

# Risk Factors in Cloud Computing Relationships: A Study in Public Organizations in Sweden

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**Abstract:** Several predictions show an increase in Cloud Computing (CC) in the coming years. The risks in CC relationships can jeopardize the CC services; therefore, this research has looked to find the risk factors in CC relationships in public organizations in Sweden. A survey research strategy has been applied and the data was collected through interviews with IT decision-makers with relevant experience in CC relationships. The study has identified security as a critical risk factor. The CC clients do not trust their providers and therefore, they do not place sensitive data in the cloud. Additionally, we have found other risks in CC that are not critical, like, asset specificity, a small number of suppliers, uncertainty, relatedness, measurement problems, competences. The reason for this result is the low complexity of services in the studied public organizations. The findings of this study are several risk factors that public organizations should be aware of for improving their relationship in CC arrangements.

**Keywords:** Risk Factors; Cloud Computing; Relationships; Transaction Cost Theory; Public Organizations; Sweden

## 1. INTRODUCTION.

The term Cloud Computing (CC) refers to the on-demand availability of computer resources, particularly about storage and computing power, which allows a user to remain passive in terms of management [1]. In 2018, the CC provider Right Scale has conducted a survey and asked 997 technical professionals about their company's adoption of cloud computing. In the result of this survey, ninety-six percent of the interviewees have stated that they used cloud services [2]. In the recent years, CC adoption has extended in many organizations and included a range of services. Wang [3] describes CC as one of the most important technological shifts within the last decade. Furthermore, several projections show an increase in CC in the coming years, depicting the need to address the challenges facing buying organizations [4][5][6][7].

Risks in IT outsourcing (ITO) has been studied for a longer time [8][9][10][11]. According to Aubert [8, p. 686] risk is defined as: "the possibility of loss or injury". However, risk as a factor to influence the relationships in cloud computing is poorly investigated. Additionally, there is a consensus among the researchers that a well-working relationship between the service buyer and provider are prerequisites for a successful ITO [12][13][14][15] where by relationships we mean "the state of being connected or related; the mutual dealings, connections, or feelings that exist between the two parties"[16, p. 3]. The relationship between buying and provider organizations include several aspects. All contacts, cooperation, negotiation, and working atmosphere, to mention some, entirely depend on the two parties' relationship. For example, a poor relationship quality results in 25% of all cases to a disruption or termination of cooperation [5]. The other way around, incomplete formal contracts, can with a well-working relationship, be completed, and in this way, the relationship works like a complement to the contract [13].

As was mentioned before we noticed the followings: 1) The use of CC will increase; 2) The relationship between the service buyer and provider is essential for a successful CC arrangement; 3) There is a lack of knowledge about the risks that affect CC relationships in public organizations, in general (as well in Sweden). In fact, the lack of knowledge about the risks could seriously affect the CC relationships, which could prevent a successful CC arrangement. Moreover, this could cause ineffective IT services, which could increase the costs for the public organizations and the loss of trust between the public organization and its customers (citizens). To address this knowledge gap the following research question (RQ) has been raised: "What are the risk factors in cloud computing relationships in public buying organizations in Sweden?". The following sections of the paper present the research background, research methodology, results, discussion and conclusions.

## 2. RESEARCH BACKGROUND.

### 2.1. CLOUD COMPUTING AND TRANSACTION COST THEORY.

The service with providing computing facilities to their customers has already been practiced in the 1960s, so the concept of cloud computing is, in that sense, no novelty [17]. The phenomena was called "data centers", and was at that time based on mainframe computers. The word "cloud" has arisen in 2006 when Google's CEO Eric Schmidt used it to describe the business model

of providing services using the Internet [17]. Around this time (2006), the use of the Internet grew substantially, enabling process development, e-business and social media around the globe. Moreover, the rapid development, together with the continually growing success of the Internet allowed for cheaper and more powerful resources than ever [17]. With these circumstances, CC started its popularity and reached its full potential. According to ZDNet, a business technology news website, the top cloud providers in 2020 are: AWS, Microsoft Azure, and Google Cloud [18]. However, in this study, our area of interest are the service buyers, those who are utilizing the cloud computing services.

CC enables a minimal capital investment, like an Internet connection and a laptop (or phone) to use advanced applications and resources, like data, servers [6]. Space-saving and no need for maintenance of hardware and licenses are also pros for CC solutions. Despite the diversity of service types, CC can be classified into three main delivery models: Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) as described by Dillon [19].

According to Williamson [20] Transaction Cost Theory (TCT) is a "comparative contractual approach to the study of economic organization in which the transaction is made the basic unit of analysis and the details of governance structures and human actors are brought under review" [20, p. 66]. In the context of CC arrangements, TCT can be used to analyze which organization form to be used like, 1) keep your IT in-house; 2) put the whole IT in the cloud; and 3) all possible forms between the pools 1) and 2). A transaction cost is a cost for an organization in the exchange of IT services and is covering ex-ante and ex-post. The main ex-ante costs are: costs for searching, like find provider, information costs, like information about the product, service, negotiation costs like the costs for the buyer and seller to negotiate the price, deliverables and all the other conditions. Contracting involves first a complete understanding of the IT service included and then the negotiation and rephrasing of clauses. After signing the contract, the ex-post transaction costs are in force including decision costs, delivery costs for the buyer to check the delivery, legal and adaptation costs and time and/or inconvenience [21]. The main problem with TCT is contracting, "Transaction cost economics poses the problem of economic organization as a problem of contracting" as described by [21, p. 20]. The transaction costs (TC) in TCT refer to risks. A high value of TC means that it is a high risk. A high level of TC should be avoided, which could mean to keep the IT in-house and not move to the cloud.

## 2.2. RISK FACTORS IN CLOUD COMPUTING.

Risk refers to an unwanted event that could happen, in our case, whenever in the cloud computing arrangement [22]. If the risk occurs, the unwanted event could be, for example, not well-working IT, price escalation, however, the focus of this study is on risks that generate unwanted events that badly influence the service buyer and provider relationship. To study the Risk Factors (RFs) in CC relationships we have used the RFs proposed by Bahli & Rivard [22] that are shown in Table 1.

Table 1. The risk factors used to study the CC relationships (adapted from Bahli & Rivard [22, p. 2])

#	Source of risk	Risk Factors (RFs)
1	Transaction	Asset specificity
2	Transaction	Small number of suppliers
3	Transaction	Uncertainty
4	Transaction	Relatedness
5	Transaction	Measurement problems
6	Service provider	Expertise in cloud computing
7	Service provider	Expertise with CC
8	Service buyer	Expertise in cloud computing
9	Service buyer	Expertise in IT operation

As shown in Table 1, the sources of the risks are the transaction, service buyer and provider. The first Risk Factor RF1, is "asset specificity", refers to the degree to which a thing of value, can be readily adapted for other purposes. In our case, it is about the complexity of the service., to perform, adapt and to maintain. According to TCT, it is the most essential RF. RF2 is "Small number of suppliers "is a situation when there is only one (perhaps two not competing ITO providers), or as suggested "Avoid outsourcing IT in an oligopoly/monopoly, a strained relationship can be avoided" [11, p. 40]. RF3 is "uncertainty". Bahli and Rivard [22] refer to two types of uncertainty [22]. The first one is called "environmental uncertainty," and refers to the degree and speed the market and demand are changing. This can be misused by the provider, by re-negotiating the unspecified clauses, as the buyer must react instantly. The second type of uncertainty is "technological uncertainty" [22]. This refers to technological transformations and breakthroughs that could make technology obsolete. In this situation, the provider may be unwilling to invest in additional costs of the changing technology before the existing contract expires. The new contract might be substantially more expensive. RF4 is "Relatedness", also called interdependence or connectedness. It refers to the tasks interconnections, business units interdependence, but also that some work depends on the completion of other definite pieces of work. RF4 can make ITO and especially CC very complicated. RF5 is "measurement problems", which contain two problem

types. The first type is team project measurement, which refers to the impossibility to estimate the different contributions of the parties (provider(s) and buyer). The second type is the measure of the fair value of these contributions. The result of this is that it is not known "what to reward and how" [22, p. 3]. Moreover, the differences in the interpretation of the provider's performance could lead to disputes of the parties.

2.3. CLOUD COMPUTING RELATIONSHIPS.

The IT outsourcing (ITO) relationship has been studied for many years and it is still of interest to increase the knowledge [23][24][15]. However, the study of CC relationship is still in the beginning and more studies needs to be done [5]. In the ITO relationship, various models try to explain the kind of interaction that buyers get with providers. We mention the model developed by Kern & Willcocks [25] where the authors describe the working context between suppliers and buyers, including the context, interaction, as well as service buyer's and provider's behaviors. On the other hand, the practical usage of Kern & Willcocks [25] model is exhausting regarding time and resources. A smaller model based on the Kern and Willcocks's model has been developed by [26] and has also been used in other studies [27]. Furthermore, the studies of ITO relationships has been also focused on the influencing factors, like, success factors, key factors, determinants of relationship factors [28][27][29].

3. RESEARCH METHODOLOGY.

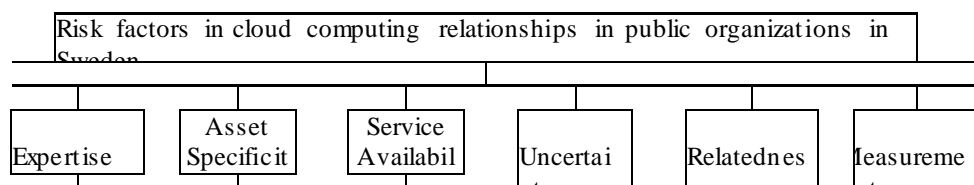
According to Denscombe [30] the selection of research strategy is the most critical decision in conducting research. Therefore, the selection of research strategy is essential. The purpose of this study was to ensure wide and broad coverage of the risk factors that could jeopardize the relationship between service buyers and providers. The survey strategy is best aimed for this purpose. Furthermore, as addressed in the research problem, the research aimed to get a better understanding of how risks are influencing the relationship, which requires a qualitative method for data collection. In this perspective, a purposive sampling has been used and IT decision makers with relevant experience in CC from five public organizations in Sweden were selected as participants in this study. The data was collected through semi-structured interviews both face to face and via Skype with the participants in the study. In this way, was possible to ask follow-up questions and still have control over the questions to be asked [30]. All the interviewees were involved in CC and had a strategic view of their CC arrangements. Before the interviews, questionnaires were sent to the respondents so that they could prepare for the meeting. Permission for recoding was granted before the interviews have started. Ethical questions like anonymity about the people and organizations have also been discussed in that context. Due to the required anonymity, this study cannot present the real number of employees, the interviewees' exact titles or other information about the studied public organizations. All the interviews have been recorded, transcribed, and then analyzed with NVivo, a software tool for qualitative data analysis. The generic roles of the interviewees (their position in the organization is not disclosed, as their wish was to be anonymous), their IT experience in the five public and the duration of the interviews is presented in Table 2.

Table 2. The interviewees' role in the public organizations, their experience in IT and the interviews duration

Organization	Interviewee's role in the Organization	Experience in IT	Interviews	Duration
A	Head of IT outsourcing	Seven years	35 Minutes	B IT Coordinator
	C Head of Business Systems	Fifteen years	25 Minutes	D
	IT Coordinator	Three years	40 Minutes	E Head of IT Outsourcing
			30 Minutes	Nine years

As is shown in Table 2, three out of five interviewees had management positions and two of them were IT coordinators. All of them are highly involved in the CC strategies and operations. Furthermore, the interviewees' experiences in IT vary between 3 and 15 years, which indicates a high average (almost 8 years) of such experience.

The data collected was analyzed using thematic analysis, using the steps proposed by Braun and Clarke [31]. The thematic map of the risk factors in cloud computing relationships in public organizations in Sweden with the main themes and sub-themes is shown in Figure 1.



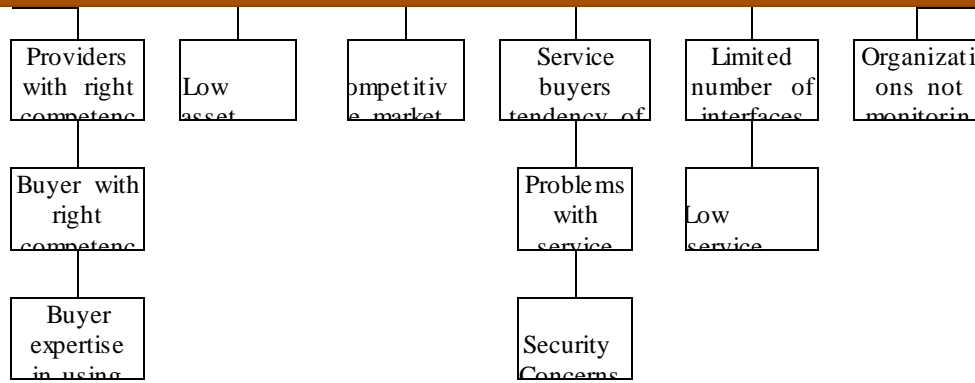


Figure. 1. Thematic map with the main themes and related sub-themes of the risk factors in cloud computing relationships in public organizations in Sweden

In Figure 1, are shown the six main themes that are the followings: 1) Expertise, 2) Asset specificity, 3) Service availability, 4) Uncertainty, 5) Relatedness and 6) Measurement problems service and 11 sub-themes. A description of the themes and sub-themes is following. The *Expertise* theme summarize the needed competence (knowledge) to handle the CC arrangements from both parties, which is not indicated as critical. The next theme is *Asset specificity*, that refers to the complexity of the service and also the grade of adaptation. In our cases, the asset specificity was low. *Service availability* is another theme that refers both to the service delivery quality, but also the provided service portfolio. *Uncertainty* is a theme that refers to both known and unknown, like market changes, security. *Relatedness* theme is about how the different applications are communicating, transporting data, number of interfaces, waiting for common resources, which in our case is low, due to the low asset specificity. *Measurement problems* is the theme that is referring to the availability to measure the delivery, performance and the amount of time that the provider is using. Moving down one level in Figure 1, we have the sub-themes. *Providers with right competence* is a sub-theme that describes the provider's knowledge in IT, the cloud service as well as the integrations. *Buyer with right competence in IT operations* is a sub-theme that refers to the understanding of its own IT, like architecture, performance, interfaces. *Buyer expertise in using computing services* is a sub-theme that refers to the practical and strategical knowledge won in using CC. *Low asset specificity* is a sub-theme that, in our case, means that low complexity applications are used, like databases, storage. *Competitive market* is a sub-theme that relates to the fact that through Internet many providers are available, which increase the competition. *Service buyers' tendency of not trusting their providers* is a sub-theme that refers to the major risk factor jeopardizing the relationship, which consequently jeopardizes the CC arrangement! *Problems with service providers* is a sub-theme that refer to a situation that can not be solved, for example, a service that will not be used, like storage with sensitive data. *Limited number of interfaces in the field* is a sub-theme that describes the number of applications that interact, with the actual low asset specificity there will be a smaller number. *Low service complexity* is a sub-theme that describes that simpler applications are in use. *Organizations not monitoring the service* is a sub-theme that reflects that none of the organizations measure the service delivery. They assume that they get what they are paying for.

#### 4. RESULTS.

The findings of this study regarding the risks factors (RFs) in cloud computing relationships in five public organizations in Sweden is shown in Table 3.

Source of Risk	Risk Factors (RFs)	Results of the study
Transaction	Asset Specificity	All five organizations had low asset specificity services. Therefore, the results do not reflect higher asset specificity, which creates higher risks.
Small Number of Suppliers	Cloud services can be accessed via the Internet. Therefore, there is a competitive market, where the Internet is available. Therefore, this RF is not relevant.	
Uncertainty	Security is the major uncertainty according all organizations. None of the interviewees trust its provider! The low asset specificity decreases the risk for bounded rationality and opportunism. This RF is critical.	
Relatedness	No problems have been reported. The low complexity of the service and limited number interfaces supports the low risk of relatedness. Therefore, this RF is not problematic.	
Measurement Problems	None of the organizations performed any measurement, but planned for the future. This RF has low impact, mainly by the not planned of monitoring the service. Once again, the low complexity does not require a complex measurement. RF is not problematic	

Provider Service provider expertise in CC services

The providers had the needed competence. Therefore, this RF is not problematic.

Service provider expertise in IT Not accessed, but no problems have been reported.

Client Buyer expertise in CC services The client had many years of experience with IT and this RF is not problematic.

Buyer expertise in IT operation No lack of competences has been reported. Therefore, this RF is not problematic.

As is shown in Table 3, the RF asset specificity is low, which means that the risk level is low. This could indicate that public organizations avoid taking a medium to high risks. The RF-Small number of suppliers is not an applicable risk for CC, assumed that there is an efficient broadband connection. The Internet enables access to most CC providers. The RF-Uncertainty is dealing with security as the major risk and overshadow all other uncertainties. The RF- Relatedness, has not been reported as problematic. It is not expected to be problematic due to the low asset specificity. The RF-Measurement problems, have not occurred. With the low asset specificity, it would not have been any problem, if the organizations would need to measure. The RF-Providers expertise in CC, was for all organizations sufficient. The RF-Provider expertise in IT has been not accessed. The RF-Buyer expertise in CC services has been reported as sufficient and this is supported by the long time experience with CC as shown in Table 2, this is also relevant for the last RF-Buyer expertise in IT operation. Moreover, two findings of particular interest are: 1) satisfaction with the provider; and 2) problems that happened with the CC arrangement. Starting with the second question, 4 out of 5 from the public organizations have experienced single problems with their providers. However, none of them valued them as significant problems or something that jeopardize their CC relationship or future collaboration. As the problem was downplayed by the interviewees, the study respects their experiences and consider as "no problems to be mentioned". Concerning the satisfaction with CC provider in the studied public organizations in Sweden, the findings are shown in Table 4. Table 4. Cloud based solutions, adaptations, contract type and satisfaction with CC provider in the studied public organizations in Sweden

Organization	Cloud based solutions	Adaptations	Contract type	Satisfaction with CC
A	Public, private and	No	Pay as you go	Considerable satisfied
B	Hybrid	Yes	Fixed	Considerable satisfied
C	Varying private and	No	Pay as you go	Satisfied
D	Public, private and	No	Pay as you go	Satisfied
E	Varying private and	No	Pay as you go	Satisfied

As we could noticed in Table 4, in the studied public organizations in Sweden we have three interviewees' that are satisfied regarding cloud-based solutions, the need for adaptations, and the type of CC contract they currently have with their provider. With considerable satisfaction, we mean that they are fully satisfied with their CC provider, however with satisfaction, we mean that the CC service buyer receives what is specified, nothing more and could swap the provider at any time. An important observation is that the IT decision makers in the studied public organizations were satisfied with the CC services, independent of type of CC solution and contract type.

## 5. DISCUSSION AND CONCLUSIONS.

The study has looked to find "What are the risk factors in cloud computing relationships in public buying organizations in Sweden?". The findings presented in Table 3, has identified RF uncertainty as the most critical risk factor, unequivocally, caused by data security. None of the interviewees trusts their providers, which is a significant RF that is jeopardizing the relationship in CC. This is also the reason why the interviewees don't put any sensitive data in the cloud. As this RF is the most important one [21] and several other RFs, like relatedness, measurement problems, service provider expertise and the buyer's expertise are dependent on asset specificity, it is expected that they also will have low risk levels as is shown in Table 4. Moreover, it also has to be mentioned that the interviewees experience (almost eight years with IT) and the low-risk aversion, have contributed to the almost not problematic CC. On the other hand, the RF concerning the small number of suppliers is not relevant to CC. This because it is possible to reach enough providers, so some lock-in due to monopoly or oligopoly is not relevant. Another finding of the study is that the service buyers' satisfaction is not dependent on the cloud type (public, private, hybrid) and contract type (fixed, pay as you go). Apart from this, we have also found that the service buyers' organizations did not perform any service delivery measurements.

In summary, the study has identified that uncertainty, caused by security, is the only risk factor that is important for building a good relationship between the service buyer and provider in the studied public organizations in Sweden. The main limitation is low number of investigated public organizations in Sweden and therefore, the results could not be generalized. Therefore, in a future research is highly recommended to study the risks in cloud computing relationships in other public organizations in Sweden. However, the findings of this study can be used by IT practitioners for a better assessing of the risks involved when they plan to use CC services in public organizations and could only encourage them to services based on low asset specificity. As was demonstrated, CC is not recommended for sensitive data. Those public organizations who already have CC services they can plan their risk mitigations, by using the identified risk factors and their severity. A critical review of the results shows also that

other studies have similar results [5][4][32][22]. However, the lack of middle to high asset specificity in these studied cases gives a limited result. Nevertheless, this mirrors reality with the use of CC services, regarding low complexity. The problem with finding organizations using CC have also been observed by other researchers [33][34]. Furthermore, we mention that low asset specificity has also been observed by the Communications and Media Authority of Australia [35] that they observed that around 66% of Australian SMEs did not use cloud services, and the remaining 34% mainly adopted those services for mailing purposes [35], which has a low asset specificity. The result of this study complies with the Transaction Cost Theory [21][36] regarding risks, and due to the low asset specificity in the studied public organizations, the higher risks could not be studied. However, this study contributes to both research and practice in cloud computing in public organizations by identifying the risk factors that affect public organizations in Sweden and their relationship in CC arrangements.

## REFERENCES

- [1] Marston, Sean, Zhi Li, Subhajyoti Bandyopadhyay, Juheng Zhang, and Anand Ghalsasi (2011) "Cloud computing-The business perspective." *Decision support systems* **51(1)**: 176-189.
- [2] RightScale: RightScale State of the Cloud Report (2018), <https://www.rightscale.com/lp/state-of-the-cloud>.
- [3] Wang, William Yu Chung, Ammar Rashid, and Huan-Ming Chuang (2011) "Toward the trend of cloud computing." *Journal of Electronic Commerce Research* **12(4)**: 238.
- [4] Cayirci, Erdal, Alexandr Garaga, Anderson Santana, and Yves Roudier (2014) "A cloud adoption risk assessment model." In *2014 IEEE/ACM 7th International Conference on Utility and Cloud Computing*: 908-913.
- [5] Egender, Klaus, Georg Hodosi, and Lazar Rusu (2018) "How to Build Successful Cloud Computing Relationships." *International Journal of IT/Business Alignment and Governance (IJITBAG)* **9(2)**: 1-14.
- [6] Marston, Sean, Zhi Li, Subhajyoti Bandyopadhyay, Juheng Zhang, and Anand Ghalsasi (2011) "Cloud computing-The business perspective." *Decision support systems* **51(1)**: 176-189.
- [7] Jones, Steve, Zahir Irani, Uthayasankar Sivarajah, and Peter ED Love (2017) "Risks and rewards of cloud computing in the UK public sector: A reflection on three Organisational case studies." *Information systems frontiers*: 1-24.
- [8] Aubert, Benoit A., Michel Patry, and Suzanne Rivard (1998) "Assessing the risk of IT outsourcing." *In Proceedings of the Thirty-First Hawaii International Conference on System Sciences* **6**: 685-692. IEEE.
- [9] Hodosi, Georg, Daniel Johansson, and Lazar Rusu (2017) "Does it matter the loss of tacit knowledge in IT outsourcing? A study in a Swedish governmental agency." *Procedia computer science* **121**: 491-502.
- [10] Hodosi, Georg, Sanaz Manavi, and Lazar Rusu (2013) "Risk factors in IT outsourcing and the theories decision makers use to resolve them." *International Journal of Social and Organizational Dynamics in IT (IJSODIT)* **3(2)**: 41-54.
- [11] Hodosi, Georg, Lazar Rusu, and Seungho Choo (2012) "A risk based view of influential factors in IT outsourcing relationship for large multinational companies: A service buyer perspective." *International Journal of Social and Organizational Dynamics in IT (IJSODIT)* **2(3)**: 29-47.
- [12] Lyons, Paul, and Louis Brennan (2014) "A typology and meta-analysis of outsourcing relationship frameworks." *Strategic Outsourcing: An International Journal*. **7(2)**: 135-172.
- [13] Poppo, Laura, and Todd Zenger (2002) "Do formal contracts and relational governance function as substitutes or complements?." *Strategic management journal* **23(8)**: 707-725.
- [14] Lacity, Mary, and Leslie Willcocks (2017) "Conflict resolution in business services outsourcing relationships." *The Journal of Strategic Information Systems* **26(2)**: 80-100.
- [15] Hodosi, Georg, and Lazar Rusu (2019) "Risks, Relationships and Success Factors in IT Outsourcing: A Study in Large Companies". Springer
- [16] Kern, Thomas, and Leslie Willcocks (2002) "Exploring relationships in information technology outsourcing: the interaction approach." *European Journal of Information Systems* **11(1)**: 3-19.
- [17] Zhang, Qi, Lu Cheng, and Raouf Boutaba. (2010) "Cloud computing: state-of-the-art and research challenges." *Journal of internet services and applications* **1(1)**: 7-18.
- [18] Dignan, Larry (2020) "Managing the Multicloud: Top cloud providers in 2020: AWS, Microsoft Azure, and Google Cloud, hybrid, SaaS players," *CNET Networks*, 06 02 2020. [Online]. Available: <https://www.zdnet.com/article/the-top-cloud-providers-of-2020-aws-microsoft-azure-google-cloud-hybrid-saas/>. [Accessed 10 04 2020].
- [19] Dillon, Tharam, Chen Wu, and Elizabeth Chang (2010) "Cloud computing: issues and challenges." In *2010 24th IEEE international conference on advanced information networking and applications*: 27-33. Ieee, 20.
- [20] Williamson, Oliver E. (1988) "Corporate finance and corporate governance" *The journal of finance* **43(3)**: 567-591 [21] Williamson, Oliver E. (1985) "The economic institutions of capitalism". New York: Free Press."
- [22] Bahli, Bouchaib, and Suzanne Rivard (2003) "A validation of measures associated with the risk factors in technology outsourcing." In *36th Annual Hawaii International Conference on System Sciences, 2003. Proceedings of the, pp. 10-pp. IEEE*.
- [23] Alborz, Shawn, Peter Seddon, and Rens Scheepers (2003) "A model for studying IT outsourcing relationships" *PACIS 2003 Proceedings*: 90.
- [24] Cullen, Sara, Graeme Shanks, Michael Davern, and Leslie Willcocks (2017) "A framework for relationships in outsourcing:

- Contract management archetypes." in *Proceedings of the 50th Hawaii International Conference on System Sciences*, 2017.
- [25] Kern, Thomas, and Leslie Willcocks (2000) "Exploring information technology outsourcing relationships: theory and practice." *The journal of strategic information systems* **9(4)**: 321-350.
- [26] Hodosi, Georg, Jan-Kamil Rembisch, Rickard Rickmo, and Lazar Rusu (2012) "Important factors in IT outsourcing relationship, a model development and verification in major national companies." *AMCIS 2012 Proceedings* **5**.
- [27] Hodosi, Georg, Stark, Alexander, van Beers, Erik and Lazar Rusu (2020) "Factors for Successful IT Outsourcing Relationships in Large Companies in Sweden: A Service Buyer's Perspective," in *European, Mediterranean and Middle Eastern Conference on Information Systems (EMCIS). LNBIP, Springer in 2020*.
- [28] Goles, Tim, and Wynne W. Chin (2005) "Information systems outsourcing relationship factors: detailed conceptualization and initial evidence." *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*: 36(4): 47-67.
- [29] Nugroho, Hari, Gamaludin Al Afghani, Georg Hodosi, and Lazar Rusu. (2011) "Key factors in managing IT outsourcing relationships." In *World Summit on Knowledge Society*:58-69. Springer, Berlin, Heidelberg.
- [30] Denscombe, Martyn (2014) "The good research guide: for small-scale social research projects". McGraw-Hill Education (UK), 2014. [31] Braun, Virginia, and Clarke, Victoria (2006) "Using thematic analysis in psychology." *Qualitative Research in Psychology* **3(2)**: 77-101. [32] Hodosi, Georg (2017) "Information Technology Outsourcing in Large Companies in Sweden: A Perspective on Risks, Relationships and Success Factors." PhD diss., Department of Computer and Systems Sciences, Stockholm University.
- [33] Benlian, Alexander, and Thomas Hess (2011) "Opportunities and risks of software-as-a-service: Findings from a survey of IT executives." *Decision Support Systems* **52(1)**: 232-246.
- [34] Gupta, Prashant, Arumugam Seetharaman, and John Rudolph Raj (2013) "The usage and adoption of cloud computing by small and medium businesses." *International Journal of Information Management* **33(5)**: 861-874.
- [35] Franci, Hannah (2014) "SMEs still scared of the cloud: ACMA," *The Australian Business Review*, 26.03.2014.
- [36] Rusu, Lazar and Georg Hodosi (2011) "Assessing the risk exposure in IT outsourcing for large companies," *International Journal of Information Technology and Management* **10(1)**: 24-44.