

Köster, Antonia; Kaltenecker, Natalie; Hess, Thomas

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Searching for new perspectives? Towards entrepreneurial orientation and the inclusion of the provider perspective in current information systems research

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## RESEARCH REPORT 2/2015

# Searching for new perspectives? Towards Entrepreneurial Orientation and the inclusion of the provider perspective in current Information Systems Research

Antonia Köster, Natalie Kaltenecker and Thomas Hess

### Editor

Prof. Dr. Thomas Hess

Ludwig-Maximilians-University Munich

Munich School of Management

Institute for Information Systems and New Media

[www.wim.bwl.lmu.de](http://www.wim.bwl.lmu.de)



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## 1 Introduction

Information Systems (IS) as a research discipline incorporates a variety of topics and research fields. During the last forty years IS research developed from a research area that focused on the support of administrative workflows within companies to highly complex interactions - between companies and users - via the Internet. Not only has a high diversity of topics evolved at the interface of economics and computer science, also several different research perspectives developed. Hess (2013a) stated that currently studies foremost focus on a user perspective. Without a doubt, a user-centered scope generates important findings; but it largely omits the provider's perspective on IT. Therefore, our first research objective is to investigate to what extent IT-provider issues are addressed in current IS research.

Moreover, years ago, there were encouragements to foster new streams of research in the area of IS and its relation to a company's entrepreneurial activity, strategy, and competitive advantage (Chan and Huff 1992). However, current research largely seems to neglect these calls. As a consequence very few publications seem to derive provider implications with regard to entrepreneurial issues in IS research and only a fraction of studies recognizes the importance of this research field (Hess 2013b). Therefore, our second research objective is to understand the role of the entrepreneurial orientation (EO) in IS research.

In the course of answering these research questions, we want to make several contributions. First, we want to provide a systematic literature review—a scientometric analysis—of research dealing with Software-as-a-Service (SaaS) or Social Networking Sites (SNS). First, we give an overview of how many articles are based on a user, a provider or a technological perspective in order to derive implications regarding the landscape of current IS research. Second, we disclose areas with no or only few publications concerning EO and identify areas in which EO has already received substantial acknowledgement by researchers.

The remainder of this study is structured as follows: Section two provides the theoretical background and defines EO, the research objects, and research perspectives. In section three, we report on the procedures of our scientometric analysis. Results are presented in section four. In section five, we give a summary of our overall findings, discuss the results from our analysis and provide avenues for further research.

## 2 Theoretical Background

This chapter clarifies terms and concepts that are important to understand the undertaken research. First we start with the term entrepreneurial orientation followed by a description

concerning the research perspectives. At the end of this chapter we define our research objects – SaaS and SNS – and give brief background information why we decided to choose these two objects.

## 2.1 Entrepreneurial Orientation

As our objective is to investigate to what extent EO is addressed in current IS research, it is important to define essential terms concerning this endeavor. In accordance with Dess and Lumpkin (2005), EO may be discussed in five dimensions.

These dimensions are:

- Autonomy
- Innovativeness
- Proactiveness
- Competitive aggressiveness
- Risk-taking

They are used to characterize and distinguish key entrepreneurial processes. Ideally, we would analyze how many of these dimensions of EO are addressed in each research article, but this fine grading is practically not feasible. Therefore, we choose a simpler definition of EO for the classification of a research article as shown in Table 1.

EO	Definition	Examples
High	The EO of an article might be high when the article addresses strategy-making or decision-making processes. High EO means that an article focusses on a company's proactive strategy to market changes or market demand.	E.g. A high entrepreneurial orientated article contains implications concerning the five dimensions mentioned above (VanderMeer et al. 2012).
Medium	The EO of an article might be medium when the article addresses a company's reactivity to market changes or market demand. An article's classification into this category means that it focusses on reactive, market oriented implications.	E.g. An article that addresses a topic such as collecting, disseminating or responding to market information in order to serve customer needs (Overeem and Vreeken 2014)
No	There might be no EO in an article when it does not address strategy-making or decision-making processes of a company at all.	E.g. An article based on a literature review (Yang and Tate 2012)

*Table 1: Three Levels of Entrepreneurship Orientation*

At this point it is also important to state that EO is not the same as entrepreneurship. Entrepreneurship is defined as a company's new entry into a market and not the strategy-making or decision-making process of that company.

## 2.2 Perspective

The second important construct that needs to be defined is the research perspective. Following Hess (2013a) we concentrate on a user, a provider or a technological perspective. In addition to these three perspectives we decided to add a fourth category where we collect all remaining perspectives.

In this study we are especially interested in research that addresses strategy-making or decision-making processes of a company. Thus, articles that are sorted into the research perspective of provider issues are of major interest to this study.

Research Perspective	Definition	Examples
User issues	Traditionally this category holds IT-users, companies and optionally government institutions - recently new players such as private households are assigned to this category. A users perspective concentrates on questions based on a single user level (typically the selection, adoption or the use of application systems) as well as on an institutional level (typically alignment problems).	E.g. Application of the Unified Theory of Acceptance and Use of Technology (UTAUT) in a specific context.
Provider issues	This category holds - in a narrow sense - software, hardware or IT-service providers as well as network operators. In a wider sense it also comprises companies such as automobile manufacturers, which offer IT-application embedded in their classical product.	E.g. Internationalization strategies of software-based companies.
Technological issues	This category holds all perspectives that are not explicitly from a user's or provider's point of view but focus on technology and the application of IT-systems.	E.g. Functionality of ERP- or CRM-systems.
Other	In this category we include all remaining perspectives a research article can take.	E.g. State of the Art articles.

*Table 2: Three Research Perspectives*

## 2.3 Object

We chose to analyze research on SaaS and SNS, since both research objects represent different degrees of maturity. Research on SaaS is far less prevalent in the IS community than research on SNS.

SaaS is defined as a layer in the Cloud Computing architecture - the other layers are called Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS). SaaS is a software licensing and delivery model. The software is licensed on a subscription basis and centrally hosted on a provider's infrastructure. Yang and Tate (2012) state that in the area of IS research, there are already quite interesting strands of research concerning the Cloud Computing paradigm and SaaS. Although the Cloud Computing technology is very young, the authors found 735 articles in the first search round and in the end analyzed a total of 205

articles. This finding proves that there is a high interest in academic literature on Cloud Computing technology and SaaS. Besides, practice demands for further research in this emerging area (Kaltenecker and Hess 2014). SaaS enables a lot of new businesses and has the potential to disrupt the structures of the software industry (Kaltenecker and Hess 2014). That is why EO might be an especially fruitful research topic both for well-established and new companies in the market.

SNS are platforms in order to build social networks or social relations among people. These people or users (mostly) share similarities such as interests, activities, or backgrounds. Users mostly maintain an individual profile within these SNS (Boyd and Ellison 2007). SNS can be characterized as web-based services (Aral et al. 2013). We see that SNS are changing the way we communicate with each other. However, not only social graces and manners transform, SNS are also changing the way we consume and produce news and information. The development is at high speed and SNS act on an extremely dynamic market. Hence, these sites create new business opportunities and transform the way businesses work. EO might be of high interest to academic and practice as a company's proactive strategy to market demand might ensure its survival in this highly dynamic market.

### **3 Methodology**

#### **3.1 Scientometric Analysis**

The literature review is an essential approach to conceptualize research areas and to synthesize prior research (Webster and Watson 2002). A descriptive scientometric approach was chosen for our literature review, because of its structured and systematic procedure, compared to a narrative literature review (Leydesdorff 2001). Leydesdorff (2001) defines scientometrics as "the quantitative study of scientific communication" (Leydesdorff 2001, p.1), while Lowry et al. (2004) regard it as "the scientific study of the process of science" (Lowry et al. 2004, p. 30). Lewis et al. (2007) recommend scientometric studies to facilitate the ongoing evaluation and improvement of an academic discipline (Lewis et al. 2007). In the IS research domain, Straub (2006) emphasized the importance of these studies to the development and progress of the IS field. Scientometric studies have been conducted on a broad range of topics in IS research (Kroenung and Eckhardt 2011). Scientometric studies differ from empirical surveys as they focus on the article itself and observe article titles, author names, abstracts and texts, or references and appendices.

A scientometric literature review consists of three steps. In the first step, we defined the scope of our search. It incorporates three dimensions: (1) the publication outlets, which are

covered by our search, (2) the relevant time span, and (3) the search terms used. The second step contains the search procedure, and the third step refers to the content analysis to examine all relevant articles (Krippendorff 2004). In the remainder of this section, we describe these steps of the scientometric approach: scope of literature search, search procedure, and content analysis.

### 3.2 Scope of Literature Search

In order to characterize the literature set that is representative for the research on SaaS and SNS in the IS discipline and to ensure the meaningfulness of our results, we included eight top-rated, peer-reviewed journals of the IS field in our study (Lowry et al. 2004). Therefore, we primarily relied on the Association for Information Systems (AIS) Senior Scholar's Basket of Journals. To extend our scope and capture more current research results, we included also the proceedings of the International Conference on Information Systems (ICIS), the European Conference on Information Systems (ECIS) and the Americas Conference on Information Systems (AMCIS) in our literature set.

IS-Journals (Basket of 8)	IS-Conferences
<ol style="list-style-type: none"> <li>1. MIS Quarterly (MISQ)</li> <li>2. Information Systems Research (ISR)</li> <li>3. Journal of Information Technology (JIT)<sup>1</sup></li> <li>4. Information Systems Journal (ISJ)</li> <li>5. European Journal of Information Systems (EJIS)<sup>1</sup></li> <li>6. Journal of AIS (JAIS)</li> <li>7. Journal of Management Information Systems (JMIS)</li> <li>8. Journal of Strategic Information Systems (JSIS)</li> </ol>	<ol style="list-style-type: none"> <li>1. International Conference on Information Systems (ICIS)</li> <li>2. European Conference on Information Systems (ECIS)</li> <li>3. Americas Conference on Information Systems (AMCIS)</li> </ol>

*Table 3: Scope of Literature Search*

The scope of our literature research included completed research articles and research-in-progress articles on the subject of SaaS and SNS from 2010 to 2014. As both research objects are rather young disciplines in IS research, we considered that the past five years would be a sufficient time frame in order to draw a comprehensive picture.

To identify all relevant articles, the following inclusion criteria had to be fulfilled:

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<sup>1</sup> Excluding JIT 2010 and EJIS 2010 because we had no access to the research articles.



- 1) Scope: The study had to be published in one of the outlets presented in Table 3.
- 2) Time Span: The study had to be published between 2010 and 2014.
- 3) Research Object: The study had to deal with research on SaaS or SNS.

### 3.3 Search Procedure

We scanned the abovementioned eight journals and three conference proceedings manually, reading abstracts and full texts if necessary. Depending on the publication outlet, we relied mostly on the AIS library database and identified articles that addressed SaaS or SNS as a central theme of discussion. The criteria for an article to be considered relevant was one or more of our search terms being in its title, abstract or among its keywords. In total, we identified 46 SaaS articles and 266 SNS articles.

### 3.4 Analysis Procedure

Next, every article was analyzed based on five categories:

- 1) First type factors: (1) year of publication, (2) publication outlet, and (3) research object (SNS or SaaS). These factors were directly collected from the article's full text.
- 2) Second type factors: The factor research perspective (4) was examined based on three subcategories, as mentioned in 2.2. These are (1) IT user, (2) IT provider, and (3) technological issue. The factor EO (5) was categorized based on (1) No EO, (2) Medium EO, and (3) High EO, as described in 2.1. These factors were developed deductively prior to the analysis.

Type	Category	Subcategory
First type factors	(1) Year of publication (2) Publication outlet (3) Research object	
Second type factors	(4) Research perspective (5) EO	Subcategories to (4): (1) IT user (2) IT provider (3) Technological issue Subcategories to (5): (1) No EO (2) Medium EO (3) High EO

Table 4: Classification Scheme

The content analysis was performed by two researchers. The results were stored and coded within an excel sheet. To ensure objectivity and reliability in the coding process and to avoid biased findings, we coded each identified article according to a codebook and included proof-texts. In total, 312 articles were categorized based on the described categorization scheme.

#### 4 Results of the Scientometric Analysis

In the following sections we provide the results of our analysis. First, we present the EO classification results. Second, we analyze the distribution of articles by research perspective (e.g. IT-user, IT-provider and technological issue). Third, we outline the degree of entrepreneurial orientation by perspective for both research objects.

##### 4.1 Entrepreneurial Orientation in current IS Research

Figure 1 shows the number of articles for each of the three degrees of EO (e.g. high EO, medium EO and no EO) for research on SaaS and SNS. The articles in the 'no EO' subcategory usually provide overviews and general information about fundamental constructs. The articles in the 'medium EO' subcategory typically analyze SNS or SaaS usage behavior and do not point out proactive implications for organizations. The results show that for both research objects most of the articles are in the 'no EO' (SaaS 35 %, SNS 21 %) or 'medium EO' (SaaS 52 %, SNS 63 %) subcategory. In total, the 'high EO' subcategory is the least researched. Only 13 % of the analyzed articles in the SNS research field and 16 % in the SaaS research field, respectively, can be assigned to the 'high EO' subcategory.

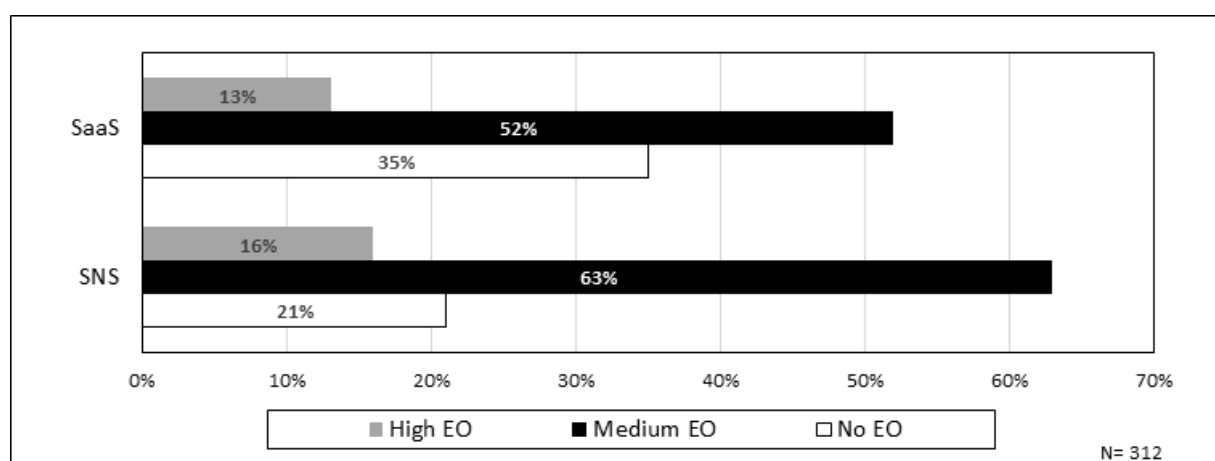


Figure 1: Degree of Entrepreneurial Orientation<sup>2</sup>

<sup>2</sup> Note: We rounded all percentage values.

Figure 2 displays the distribution of articles with a high entrepreneurial orientation by year of publication for both research objects. The results show, that the percentage of research articles with a high entrepreneurial orientation has slightly increased from about 10 % in 2012 to around 20 % in 2014.

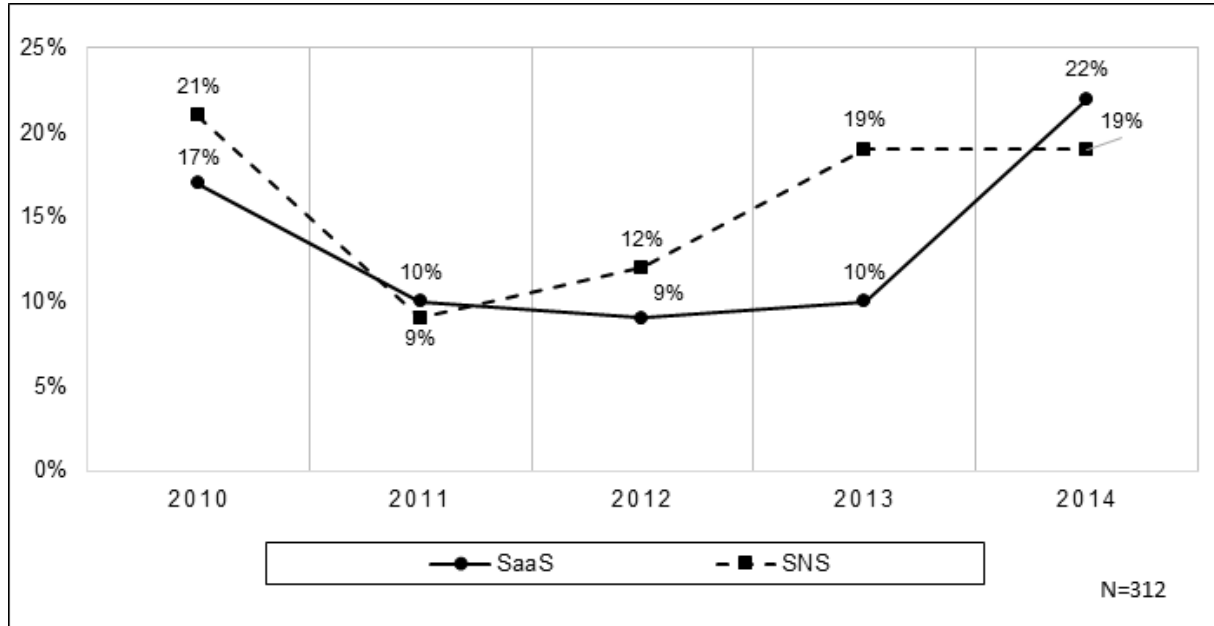


Figure 2: Distribution of Articles with High EO by Year

#### 4.2 Perspective in current IS Research

Figure 3 lists the percentage of articles for each research perspective for both research objects. The IT-user perspective clearly stands out as the most heavily published research subcategory (SaaS 41 %, SNS 83 %), followed by the IT-provider perspective (SaaS 37 %, SNS 11 %), while the least published research perspective is the technological issue (SaaS 22 %, SNS 4 %). Research on SaaS has examined IT-provider issues (37 %) and IT-user (41 %) issues nearly to the same extend. Only research on SNS has a larger proportion of articles taking an IT-user perspective (11 %) compared to articles with an IT-provider perspective (83 %). This shows, that SaaS research has a stronger focus on IT-provider than SNS research and indicates a lack of provider perspective in SNS research.

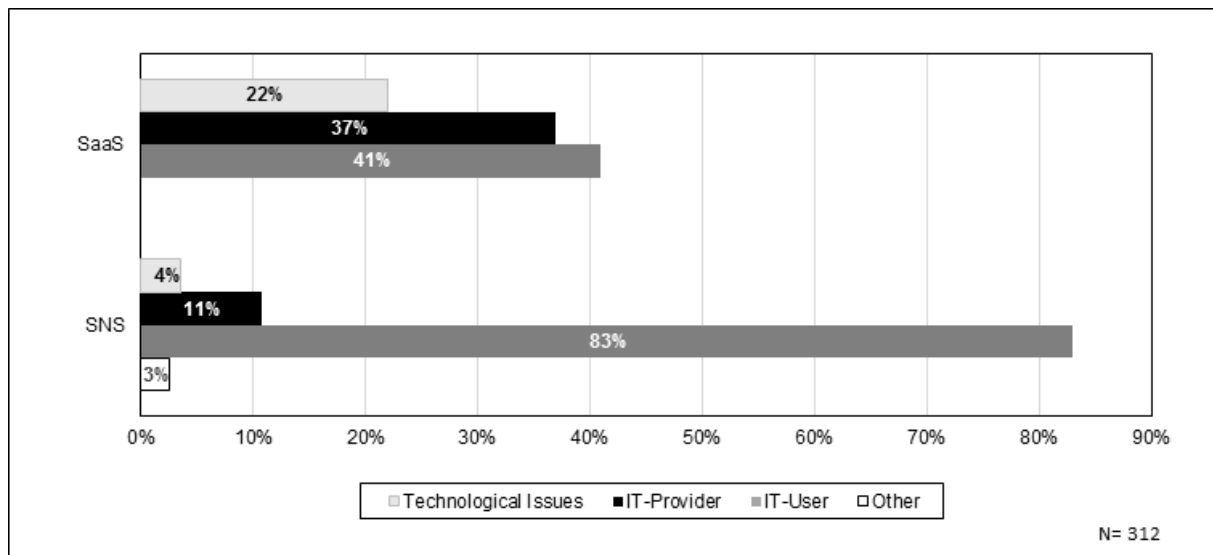


Figure 3: Distribution of Articles by Research Perspective

Figure 4 shows the distribution of articles focusing on the IT-provider by year of publication for both research objects. We cannot observe a consistent trend based on current research from 2010 to 2014.

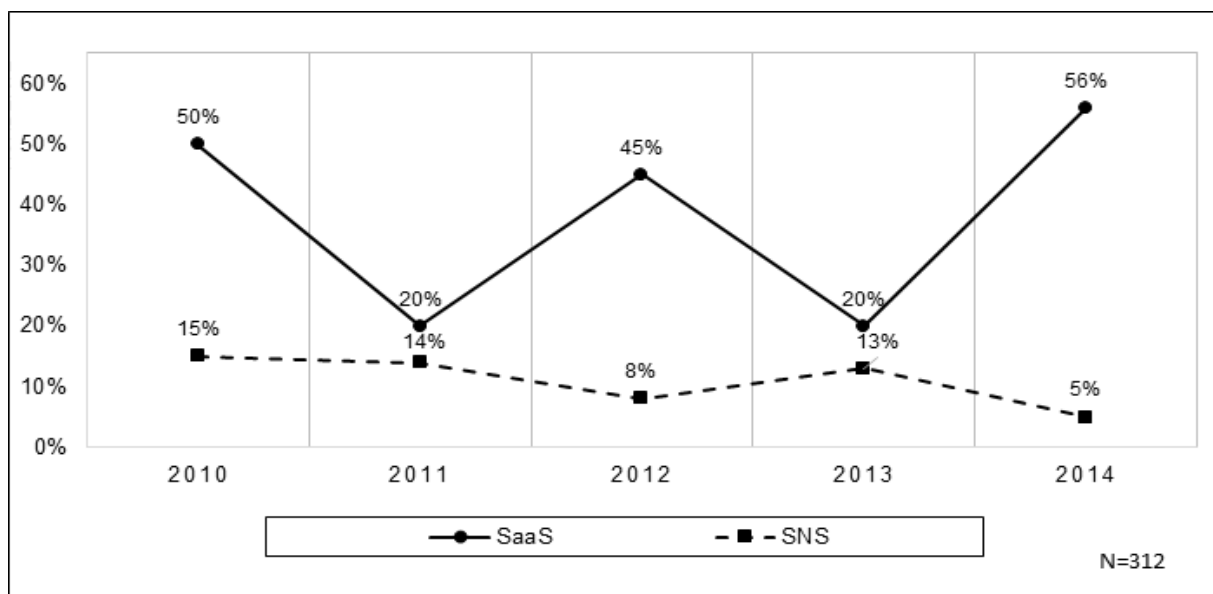


Figure 4: Distribution of Articles with IT-Provider Perspective by Year

### 4.3 Entrepreneurial Orientation by Perspective

The results in Figure 5 show that SaaS articles focusing on a user’s point of view do not include a high entrepreneurial orientation. Articles from a technological (10 %) or provider based view (24 %) are more likely to offer implications for businesses with regard to strategy-making or decision-making processes.

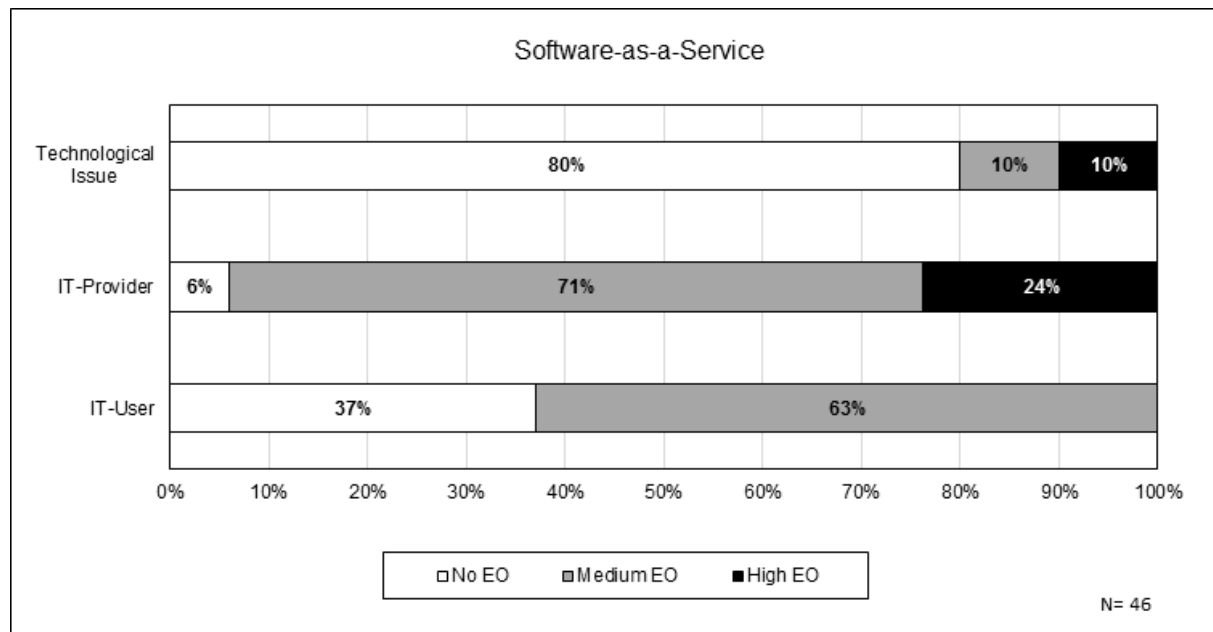


Figure 5: Degree of Entrepreneurial Orientation by Research Perspective

Figure 6 illustrates that the IT-provider perspective (43 %) and the technological perspective (60 %) stand out as the most entrepreneurial oriented SNS research streams. Articles addressing IT-user issues (10 %) are less likely to contain a high entrepreneurial orientation.

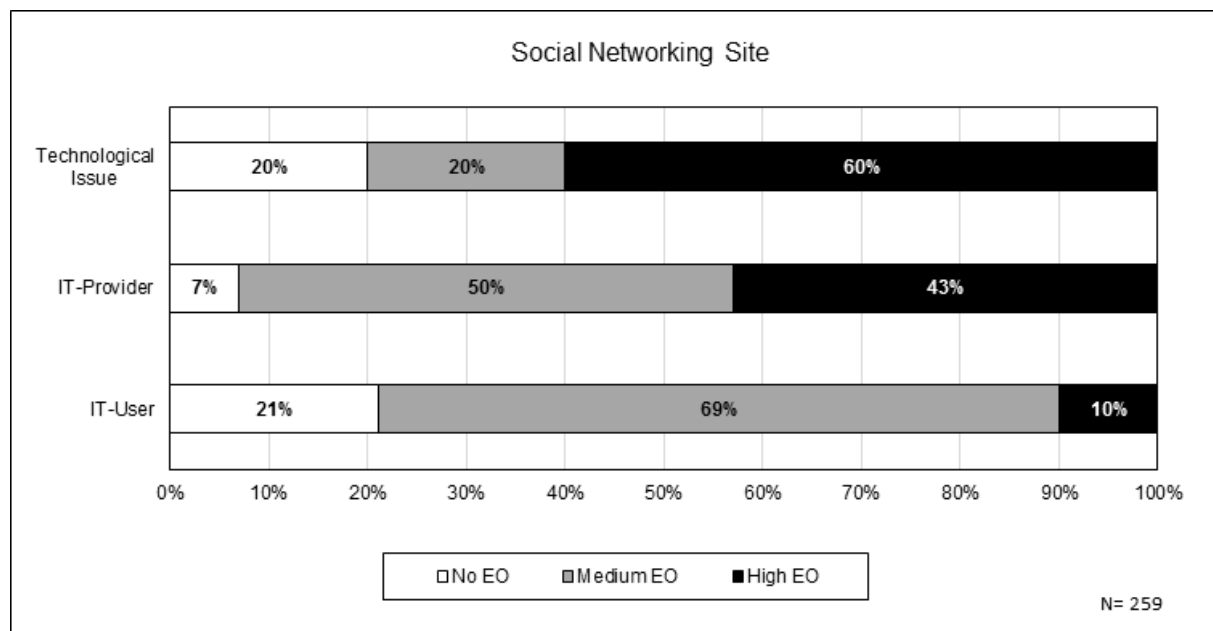


Figure 6: Degree of Entrepreneurial Orientation by Research Perspective

## 5 Discussion and Outlook

The objective was to provide a literature review and analysis concerning the distribution of the IT-provider perspective and the degree of entrepreneurial orientation in IS research by classifying the literature on SaaS and SNS between 2010 and 2014.

Our results show that the majority of research articles in our sample do not address strategy-making or decision-making processes in order to derive entrepreneurial oriented implications. Entrepreneurial orientation is still just a research strand among many others, but we can observe a slight upward trend of research articles having a high entrepreneurial orientation since 2012. Moreover, our scientometric analysis reveals that the extent to which research articles take a provider perspective seems to depend on the research object. For SNS and SaaS research we can conclude that the provider perspective has partially been covered in current IS research. In particular, research on SaaS-related issues comprises also the provider perspective. Therefore, we can relativize the first proposition, that the provider's point of view is less researched in IS research and support the second proposition that there is little research with entrepreneurial orientation in current IS research.

As with any research there are also some limitations. First, we have selected two research objects as examples for our scientometric analysis. Future literature reviews may validate our results by analyzing other research objects. Second, our literature scope included a selection of top-rated IS journals and conference proceedings. Other IS journals and conferences may also contain articles on SaaS or SNS. We suggest that future literature reviews may include a more extensive set of IS journals and conference proceedings to draw a complete picture of current IS research. Third, Dess and Lumpkin (2005) measure a company's EO with five dimensions. We categorized the research articles for reasons of practicability based on a more abstract definition of EO, in order to achieve a feasible classification. Future studies could address the shortcomings of this approach by using an expanded classification scheme.

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