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*Published in:*  
Procedia Technology

*DOI:*  
[10.1016/j.protcy.2014.10.003](https://doi.org/10.1016/j.protcy.2014.10.003)

2014

[Link to publication](#)

*Citation for published version (APA):*  
Muhic, M., & Johansson, B. (2014). Cloud Sourcing – Next Generation Outsourcing? *Procedia Technology*, 16, 553-561. <https://doi.org/10.1016/j.protcy.2014.10.003>

*Total number of authors:*  
2

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CENTERIS 2014 - Conference on ENTERprise Information Systems / ProjMAN 2014 - International Conference on Project MANagement / HCIST 2014 - International Conference on Health and Social Care Information Systems and Technologies

## Cloud Sourcing – Next Generation Outsourcing?

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### Abstract

Although Cloud Sourcing has been around for some time it could be questioned what actually is known about it. This paper presents a literature review on the specific question if Cloud Sourcing could be seen as the next generation of outsourcing. The reason for doing this is that from an initial sourcing study we found that the sourcing decisions seems to go in the direction of outsourcing as a service which could be described as Cloud Sourcing. Whereas some are convinced that Cloud Sourcing reduces cost and complexity in advantage for increased labor productivity, others maintain that the negotiation with the cloud provider is crucial to ensure data privacy, security regulations, compliance, standards, tolerance for risk, governance and service level agreements. The purpose of this paper is to investigate whether the debate on Cloud Sourcing in the top IS conferences and AIS basket of 8 journals goes in the direction of Cloud Sourcing being the future of sourcing as practice predicts, and to identify the space for the development of this research. An introductory literature review showed that there is not much written about Cloud Sourcing as an alternative for outsourcing albeit it seems to have a great potential.

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Peer-review under responsibility of the Organizing Committee of CENTERIS 2014.

*Keywords:* Cloud Sourcing, Outsourcing, Literature Review, Evolution.

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## 1. Introduction

Cloud Computing or Cloud Sourcing is seen as a force to count on, and even companies that were skeptical in the beginning have now started to use Cloud Computing to retain their competitiveness on the market. Cloud Computing has become the companies backbone of many social media intensive businesses such as Facebook, Google and Microsoft. According to Babcock [1] and Leimeister et al. [2], Cloud Computing is an evolution of outsourcing. Cloud Computing or Cloud Sourcing as referred to from now on (these definitions will be used interchangeably) also entails similar purchase processes as the more traditional IT outsourcing which is defined by de Looff [3] as the act of shifting some or all of the IS-activities to be performed externally by contractual agreement. Thereby Cloud Sourcing can be defined as the outsourcing of IT resources [1]. The main reasons for outsourcing is according to Lacity et al. [4] cost reduction, access to technological expertise and shifting focus on the organisational core competences. Hirschheim and Lacity [5] suggest more studies to be conducted on how to manage IT outsourcing relationships the best way. It can definitely be said that this also relates to studies about Cloud Sourcing, especially since the estimation of usage of Cloud Sourcing is high. Muller [6] stated that an estimation is that 74 percent of enterprises are using some form of cloud services which is a 25 percent growth since 2009, which tells us that this is a highly relevant topic of research.

This study aims at providing new light on Cloud Sourcing as means of outsourcing. It can be stated that previous scientific studies have not addressed the relationship between IT outsourcing and Cloud Sourcing in depth. While it is true that Cloud Sourcing or the Software as a Service (SaaS) model has been discussed in sources aimed at practitioners, it does not necessarily as stated by Martens and Teuteberg [7] follow that the topic of concern has been as discussed in journals aimed at a scientific audience.

Vaquero et al. [8] defines cloud as a large pool of easily usable and accessible virtualized resources (such as hardware, development platforms, and/or services). These resources can be modified and adjusted to utilize the most of organizations' resources. Although there are concerns of security, privacy and vendor lock-ins being the negative side of Cloud Sourcing [9]. Indeed the main benefit of Cloud Sourcing is the elasticity and flexibility of computing that Cloud Sourcing offers.

Cloud Sourcing could be seen as part of an organizations IS strategy. Formalisation, benefits and operationalization of Cloud Sourcing has not yet been fully addressed in academic research according to Hahn et al. (2013). Cloud Sourcing is indeed a form of outsourcing. Cloud Computing vendors are competing with traditional vendors [10]. Dhar [11] compared the similarities and differences between traditional outsourcing and Cloud Sourcing and concluded that Cloud Sourcing creates a fundamental shift in the evolution of IT service delivery by reducing costs and increasing flexibility. Although there is a huge lack in research on cloud strategies such as on cultural impact, application adoption risk profile, etc.

This paper conducts a review of the literature on Cloud Sourcing to provide an indicator on this trend – weather Cloud Sourcing is the future of outsourcing as has been predicted and stated by among others for instance Gartner [12] and Muller [6]. This paper addresses this gap of research of Cloud Sourcing as the future outsourcing. More specifically our research objective is to explicate visions and insights that have been researched and discussed in the academic world guided by the following questions:

- What is the discussion in the IS research around Cloud Sourcing about?
- How does the research in IS on outsourcing relate to Cloud Sourcing?

A qualitative pilot study with interviews has been conducted to show the factors of motivation for IS-sourcing by which the shift to Cloud Sourcing might be beneficial in increasing those factors even more and thus as the practitioners predict become the next generation of outsourcing. The first purpose of this paper is to review the field of Cloud Sourcing in literature, thus the interviews are only used as preliminary pilot study. The second and foremost purpose is then to observe whether Cloud Sourcing in the literature is seen as a future mean of outsourcing.

To map up the debate on Cloud Sourcing (what has been written), and to see if there is anything written about Cloud Sourcing as the future of sourcing (since this is what the practitioners promote, does the academia promote the same)?

## 2. Methodology

In this paper we aim at shedding new light on the area of Cloud Sourcing. It can be stated that Cloud Sourcing is already in vision as seen by the practitioners, however, the question is how previous research studies have addressed Cloud Sourcing. The starting point is that earlier research has only indicated without any empirical evidence for the possible evolution of Cloud Sourcing, which has left us with vague statements. The aim of this paper is to emphasize this need for profound research on the topic which obviously according to reviewed papers (even though just vaguely stated) is important. This has left us with questions such as if Cloud Sourcing as stated by the reviewed literature is so important, and will make a revolution in how outsourcing is performed. Then why is there no research to justify this claim?

The study commenced with a pilot study to investigate the motives for sourcing in order to test what earlier research has claimed are the main factors for engagement in outsourcing projects. The pilot study was not selected on the basis of industry but on the accessibility of data. The motive for sourcing is believed to be similar in most organisations.

We use a renewed analysis of the material from the investigation done by Muhic and Wintzler [13] in which empirical data on sourcing projects were collected by semi-structured interviews with persons in charge of sourcing projects or responsible for strategic sourcing decisions. In addition, publicly available sources such as annual reports, interviews with the organization's CEOs in journals, and project documentation were used to provide a rich description of the cases. In total four banks, three from Sweden and one from Germany were part of our study.

Interview guide questions were structured in four parts; general perception of IS-sourcing, characteristics of the IS-sourcing projects, underlying motives for sourcing, and questions concerning the presence of appropriate resources used for the development and its strategic value. Introducing questions seek to investigate the perception of the interviewee in order to test the assumptions underlying implicitly this study. The second part follows the dimensions of sourcing; degree of integration, duration and allocation of control that characterize the sourcing project. The sequent part gave the interviewee the opportunity to argue the motives underlying the sourcing project. For the last part we used the four leading questions from the VRIO framework in line with the Resource based view [14] in order to investigate the value, rareness, non-imitability and the organisation's exploration of specific resources.

For preparation pre-interviews with two banks were conducted to survey their IT-strategy and to find investigate-able sourcing projects. Actual data collection was then done with four interviewees, all in leading positions concerning IS-sourcing decisions. The interviewees have the following roles: Manager of strategic partnership (Bank A), Head of the development infrastructure (Bank B), Head of sourcing and vendor management (Bank C), and Head of sourcing IT-development (Bank D).

The interviews lasted between 45 min and 2 hours, and were recorded, transcribed and coded. The applied coding system followed the construction of the interview guide. Starting with investigating characteristics of the IS-sourcing project the guide uses the dimensions of sourcing to structure the description of the case. Subsequently, the interview guide exploits the organization's resources guided by the VRIO framework. Derived from this, we used the pattern developed by Barney [14] to analyze competitive and economic implications following from how resources in IS-development were used. Consequently, the applied coding was concept driven and aimed at presenting key statements that then were categorized and condensed.

Considering motives for sourcing we have identified an overlap across cases, and our investigation reveals the following main key motives for IS-sourcing in all four cases; flexibility, access to talent and cost benefit. Based on the analysis of the empirical data, applied sourcing option and expressed main motives for the selection of respectively sourcing option are presented in table 1.

Table 1 Presentation of applied sourcing option and main motives for the selection of options

Case	Applied sourcing option/options	Expressed main motive(s) for applied sourcing option
Bank A	Outsourcing as a service mode	Cost benefit (increased need of cost efficiency, pilot project)
Bank B	Outsourcing as a service	Flexibility
Bank C	Outsourcing as a service	Access to talent, cost benefit (pilot project)
Bank D	Outsourcing as a service	Access to talent (retaining customers through improved usability)

Major motives and key drivers were as stated above findings from the interviews. The following quotes illustrate the findings. The Manager of strategic partnership in Bank A, said: “There were several reasons. One was to reduce cost. Another one was access to talent. Flexibility and I would say improving efficiency. I think that are the four main ones”. The Head of the development infrastructure in Bank B, stated: “Bottleneck of staff, gain flexibility, avoid governance overhead”. However, he also said: “I think that it is misleading that we do not have the competence and that is why we do Out-tasking. We do have the competence, but we could not do it all alone loosely, if the contract book is too full, we need an outlet where we can make something else we could do just as good alone. This is actually the story behind it”.

Sourcing strategy and sourcing drivers were described by the Head of sourcing and vendor management in Bank C, as follows: “we have in our sourcing strategy identified sourcing driver, we call it. They are skills, the need for good skills for us, its cost, and the vendor reducing cost, its flexibility and that’s regarding both; flexibility regarding buying resources and also regarding cost. And we have the risk sourcing driver that we are not allowed to increase the risk when we outsourcing some maintenance or development. And finally we have the fifth one that we called focus, where we say that’s rather important that we can focus our own employees on strategic matters that are the important for the bank. And in this specific case the main drivers was cost - we had, we use a couple of expensive consultants for maintaining the system earlier, so we have significant reduce of cost when we were entering the agreement by the end.” Finally, the Head of sourcing IT-development in Bank D, presented his view of drivers: “three different drivers, first was cost we would like to see if we could achieve a cost benefit of the simple reason that they (Indian employees) have a lower salary than a Swedish employee would have. Technically it was a question of availability; we simply did not have that competence free internally. Of course we have the capability as such of the very simple reason that we have been doing this for a couple of years. But for that particular timing we did not have the availability on the resources. It is also a question of timing I would say, time to market. The third driver would be the scalability; they have the possibility to scale up on a very short period of time.” Table 2 summarizes main motives and key drivers with identification to respectively bank.

Table 2 Summarizing major motives and respectively key drivers as described by the interviewees

Major motives for selecting IS-sourcing option	Main key drivers, taken literally from the interviews (in respectively bank)
Access to talent	Lack of competence internally (Bank D), availability (Bank D), improving efficiency (Bank A), skills (Bank C), focus on core competencies (Bank A), focus in terms of focus own employees on strategic matters (Bank C), the value of an IS is assessed if the IS mitigates threats and exploits opportunities in the competitive environment that financial institutions face to today.
Cost benefits	Cost reduction (Bank A, C, and D), avoid governance overhead (Bank B).
Flexibility:	Scale up the resources bound to the project in a very short period of time (Bank D), flexibility in terms of cost giving the possibility to transform fixed cost for internal employers to variable cost of external one, balance temporary shortage of staff (Bank C), time to market (Bank B and D).

Hence we conclude that major motives for selecting IS-sourcing options in the four banks is access to talent and cost benefit, and thereafter flexibility. Access to talent would according to RBV be knowledge and experiences that are difficult to copy. Talent itself is seen as a resource and can be alluded to vendor management, since access to talent depends on the talent that a specific vendor holds. This resource is valuable for our cases since it has high strategic value in terms of gaining sustained competitive advantage due to its connection to organizational values and core competencies. The second motive for sourcing option is cost benefits, which is not directly seen as having strategic value from RBV. Yet indirectly it is a resource of strategic value, since a cost benefit implies some kind of financial advantage, a fiscal surplus to invest in access to talent for instance. The third occurring motive is flexibility. Flexibility is here seen as organization's ability to mitigate threats and find new opportunities under pressure.

The identified motives are all very interesting when considering what Cloud Sourcing advocates as major benefits. For this reason we saw it as very interesting to conduct a literature review to see what is written about Cloud Sourcing in relation to outsourcing. This means that a sober analysis of the IS sourcing literature on Cloud Sourcing was done. The reason behind this literature review is that Cloud Sourcing is claimed to even increase the benefits of sourcing [6] as we have found from our pilot study being the motivation behind IS sourcing. This conclusion adds weight to the aim to reveal what has been researched on Cloud Sourcing and if it corresponds to the perception of Cloud Sourcing being the next generation of outsourcing as Gartner [12] predicts.

The literature review was based on IS top conferences: ECIS, AMCIS, ICIS, PACIS and the AIS basket of 8 journals: *European Journal of Information Systems*, *Information Systems Journal*, *Journal of AIS*, *Journal of Information Technology*, *Journal of MIS*, *Journal of Strategic Information Systems*, *MIS Quarterly*, and *Information Systems Research*. The key words used for the search were Cloud Sourcing, IT sourcing, Outsourcing, IT outsourcing, and IT strategy. The reason for choosing both top journals and top conferences in the field of IS, is to be able to get hold of both the hottest topics of the conferences and what has been published academically in the journals of the IS field. By not looking at targeted Cloud Sourcing journals and conferences, we actively wanted to get a sense of the debate on Cloud Sourcing in the general IS field to grasp its "hotness" from a holistic IS field perspective. The searches were delimited to abstract, title and subject, and the publication time was not delimited even though it became obvious that the notion of Cloud Computing and Cloud Sourcing has not been discussed further back than to 2008 in the broader IS field. In total 34 papers were reviewed. Admittedly, the review process did involve to some extent personal interpretation of the definitions applied in the research papers.

Each papers abstract, introduction, analysis and conclusion sections were read. The selection criteria for papers to be included in the review were that the article must focus on Cloud Sourcing. We are aware that searching in other sources and databases might have resulted in to some degree different results.

### **3. Interpretation of the Reflection on Cloud Sourcing in the IS-Sourcing Literature**

Table 3 illustrates the papers found in the top IS conferences that matched the search criteria. Table 4 illustrates the same but on articles from IS journals. Factors as presented in the tables are the main topics discussed in the presented papers. The description is a brief summary in a few words about the contribution from the reviewed papers.

Analyzing the factors and description gained from the identified literature, it can be claimed that the papers have a focus on cloud adoption and different questions related to adopt in. This is most likely a natural thing if looking at Cloud Sourcing as a new phenomenon. Another thing that seems to have a high interest in cloud sourcing is the question about contracts and security issues. However, one interesting finding is that not much research seems to focus on the relationship between providers and customers despite the fact that this would be of high interest in the Cloud Sourcing area. This is also in line with what Hirschheim and Lacity [5] describe as an area which shows lack of research on. An interesting question is then if we see the same pattern in the papers presented in the top IS-journals. The first finding is actually surprising and that is that we found more papers in the journals than among the conference proceedings (15 conference papers and 19 journal papers). This is actually surprising since for the first, it could be suggested that a new phenomenon first shows up among conference papers and secondly, it could be suggested that publications in journals takes longer time. However, one explanation could be that the journal papers discuss Cloud Sourcing as something related to outsourcing and that the conference papers discuss Cloud Sourcing

as something that actually has happened. This statement supports the earlier conclusion that the conference papers were more on Cloud Sourcing adoption.

Table 3 Papers found in the literature review of the top IS conferences, factors addressed and short description of content

Factor	Description	Source
Cloud Sourcing strategy	Cloud Adoption, benefits and risks as well as related strategies	Hahn et al. [15]
Capability development through sourcing	Attaining new capabilities through IT sourcing	Markus et al. [16]
Cloud Adoption	Cloud Adoption, benefits and risks	Sarkar & Young [17]
IT outsourcing and Cloud Computing	Taxonomy development for IT risk management	Ackermann et al. [18]
Cloud Computing and CIO	Cloud Computing helping and CIO to focus on strategic value	Malladi & Krishnan [19]
Innovation diffusion and IT strategy	Cloud Computing changes the IT strategies for SME's	Li et al. [20]
Crowdsourcing and capabilities	Capabilities development for facilitated Crowdsourcing	Nevo et al. [21]
Cloud Sourcing security risks	Perceived IT security risks in outsourcing through the cloud	Ackermann et al. [22]
Contractual governance and IT outsourcing	The role of IT in IT governance outsourcing	Fischer et al. [23]
Offshore IS development	Effective contract performance through theorizing structures and processes of control modes	Shirish & Thompson [24]
Cloud BI	Reducing cost of BI through the Cloud	Baars & Kemper [25]
Intersection of CSR and Global Information Technology Outsourcing	Outsourcing relationships and the importance of CSR	Babin & Nicholson [26]
Cloud Computing at universities	Cloud Adoption and the driving force behind	Melin et al. [27]
IT events and CAPM outsourcing	Limitations around announcement periods of CAPM on IT events	Barua & Mani [28]
Compliance between research and practice on the topic of outsourcing	The trends of outsourcing in practice	Gröh et al. [29]

So what is the journal papers main focus, and how are they related to Cloud Sourcing? By doing the same analysis of Table 4 as of the conference papers (Table 3) it is found that the papers have a much stronger focus on outsourcing. The fact is that the major part talks about open source which could be seen as a starting point of the Cloud Sourcing phenomenon. However, only two papers specifically mention Cloud Sourcing and one of the two papers is suggesting a framework for doing research on Cloud Sourcing. So, this indicates that research on Cloud Sourcing is in its infancy and we could predict but also suggest that more research especially in the direction of how Cloud Sourcing is related to IT outsourcing would be needed.

Table 4 Papers found in the literature review of the top IS journals, factors addressed and short description of content



Factor	Description	Source
Cloud Computing migration theory	End-user migration from client-hosted computing to Cloud Computing	Bhattacharjee & Park [30]
Open Source Software in small to medium sized enterprises	Evaluation of benefits and challenges of OSS	Macredie & Mijinyawa [31]
Options in Application Software selection	Comparison of Open source and traditional software development	Benlian [32]
Generation of business value from information services	Customer satisfaction predicted by information analyses of information services	Ruth [33]
Institutional logics and IT management	Disentanglement from constraints of institutional environment in IT outsourcing	Mola & Carugati [34]
Value creation and value capture from open source software	Network collaboration and governance to create and keep value	Morgan et al. [35]
Collective agility	Systems development in a global collaborative community	Zheng & Venters [36]
E-government initiatives and service providers	Service sourcing in E-governments and theoretical planning	Lee & Rao [37]
Challenges of Open Source Software	Lock in customers strategy in proprietary software	Zhu & Zhou [38]
Cojoint analysis of IT outsourcing and decision	The complexity of outsourcing and the motivation behind the decision	Schwarz et al. [39]
IT capabilities	IT capabilities and IT resources affecting business processes	Kim et al. [40]
Middlemen in Offshoring	How to facilitate offshoring obstacles	Mahnke et al. [41]
Offshoring intermediaries	Bridging gaps between vendor and client	Oshri & Kotlarsky [42]
Coordination of Open Source Software development	Studying the Core-periphery movements in Open Source Projects	Amrit & Hillegersberg [43]
Opening up the IS as a discipline	Opening up the IS field a commentary on IS research methods	Nandhakumar & Scarbrough [44]
Cloud Computing	Framework on Cloud Computing research - a review of theory and practice	Venters & Whitley [45]
Future and identity of Strategic Information Systems	A longitudinal review of SIS research	Merali et al. [46]
IT outsourcing	Chinese IT service suppliers expanding to new markets globally exploiting new opportunities	Su [47]
IT outsourcing	Study on relation between IT outsourcing and decrease in IT operating costs	Han & Mithas [48]

#### 4. Discussion of Cloud Sourcing as the next generation of Outsourcing and suggestions for future research

Following from the literature review on Cloud Sourcing in top IS conferences and top IS journals (AIS basket of eight) there is to some extent a discussion and statement about Cloud Sourcing being the next generation of outsourcing. Albeit, it can be concluded that it ends as an empty statement with no well-grounded evidences. No studies have been found in the searched databases only dedicated to this provoking statement and perhaps obsolete paradigm shift. Cloud Sourcing is barely mentioned and focus is instead shifted on capabilities, resources, processes entailing outsourcing, adoption of Cloud Computing etc. By only mentioning Cloud Sourcing and stating its future impact in the reviewed papers, the authors overlook the deeper problem of the lack of evidence for its claim.

As literature and our pilot study shows that cost reduction, flexibility and access to talent are the motives for sourcing, and literature also claims that Cloud Sourcing could increase the benefits of the factors for motivation. It is puzzling that not more research has been done on this topic which at first glance might seem researched, but on closer inspection reveals to be lacking in depth. If Cloud Sourcing is predicted to create an evolutionary shift in outsourcing of IT, then why is this evolutionary statement with a great impact not justified through research and with empirical evidence? Of course, many will probably disagree with this assertion that what is discussed in practice on



Cloud Sourcing is still not captured by the academic world in published papers. But the growth of Cloud Sourcing as a field is real and, arguably, might be the most significant factor in the historical development of outsourcing. Whereas the literature review of this paper provides ample evidence that there is a lack of research on Cloud Sourcing that supports the statement made on its significance for an outsourcing evolution, Gartner [12] and Muller [6] convinces us that this is an area to catch up on in academic research. This research would be fruitful to both practitioners and academics bridging the gap and formalizing Cloud Sourcing.

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