to the vendor perspective, 9 to the client, and 13 to both vendor and client perspectives. These contract related risks have weak ties to all vendor risks but are strongly related to requirements risks, suggesting that a poorly defined contract may not catastrophically affect the vendor (i.e. put them out of business). Increases in the levels of contract risks indicate a higher chance of the contract being incomplete. The results also indicate that vendor risks are strongly related to Intellectual Property (IP) risks, suggesting that the more unprofessional vendor behaviour becomes, the greater the chance the client’s data is at risk. Reputational risks are strongly related to selection risks, which indicates that a poor selection of tools, techniques, processes or vendor, can increase the possibility of reputational damage. Our analysis also reveals that ROI risks are strongly related to cost, so if the level of risks related to ROI increases, it is highly likely that the level of cost related to various tasks undertaken for the ICT sourcing project will increase. Transition risks, however, do not relate to any of the 16 risk categories. SLA risks have been identified as being strongly related to requirements risks so that high levels of incompleteness or vagueness increase the likelihood of SLA related risks. Practice risks have not been identified as being related to any particular category of risks. These findings point towards the need for further work examining the inter-relationships of sourcing risks and provide useful insights for designing risk mitigation strategies. The need for an integrated theory of IT-related risk is not new to the IS field (Markus 2000). However, an integrated view of risk control, and specifically in the context of sourcing, remains problematic (Mathew 2011).

In Table 4 we cross reference nine risk categories from de Sá-Soares et al.’s(2014) study. Whilst the de Sá-Soares et al.’s (2014) study also examines risks from a client perspective, we focus here on the vendor perspective. Further, risk is conceptualised in terms of factors (sources of dangers), negative outcomes and undesirable consequences. For the purpose of this comparison we conflate the factors and danger categories together; acknowledging that this is a limitation of our study. Finally, outsourcing risks are characterised as outsourcing stages compared to the strategy/operational view adopted in Gandhi et al. (2012) and our study. Whilst a lifecycle view was not adopted in the first stage of this work, it will be considered in the next phase in developing mitigation strategies.

Risk category	Capa bility (1)	Com muni cation (2)	Cust- omer Struct ure (3)	Environ- ment/c ompetit ion (4)	Gover- nance (5)	Require- ments (6)	Culture (7)	Contrac t (8)	Trus t (9)
Strategy				√					
Reputation							√		
Design									
Vendor				√					
IP									
SLA	√								
Staff	√								
Practice	√	√			√				
Disaster/rec									
ROI									
Requirements					√	√			
Selection									
Cost risks									
Contract								√	
Transition									
Psychological									

Table 4. Comparison of risk categories to de Sá-Soares et al. (2014) – vendor perspective

As shown in Table 4, there are a number of risk categories that do not match to the vendor risk categories identified in the de Sá-Soares et al. (2014) study. Whilst this may be partly explained by the approach taken in characterising the risks, it more importantly points towards the “imbalance between the works that identify IS outsourcing elements related to the customers and those related to providers” (de Sá-Soares et al. 2014, 38). Our study confirms the vendor risks identified in de Sá-Soares et al. (2014) extensive literature review, but also provides additional risk types and categories that may contribute to this dearth in the literature.

5 Conclusion and future work

In this paper we report on the first stage of our research project, designed to document how sourcing risk is represented in practice in an Australian context. Our workshop approach provided a very effective meta-learning mechanism that has forged multiple perspectives on risk into a cohesive set of relevant categories. These initial categories were found to be broadly consistent with existing classifications mainly constructed from literature reviews. Of more importance, the risk categories identified in this study also build on these existing classifications and will be used as a basis for the identification of enablers, inhibitors and mechanisms to control outsourcing risks; the next stage of this project. This research has also identified potential areas for further theoretical development in terms of: the emotional and experiential nature of sourcing risk; the need for incorporating a multi-stakeholder perspective; examining governance, assurance and accountability; and the inter-connectedness of sourcing risk. These matters await investigation and we hope stimulate further debate.

6 References

- Akao, Y., Mazur, G. H., and King, B. 1990. *Quality Function Deployment: Integrating Customer Requirements into Product Design*. MA: Productivity Press Cambridge.
- Baskerville, R., and Woodharper, A.T. 1998. "Diversity in Information Systems Action Research Methods," *European Journal of Information Systems* (7: 2), June, pp 90-107.
- Bunker, D.J., Kautz, K., and Nguyen, A. 2007. "The Role of Value Compatibility in IT Adoption," *Journal of Information Technology* (22:1), pp 69-78.
- Bunker, D., and Smith, S. 2009. "Disaster Management and Community Warning Systems: Inter-Organisational Collaboration and ICT Innovation," in Proceedings of PACIS 2009. The Pacific Asia Conference on Information Systems, Hyderabad, India, July 10-12.
- Cullen, S., Seddon, P.B., and Willcocks, L.P. 2005. "IT Outsourcing Configuration: Research into Defining and Designing Outsourcing Arrangements," *The Journal of Strategic Information Systems* (14:4), December, pp 357-387.
- Crow, K. 1994. "Customer-focused Development with QFD," *Annual Quality Congress Proceedings-American Society For Quality Control*, pp 839-839.
- Deloitte. 2013a. "From Strategy to Execution, An Outsourcing Advisory Services Compendium" https://www.deloitte.com/view/en_VE/ve/f5619f95947d2410VgnVCM3000003456f70aRCRD.htm/ Retrieved 1st April 2015.
- Deloitte. 2013b. "Outsourcing Amid Complexity" <http://www2.deloitte.com/global/en/pages/governance-risk-and-compliance/articles/outsourcingamidcomplexity.html/> Retrieved 22nd March 2014.
- de Sá-Soares, F., Soares, D., and Arnaud, J. 2014. "A Catalog of Information Systems Outsourcing," *International Journal of Information Systems and Project Management* (2:3), September, pp 23-43.
- Earl, M.J. 1996. "The Risks of Outsourcing IT," *Sloan Management Review* (3: 26), April, pp 26-32.
- Freytag, P., Clarke, A., and Evald, M. 2012. "Reconsidering Outsourcing Solutions," *European Management Journal* (30:2), April, pp 99-110.
- Gandhi, S., Gorod, A., and Sauser, B. 2012. "Prioritization of Outsourcing Risks From a Systemic Perspective," *Strategic Outsourcing* (5:1), pp 39-71.
- Gonzalez, R., Gasco, J., and Juan, L. 2008. "Information Systems Outsourcing: An Empirical Study Of Success Factors," in Proceedings of MCIS 2008. The 3th Mediterranean Conference on Information Systems, Hammamet, Tunisia, October 23-26.

- Gonzalez, R., Llopis, J., and Gasco, J. 2013. "Information Systems Offshore Outsourcing: Managerial Conclusions From Academic Research," *International Entrepreneurial Management Journal* (9:2), June, pp 229-259.
- Goo, J., Kishore, R., Rao, H.R., and Nam, K. 2009. "The Role of Service Level Agreements in Relational Management of Information Technology Outsourcing: An Empirical Study," *MIS Quarterly* (33:1), March, pp 119-145.
- Gorla, N., Lau, M. 2010. "Will Negative Experiences Impact Future IT Outsourcing?", *The Journal of Computer Information Systems* (50:3), pp 91-101.
- Herath, T., and Kishore, R. 2009. "Offshore Outsourcing: Risks, Challenges, and Potential Solutions," *Information Systems Management* (26:4), October, pp 312-326.
- Hirschheim, R. 2009. "Offshoring and the New World Order," *Communications of the ACM* (52:11), November, pp 132-135.
- ISACA. 2014. *Vendor Management, Using COBIT® 5*, Rolling Meadows, IL USA: ISACA.
- Jain, A., and Thietart, R-A. 2013. "Knowledge Based Transactions and Decision Framing in Information Technology Outsourcing," *Journal of Strategic Information Systems* (22:4), December, pp 315-327.
- Kim, M., and Chai, S. 2014. "Investigating a Role of Strategic Sourcing and Organisational Culture on Mitigating Risk in Supply Chain," *Journal of International Logistics and Trade* (12:2), August, pp 121-139.
- Lam, T. 2011. "Vietnam Outsourcing Risks Management," *Journal of Applied Business Research* (27:1), January/February, pp. 51-59.
- Lupton, D. 2013. "Risk and Emotion: Towards an Alternative Theoretical Perspective," *Health, Risk and Society* (15:8), October, pp 643-647.
- Lacity, M.C., Khan, S., Yan, A., and Willcocks, L.P. 2010. "A Review of the IT Outsourcing Empirical Literature and Future Research Directions," *Journal of Information Technology* (25:4), October, pp 393-433.
- Marcus, L. 2000. "Toward an Integrated Theory of IT-related Risk," in *Organisational and Social Perspectives on IT*, R. Baskerville, J. Stage, J. I. DeGross (eds), Massachusetts: Kluwer Academic Publishers, pp 167-178.
- Mathew, S.K. 2011. "Mitigation of Risks Due to Service Provider Behavior in Offshore Software Development," *Strategic Outsourcing: An international journal* (4:2), pp 179-200.
- Nakatsu, R.T., and Iacovou, C. L. 2009. "A Comparative Study of Important Risk Factors Involved in Offshore and Domestic Outsourcing of Software Development Projects: A Two-panel Delphi Study," *Information and Management* (46:1), January, pp 57-68.
- Pang, V., and Bunker, D.J. 2005. "Development of a Framework to Examine the Collaborative Process in Inter-Organizational System Adoption," in *Proceedings of ISAP 2005. The 2nd Annual Conference on IS/IT issues in Asia Pacific*, Las Vegas, USA, December, pp 13-23.
- Protiviti. 2014. "2014 Vendor Risk Management Benchmark Study", <http://www.protiviti.com.au/en-AU/Pages/Survey-Reveals-Significant-Risk-Gaps-between-Companies-and-Their-Vendors.aspx/> Retrieved 2nd April 2015.
- Qin, L., Harris, W., Zhang, N., and Li, X. 2012. "Risk Identification and Conduction Model for Financial Institution IT Outsourcing in China," *Information Technology and Management* (13:4), September, pp 429-443.
- Rouse, A., and Corbitt, B. 2003. "Revisiting IT Outsourcing Risks: Analysis of a Survey of Australia's Top 1000 Organizations." in *Proceedings of ACIS 2003. The 14th Australasian Conference on Information Systems*, Perth, Australia, November 26-28.
- Rouse, A. C., Corbitt, B. J. 2007. "Understanding Information Systems Outsourcing Success and Risks Through the Lens of Cognitive Biases" in *Proceedings of ECIS 2007. The 15th European Conference on Information Systems*, St Gallen, Switzerland, June 7-9, pp 1167-1178.

- Sandeep, M.S., Ravishankar, M.N., and Hislop, D. 2013. "The Establishment of Social IT Outsourcing Organisations: An Impression Management Perspective," in Proceedings of ICIS 2013. The 34th International Conference on Information Systems, Milan, Italy, December 15-18.
- Slovic, P., Finucane, M.L., Peters, E., and MacGregor, D.G. 2004. "Risk as Analysis and Risk as Feelings: Some Thoughts about Affect, Reason, Risk and Rationality," *Risk Analysis* (24:2), April, pp 311-322.
- Smith, S., Winchester, D., Bunker, D., and Jamieson, R. 2010. "Circuits of Power: A Study of Mandated Compliance to an Information Systems Security De Jure Standard in a Government," *MIS Quarterly: Special Issue on Information System Security in the Digital Economy*, (34:3), pp 463-486.
- Thornton, P.H., Ocasio, W., and Lounsbury, M. 2012. *The Institutional Logics Perspective, A New Approach to Culture, Structure and Process*, Oxford: Oxford University Press.
- Warkentin, M., and Adams, A.M. 2007. "A Framework for Evaluating Outsourcing Risk," in *Outsourcing management information systems*, M.J. Schniederjans, A.M. Schniederjans, D.G. Schniederjans (eds.), Hershey PA: Idea Group Inc., pp 270-281.
- Wiengarten, F., Pagell, M., and Fynes, B. (2013), "The Importance of Contextual Factors in the Success of Outsourcing Contracts in the Supply Chain Environment: The Role of Risk and Complementary Practices", *Supply Chain Management: An International Journal* (18:6), October, pp 630-643.
- Willcocks, L.P., Lacity, M.C., and Kern, T. 1999. "Risk Mitigation in IT Outsourcing Strategy Revisited: Longitudinal Case Research at LISA," *The Journal of Strategic Information Systems* (8:3), March, pp 285-314.
- Wullenweber, K., Jahner, S., and Krcmar, H. 2008. "Relational Risk Mitigation: The Relationship Approach to Mitigating Risks in Business Process Outsourcing," in Proceedings of the 41st Annual Hawaii International Conference on System Sciences, Waikoloa, Big Island, HI, USA, January 7-10.
- Yim, A. 2014. "Failure Risk and Quality Cost Management in Single Versus Multiple Sourcing Decision," *Decision Sciences* (45:2), April, pp 341-354.

7 Appendix One – Risk types and categories

Code	Risk	For	Perspective	Tables 3 ¹ , 4 ²
R1	Strategy risks have strong relationship with ROI and reputational damage risks			
R1.1	Risk of the wrong strategy	Client	Strategy	
R1.2	Risk of ineffective strategy	Client	Strategy	
R1.3	Risk of PESTEL factors not understood in chosen strategy	Client	Strategy	8
R1.4	Risk of PESTEL factors being not integrated into the strategy	Client	Strategy	8
R1.5	Risk of currency value fluctuation	Client	Strategy	3
R1.6	Risk of exchange rate fluctuation	Client	Strategy	3
R1.7	Client's risk of loss of competitive differentiation	Client	Strategy	
R1.8	Vendor's risk of loss of competitive differentiation	Vendor	Strategy	4
R1.9	Risk of strategy not being supported by stakeholders	Client	Strategy	6
R1.10	Clients risk of losing strategic alignment	Client	Strategy	
R1.11	Risk of the lack of executive support	Client	Strategy	
R1.12	Risk of the lack of executive sponsorship	Client	Strategy	
R1.13	Risk of the executive relationship being stagnant	Client	Strategy	
R1.14	Risk of enterprise architecture misalignment with strategy	Client	Strategy	2

¹ Categories of risk from Gandhi et al (2012) numbered in Table 3.

² Categories of risk from de Sá-Soares et al. (2014) numbered in Table 4

Code	Risk	For	Perspective	Tables 3 ¹ , 4 ²
R1.15	Risk of disruptive technology	Client	Strategy	8
R1.16	Risk of technology obsolescence	Client	Strategy	2
R1.17	Vendor's risk of technology change	Vendor	Strategy	
R1.18	Client's risk of technology change	Client	Strategy	8
R1.19	Risk of vendor lock-in	Client	Strategy	4
R1.20	Risk of complex technology	Client	Strategy	2
R1.21	Risk of overall interoperability for business	Client	Strategy	2
R1.22	Risk of overall interoperability for IT	Client	Strategy	2
R1.23	Risk of untested technology	Client	Strategy	2
R1.24	Risk of knowledge retention	Client	Strategy	7
R1.25	Client's risk of losing expertise	Client	Strategy	7
R1.26	Risk of poor understanding of the risk and reward trade-offs	Client	Strategy	
R1.27	Risk of non-compliance with the law	Client	Strategy	9
R1.28	Risk of strategic alliances	Client	Strategy	4
R1.29	Risk of moving to a new business model	Client	Strategy	
R1.30	Risk of commercial model (test vs. outcome)	Client	Strategy	
R1.31	Risk of poor understanding of outsourcing strategy risks	Client	Strategy	
R1.32	Risk of poor understanding of commercial acumen	Client	Strategy	
R1.33	Risk of management holding onto business model	Client	Strategy	
R1.34	Risk of outsourcing strategy vs strategy to outsource	Client	Strategy	
R2	Reputational damage risks have strong relationship with strategy and selection risks			
R2.1	Risk of prospective vendors unethical behaviour	Client	Strategy	4
R2.2	Risk of cultural incompatibility	Both	Strategy	5,7
R2.3	Risk of reputation loss through outsourcing	Client	Strategy	6
R2.4	Risk of client exploiting contract gaps	Vendor	Strategy	
R2.5	Risk of reputation damage caused by vendor actions	Client	Strategy	6
R3	Design risks		Strategy	
R4	Vendor risks are strongly related to IP risks however weakly related contract risks			
R4.1	Risk of service provider market concentration	Client	Strategy	4
R4.2	Risk of lack of competition	Client	Strategy	4
R4.3	Risk of vendor going bankrupt	Client	Strategy	4
R4.4	Risk of vendor opportunistic behaviour	Client	Strategy	4
R4.5	Risk of moving cost to OPEX	Client	Strategy	4
R4.6	Risk of competitors outperforming	Client	Strategy	4
R4.7	Risk of regulations	Vendor	Strategy	4
R4.8	Risk of customer market concentration	Client	Strategy	4
R4.9	Risk of vendor monopoly	Client	Strategy	4
R5	IP risks have strong relationship with vendor and contract risks			
R5.1	Risk of withholding information	Client	Operational	7
R5.2	Risk of data offshoring	Client	Operational	7
R6	SLA risks are strongly related to requirements risks			
R6.1	Risk of improved service quality	Client	Operational	10
R6.2	Risk of service disruptions	Client	Operational	2
R6.3	Risk of poor service quality	Client	Operational	10
R6.4	Risk of service delivery failure	Client	Operational	4
R6.5	Risk of service level agreement failures	Both	Operational	10
R6.6	Risk of entire project failing	Both	Operational	
R6.7	Risk of poor relationship between bus. drivers and IT services	Both	Operational	
R6.8	Risk of lack of clarity of vendor governance	Client	Operational	
R6.9	Risk of lack of clarity of vendor management	Client	Operational	
R6.10	Risk of lack of clarity of contract management	Client	Operational	

Code	Risk	For	Perspective	Tables 3 ¹ , 4 ²
R6.11	Risk of lack of clarity of operations management	Client	Operational	
R6.12	Risk of lack of contract management/service delivery	Both	Operational	N/A,1
R6.13	Risk of lack of accountability between/across vendors	Client	Operational	
R6.14	Risk of lack of internal accountability	Client	Operational	
R6.15	Risk of poor deliverable quality	Client	Operational	10
R6.16	Risk of vendor failing to deliver	Client	Operational	1
R6.17	Risk of losing private information	Client	Operational	6
R6.18	Risk of vendor misusing client data	Client	Operational	6
R6.19	Risk of information loss	Client	Operational	6
R6.20	Risk of losing confidential information	Both	Operational	6
R6.21	Risk of insufficient monitoring	Both	Operational	10
R6.22	Risk of insufficient reporting	Both	Operational	10
R6.23	Risk of on-demand-capacity	Both	Operational	2
R6.24	Risk of loss of operative capacity	Both	Operational	2
R6.25	Risk of end to end governance of supplier portfolio vs. individual contracts	Both	Operational	
R7	Staff risks			
R7.1	Risk of key personnel missing	Client	Operational	
R7.2	Risk of key personnel leaving to work for the vendor	Client	Operational	7
R7.3	Risk of key personnel leaving to work for the competitor	Both	Operational	7,1
R7.4	Risk of specialist skills residing with the customer	Vendor	Operational	1
R7.5	Risk of access to specialist expertise	Client	Operational	7
R7.6	Risk of key personnel leaving to work for the client	Vendor	Operational	
R8	Practice risks			
R8.1	Risk of mismatching working practices	Both	Operational	N/A,1
R8.2	Risk of mismatching delivery methodology	Both	Operational	N/A,1
R8.3	Risk of ineffective delivery methodology	Client	Operational	10
R8.4	Risk of unreliable measurement	Client	Operational	10
R8.5	Risk of culture differences	Both	Operational	5
R8.6	Risk of organisational culture differences	Both	Operational	5
R8.7	Risk of miscommunication due to time zone differences	Both	Operational	5,2
R8.8	Risk of miscommunication due to geographical distances	Both	Operational	5,2
R8.9	Risk of loss of functionality	Client	Operational	2
R8.10	Risk of loss of control over IT operations	Client	Operational	
R8.11	Risk of work practices misalignment	Both	Operational	5,5
R8.12	Risk of improving time to market (positive)	Client	Operational	
R8.13	Risk of assurance	Client	Operational	
R8.14	Risk of retained capability (positive)	Client	Operational	
R9	Disaster recovery risks			
R9.1	Risks of natural disasters	Both	Operational	8
R9.2	Risks of loss of data traceability in case of disaster	Both	Operational	6
R9.3	Risk of cross regional issues related to disaster recovery	Both	Operational	4
R9.4	Risk of business continuity in case of disaster	Both	Operational	4
R10	ROI risks are strongly related to cost and strategy risks			
R10.1	Risk of agreeing on Pay-as-you-go (positive)	Client	Strategy	
R10.2	Risk of gaining better ROI (positive)	Client	Strategy	3
R10.3	Risk of improved uptime (positive)	Client	Strategy	
R10.4	Risks of unexpected (negative) financial outcomes	Client	Strategy	3
R11	Requirements risks are strongly related to SLA, contract and selection risks			
R11.1	Risk of failure to provide access to suitable resources	Both	Operational	2
R11.2	Risk of complex concepts resulting in misunderstanding	Both	Operational	
R11.3	Risk of poorly understood requirements	Both	Operational	N/A,6
R11.4	Risk of changing requirements	Both	Operational	

Code	Risk	For	Perspective	Tables 3 ¹ , 4 ²
R12	Selection risks are strongly related to reputational damage risks			
R12.1	Risk of selector bias	Both	Strategy	4
R12.2	Risk of selection of wrong tools	Both	Strategy	2
R12.3	Risk of selection of wrong configuration of systems	Both	Strategy	2
R12.4	Risk of power differences between vendor and client	Both	Strategy	4
R12.5	Risk of adverse selection	Client	Strategy	4
R12.6	Risk of unfair selection process	Vendor	Strategy	
R12.7	Risk of uneducated client	Vendor	Strategy	
R12.8	Risk of unclear scope during selection process	Both	Strategy	4
R12.9	Risk of lack of defined roles and responsibilities in sourcing	Client	Strategy	4
R13	Cost risks are strongly related to ROI risks			
R13.1	Risk of cost overruns	Both	Operational	3
R13.2	Risk of poor estimation	Both	Operational	3
R13.3	Risk of delays	Both	Operational	1
R13.4	Risk of hidden costs	Both	Operational	3
R14	Contract risks are strongly related to requirements risks but weakly related to vendor risks			
R14.1	Risk of poorly formed SLA's leading to contract confusion	Vendor	Strategy	8
R14.2	Risk of poorly considered legal framework	Both	Strategy	10
R14.3	Risk of misunderstanding the contract	Both	Strategy	10
R14.4	Risk of no mechanisms to protect against failure	Client	Strategy	
R14.5	Risk of time to deliver	Vendor	Strategy	
R14.6	Risk of contracting and sub-contracting	Client	Strategy	
R14.7	Risk of law breach leading to prosecution	Client	Strategy	10
R14.8	Risk of undefined requirements or needs from client	Vendor	Strategy	
R14.9	Risk of multiple vendors	Client	Strategy	4
R14.10	Risk of multiple vendors blaming each other for failures	Client	Strategy	4
R14.11	Risk of contract complexity (too many and too varied)	Both	Strategy	10
R14.12	Risk of early termination penalties	Vendor	Strategy	
R14.13	Risk of vendor bankruptcy or takeover	Client	Strategy	4
R14.14	Risk of contract lock-in	Client	Strategy	8
R14.15	Risk of false sense of risks being mitigated or transferred	Both	Strategy	
R14.16	Risk of M&A activity impacting client/service provider strategy	Both	Strategy	
R14.17	Risk of scalability (positive)	Client	Strategy	8
R14.18	Risk of incomplete contracts	Both	Strategy	
R14.19	Risk of APS 231	Client	Strategy	
R14.20	Risk of contract deficiencies	Both	Strategy	
R14.21	Risk of undefined measurements	Both	Strategy	10
R14.22	Risk of customer bankruptcy	Vendor	Strategy	
R14.23	Risk of local and international regulations	Both	Strategy	9
R14.24	Risk of conflicts of law	Both	Strategy	9
R14.25	Risk related to jurisdiction	Both	Strategy	9
R14.26	Risk of identity	Both	Strategy	
R14.27	Risk of accountability and responsibility being undefined	Both	Strategy	
R15	Transition risks			
R15.1	Risk of customer decision to insource	Vendor	Strategy	
R15.2	Risk of loss of employee morale during transition	Both	Strategy	5
R15.3	Risk of reverse transition	Client	Strategy	8
R16	Psychological risks			
R16.1	Risk of risk professionals having a nervous breakdown	Both	Operational	