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Abstract

The Internet is increasingly used as a source for information and knowledge. In the context of information gathering on health-related issues via Internet, healthcare institutions such as health insurance companies are important information providers. In this context the emergence and broad adoption of Web 2.0 technologies can be observed. As health insurance companies play a highly relevant role in the German healthcare system, we conduct a comparative analysis. The following questions are of interest: (1) How many German health insurance providers apply Web 2.0 technologies? (2) How has the application of Web 2.0 technologies in the German health insurance landscape changed? (3) Does diffusion and growth indicate an increasing fashion wave in this context? According to an adapted conceptual model for Web 2.0 use, all private and public health insurances were analyzed according to the use of Web 2.0 technologies. Our results show that public health insurers provide more Web 2.0 technologies than private health insurance providers. The inter-temporal analysis between 2009 and 2010 shows some significant changes for the diffusion of Web 2.0 technologies.

Keywords: Web 2.0, healthcare, management fashion theory, diffusion.

1 INTRODUCTION

The healthcare industry is experiencing major transformation in its information technology (IT) base (Wilson, 2004). The use of IT in healthcare to support business and care processes is called eHealthcare (Denz, 2002) or e-Health (Eysenbach, 2001). E-Health – the improvement of healthcare by using Internet-based IT – is based on the principles of applied medical computer science to support the transfer of information between patients, hospitals, and other health institutions such as insurers (Egli, 2002). The transmission of information between these stakeholders is nowadays mostly performed by using the Internet. The broad and improved availability of Web technologies and the increasing maturity of the technical infrastructure combined with and changing user behaviors support the development of so-called "Web 2.0" services (Berge and Büsching, 2007).

Since its first mention, the term "Web 2.0" has been named a hype (Haas et al., 2007) whereas others have called it an innovation (Wang, 2009). Some types of innovations can be classified as a hype or "fashion" that have little value for organizations (Abrahamson, 1996). Wang (2010) describes this phenomenon as a self-reinforcing cycle: the more organizations adapt innovations, the stronger is the common belief in its value. This results in an increasing diffusion of innovations across organizations. Such management fashions have a diffusion and a discourse lifecycle (Abrahamson and Faichild, 1999). The discourse lifecycle describes the spread of the respective fashion or innovation in the literature, whereas the diffusion lifecycle describes the implementation of fashions or innovations across organizations. In this context, researchers have studied how much the IS field is characterized by such fashions (Swanson and Ramiller, 2004; Baskerville and Myers, 2009).

From our perspective, the use of Web 2.0 technologies may indicate a fashion. In this paper, we focus on the diffusion lifecycle to investigate this phenomenon. We explore the emergence of Web 2.0 technologies at German health insurance providers and compare our findings with previous results. Our first study was conducted in 2009 and focused on health insurance providers in relation to the implementation of Web 2.0 technologies (Blinn et al., 2010). We analyzed the state-of-the-art of Web 2.0 implementation in the German health insurance landscape with a structured analysis of the websites of all German health insurance providers. Now, 18 months later, we repeat our study. The aim of this paper is to provide an answer to the following research questions: (1) How many German health insurance providers apply Web 2.0 technologies? (2) How has the application of Web 2.0 technologies in the German health insurance landscape changed? (3) Does diffusion and growth indicate an increasing fashion wave in this context?

The theoretical and practical contributions of this paper are as follows. First, the paper shows a way in which management fashion theory can be applied to healthcare. Second, it contributes to the academic discussion on how strongly management and IT (in healthcare) are characterized by fashions. Third, it provides a state-of-the-art overview regarding the use of Web 2.0 technologies and social networks in the German health insurance landscape. Based on this, practitioners from the health insurance landscape can benchmark their own company to the market.

The remainder of the paper is structured as follows. First, we introduce and discuss the background with regard to eHealth and Web 2.0 in Section 2. Moreover, we present the principles of management fashion theory in Section 3. In Section 4, we introduce our study. After describing the design and methodology of the study, we illustrate and discuss our findings and results in Section 5 in detail. Finally, we sum up our work and give an outlook on further research.

2 THEORY AND BACKGROUND

2.1 E-Health and Web 2.0

Demographic changes and rising health consciousness mark the healthcare industry as one of the fastest growing markets worldwide (Hilbert et al., 2008). The German healthcare market is the third

largest in the world (BDI, 2009). In the next 10 years, the healthcare market is anticipated to equal a share of approximately 15.5% of the German gross domestic product (Kartte et al., 2005).

New technologies accompany this increasing healthcare demand. The use of IT in healthcare is often understood as a means for improving workflows in medical and non-medical healthcare areas through increasing the efficiency of administration, logistics, and therapy processes (Bauer, 2000; Della Mea, 2001; Eysenbach, 2001). Depending on the author or audience, new terms for "electronic healthcare" such as "eHealthcare", "E-Healthcare", "E-Health" or "eHealth" are used (VIG, 2005; Eysenbach, 2001). In this paper we use the term "e-Health" in analogy to other "e-words" such as e-commerce, e-business, or e-solutions. Following Eysenbach (2001), we define e-Health as "the intersection of medical informatics, public health and business, referring to health services and information delivered or enhanced through the Internet or related technologies".

In this context we can observe a trend to connect healthcare, e-Health, and Web 2.0 (Ferguson, 2002; Van De Belt et al., 2010). Web 2.0 is generally associated with technologies that facilitate interactive information sharing, interoperability, and collaboration on the World Wide Web, leading to the development of social networks, social media, and communities (Musser and O'Reilly, 2007; Vossen and Hagemann, 2007). The improved availability of Web technologies, the increasing maturity of the technical infrastructure, and changing user behavior promote the development of Web 2.0 services. The following factors are supporting the proliferation of Web 2.0 services (Berge and Büsching, 2007):

- Improved availability. Essential technologies such as web service interfaces, AJAX, and RSS have been developed and advanced in recent years. These basic technologies enable the simplified use of online services by consumers and providers.
- Technical infrastructure. The increasing diffusion of broadband Internet enables the distribution of data-intensive content.
- Use behavior. The number of users increases that belong to a generation growing up with personal computers, the Internet, and communication via electronic media.

The result of this development is an emerging variety of Web 2.0 services. The term "Web 2.0" was first introduced by O'Reilly (2006). He coined it a "business revolution in the computer industry caused by the move to the internet as platform", in which users are involved in the process of creating and sharing content. Web 2.0 enables the transition from pure presentation of information to the point of communication via the Internet. Content can not only be read, heard, or observed, it can be actively changed and designed by the user (McAfee, 2006; O'Reilly, 2005).

We observe an emergence and broad adoption of these Web 2.0 technologies and approaches in healthcare (Seeman, 2008; Eysenbach, 2008). Web 2.0 applications, particularly wikis, blogs, and podcasts, have been increasingly adopted by many online health-related professional and educational services. Because of their ease of use and speed of deployment, they offer the opportunity for powerful information sharing and ease of collaboration (Boulos, 2006). Different actors from the healthcare sector (e. g., insurance providers, doctors, hospitals, patients associations, or self-help groups) try to provide access to healthcare information or services using the Internet and Web 2.0 technologies (Ferguson, 2002; Eysenbach, 2008). There is a global trend that patients use platforms and portals to inform themselves and discuss with others their disease, treatments, or other related (non-) medical topics (e. g., http://www.patientslikeme.com/). The use of Web 2.0 technologies as a part of e-Health aims at health care consumers, caregivers, patients, health professionals, and biomedical researchers and enables and facilitates 1) social networking, 2) participation, 3) apomediation, 4) openness, and 5) collaboration, within and between these user groups" (Eysenbach, 2008).

2.2 Management Fashion Theory

With his seminal article "Management fashion", Abrahamson (1996) is generally considered the founder of (neo-institutional) management fashion theory. Abrahamson (1996) was the first to provide

an integrated theory on the creation, diffusion, and downturn of management fashions based on neo-institutional views (Van Rossem, 2005). Abrahamson (1991, 1996) identified so-called "management fashion setters" or "knowledge- or idea entrepreneurs" (Abrahamson and Fairchild, 1996). These idea entrepreneurs such as consultants, so-called gurus, journalists, and academics compete in a market for providing management knowledge. They sensitize managers for the demand of new management techniques that help to narrow performance gaps (Wang, 2010). Abrahamson (1996) defined management fashions as "a relatively transitory collective belief, disseminated by management fashion setters, that a management technique leads rational management progress". Management fashions have a transitory character because "despite a post latency period of acceptance, a lack of systematic and comprehensive research legitimizing their prolonged utility or generalizability emerges" (Carlson, 2000). Therefore management fashions can be defined as knowledge that has been diffused, but which has a failed institutionalization (Scarbrough, 2003).

Wang (2010) describes a self-reinforcing cycle during the fashion setting process, where fashion and adaptation build on each other. The more organizations adapt an innovation, the stronger is the common belief in the benefits and value, and the faster the innovation spreads over organizations. Miller and Hartwick (2002) argue that some of these "management fads" become popular because of certain properties that contribute at the same time to their downfall: their simplicity, the presumed universality, and the expectation of results (which often do not occur) induce managers to turn away. According to Abrahamson (1996), many innovations can be classified as a fashion with a very low value for organizations. In this context, Baskerville and Myers (2009) point out that the characterization of an innovation as a management fashion does not imply that these phenomena are marginal or trivial. For example, the costs of implementation and expulsion of fashions to support technical efficient innovations may be lower than the costs of continued use of an innovation (Abrahamson, 1996).

These fundamental ideas of management fashions and fads can be transferred to the IS field. Baskerville and Myers (2009) define an IS fashion as "a relatively transitory belief in IS research and practice, disseminated by fashion setters, that a technique or technology leads to rational IS innovation". Fashions in management and IT having somewhat parallel lifecycles related to the particular fashion: a discourse and a diffusion lifecycle (Abrahamson and Fairchild, 1999; Baskerville and Myers, 2009). The discourse lifecycle describes the spread of the respective fashion or innovation in publications (e. g., articles, books, speeches, or success stories). In contrast, the diffusion lifecycle describes the implementation of a fashion in or across organizations. Diffusion is "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1995). Abrahamson and Fairchild (1999) argue that the lifecycles have a wave-like shape. In their study, Baskerville and Myers (2009) could show that the upswings of IS fashion waves are very fast and run over a period of three to five years. After the peak is reached, the wave breaks and falls down very quickly.

2.3   Web 2.0 in the German Health Insurance Landscape

The Internet is increasingly used to gather information and knowledge (Cortada, 2001). This also includes the search for health-related information such as treatment of diseases (Sparado, 2003; Fox 2008; Lausen et al. 2008). In this context healthcare providers such as health insurers, health professionals, patient organizations, or the pharmaceutical industry are major suppliers of information (Preisendanz and Wille, 2003; Baker et al., 2005; Brooks and Menachemi, 2006).

In the German healthcare system, health insurances play a highly relevant role. They are responsible for the majority of publicly funded health care provision. The German health insurance reform of 2007 requires everyone living in Germany to be insured. There are two main types of health insurance – the public health insurance ("Gesetzliche Krankenversicherung" or GKV), which is also known as sickness funds, and the private health insurance ("Private Krankenversicherung" or PKV). Approximately 85 % of the population are members of one of the 160 public sickness funds (BMG,

2010), while the others are usually privately insured. Consequently, most German residents (approx. 70 million people) are insured by the public system (except public officers, self-employed people/entrepreneurs, and employees with a gross income above 48,600 EUR per year or 4,050 EUR per month (BMJ, 2009). The private health insurance market is served by about 46 German insurance companies (Verband der privaten Krankenkassen, 2008).

Some studies have focused on the domain of health insurance in relation to the implementation of Web 2.0 technologies (AMC, 2008; Blinn et al., 2010). Moreover, the usefulness of adopting Web 2.0 technologies for insurances is also discussed (AMC, 2008; Raake and Hilker, 2010):

- With Web 2.0 applications, (pre-) sale of complex products by using web-based consultation tools is said to be possible.
- Web 2.0 supposedly supports the participation of customers in the design of new products.
- With little technical and financial cost, millions of people in principle can be contacted and reached.
- Insurers reportedly must open themselves to new audiences, new expectations, and new usage behavior and habits.

In 2009, 34% of the German public health insurance providers used Web 2.0 technologies, whereas only 4% of the private health insurance providers applied Web 2.0 technologies (Blinn et al., 2010). From our perspective, this "new way of participatory communication and interaction", with its presumed ease of use and expectation of results, shows all characteristics of an IS fashion.

3 THE DIFFUSION OF WEB 2.0 IN GERMAN HEALTH INSURANCE PROVIDERS

3.1 Methodology and Research Design

In this paper, we investigate Web 2.0 technologies in healthcare as an IS/IT fashion by focusing on the diffusion lifecycle. Our study follows the method of "third-party web assessment" (Irani and Love, 2008). We apply the "mystery user" approach (Heeks, 2006), that is, an examiner puts her- or himself in the role of a client that requires the services provided by the website in order to ensure inter-subjectivity and realism. (This is also known as "mystery shopping", Wilson, 1998). Two (in 2009) respectively three (in 2010) research assistants were trained according to the developed survey guidelines. Afterwards, they independently conducted the study. Furthermore, cross-checks with randomly chosen records were used in order to check the correctness of the collected data.

We employ a framework developed by Ganesh and Padmanabhuni (2007) in order to asses the technological objects. Ganesh and Padmanabhuni (2007) develop a generic conceptual framework in order to structure the Web 2.0 landscape according to the following parameters: "Content", "Collaboration", "Commerce", "Computing as a Service", and "Technology". They indicate that for every application domain, an adoption of the framework is required. Hence, we subjected the framework to experts from the healthcare domain. The expert group consisted of healthcare experts and IT staff. As a result of structured interviews, they approved the following Web 2.0 technologies as relevant for the healthcare domain: "Blog", "Wiki", "Social Tagging", "Social Networking", and "Podcast". Following the conceptual framework from Ganesh and Padmanabhuni (2007), "Blog", "Wiki", "Social Tagging", and "Social Bookmarking" belong to the parameter "Collaboration" and "Podcast" to the parameter "Content". Objects belonging to "Commerce", "Computing as a Service", and "Technology" were not mentioned by our experts. These five technological objects were assessed in the initial evaluation in 2009. Before the evaluation was repeated in 2010, we subjected the framework again to the same expert group. Therefore the 2009 framework was extended by selecting two additional technological objects from the Web 2.0 framework by Ganesh and Padmanabhuni (2007): "Chat" (parameter "Collaboration") and "RSS Feeds" (parameter "Content"). Moreover, "Forum" was mentioned by the experts but it is not included in Ganesh and Padmanabhuni (2007)'s

framework. Forum and Chat are technologies that also existed during the more static "Web 1.0" area. According to the experts, it belongs to the parameter "Collaboration"; therefore we include Forum in our evaluation.

In addition, the hype about social networking sites and micro-blogging (Raake and Hilker, 2010) has led us to revise the evaluation criteria "Social Networking". Next to social networks, which are self-operated by the health insurance providers, several unattached networks such as Facebook with more than 400 million registered users (Facebook, 2010) and Twitter with 75 million users (which produce more than 50 million daily Tweets, RJMetrics, 2010) play an important role. Health insurance providers and their customers are organized in these networks in user-groups. In addition to Facebook and Twitter, we also included XING (with more than 10 million users). XING is the biggest German business community. Based on the growing importance of these social networks, we supplemented our framework with these networks. Table 1 summarizes the technological objects that were used as criteria in the current study in 2010.

Evaluation Criteria in 2009 and 2010	(New) Evaluation Criteria in 2010
Blog	Forum
Wiki	Chat
Social Tagging	RSS
Social Networking	Facebook (social network)
Podcast	Twitter (social network)
	XING (social network)

Table 1.   Evaluation Criteria for Web 2.0 Technologies and Social Networks in 2009 and 2010

As we conducted a complete inventory count, the database comprises all 46 private and 152 public health insurances. Hence, 198 complete data sets were gathered in total. (The number of analyzed websites differs slightly from the number shown in the previous section because the market is constantly changing due to mergers.) The criteria catalogue for the base technologies consists of eight criteria and the catalogue for the social networks of three criteria. All criteria are transformed to a binary scoring model. If a criterion is fulfilled (offered) by a health insurer's website, the health insurer scores one point - otherwise it scores zero points. For the fulfillment of a criterion it is not necessary that the health insurer runs the Web 2.0 technology by itself. Some insurance companies, for example, share a "Blog" or a "Forum". That means for our survey, if there is an integrated Web 2.0 technology or if it is linked by the website of a health insurance provider (no matter, shared or self-run), the website gets one point for the technology. The same logic applies for the criterion "Social Networking". If there is a self-operated social network on the website of the health insurance provider or if there are links to further networks (Facebook, Twitter, or Xing) the criterion "Social Networking" is fulfilled. However, the criterion can also be met by an explicit search in the social networks "Facebook", "Twitter", and "XING", where we searched for the particular names of each health insurance provider in the social networks. The criterion was fulfilled if we found a user-group or something similar.

3.2   Results for the Web 2.0 Framework

3.2.1   Descriptive Comparison of Use of Web 2.0 Technologies in 2009 and 2010

In the first step, we compared the collected data for 2009 and 2010 solely for the original five Web 2.0 technologies (cf. Table 2). We can identify an increase regarding the use of "Social Networking" (from 10% to 39%), "Social Tagging" (from 1% to 18%), and "Podcast" (from 13% to 30%) by the public health insurers, with "Social Networking" having the strongest increase of all examined Web 2.0 technologies. In contrast to that, the use of "Blogs" and "Wikis" decreased; for "Blogs" by 4 percentage points to 10% and for "Wiki" by 17 percentage points to 1%.

Table 2 also shows the results for the private health insurances. The findings indicate an increased application of all Web 2.0 technologies. In 2009, the use of Web 2.0 technologies was an exception;

exactly one company had implemented a "Wiki" and another one a "Blog". "Podcasts", "Social Networking" or the ability for "Social Tagging" were not offered by any of the private health insurance providers. In the current study we observe an increased use of Web 2.0 applications for private health insurances. "Social Networking" was offered by 59% of the companies. This is followed by "Podcasts" with 35%. The ability for "Social Tagging" was present on 15% of all websites. "Blogs" and "Wikis" were offered by 11%.

	Public Health Insurance			Private Health Insurance		
	2009	2010	change	2009	2010	change
Podcast	13 %	30 %	+ 17	0 %	35 %	+ 35
Blog	14 %	10 %	- 4	2 %	11 %	+ 9
Wiki	18 %	1 %	- 17	2 %	11 %	+ 9
Social Tagging	1 %	18 %	+ 17	0 %	15 %	+ 15
Social Networking	10 %	39 %	+ 29	0 %	59 %	+ 59
Total	34 %	56 %	+ 22	4 %	67 %	+ 63

Table 2.   Results for Public and Private Health Insurance Providers in 2009 and 2010

If we compare the websites of public insurers and private health insurance companies in 2010 for "Blogs" and "Wikis", we see developments in the opposite direction: in 2009, private health insurances rarely offered these technologies, rising by 9 percentage points for 2010; in contrast, public insurers reduced their use of "Blogs" and "Wikis". "Podcasts" and the ability for "Social Tagging" are increasingly offered by both types of health insurance providers. In addition, the hype on "Social Networking" is visible for both public and private insurance providers. Counting the number of companies who use at least one of the originally studied five Web 2.0 technologies also leads to some interesting findings. For private health insurance companies, the use of Web 2.0 technologies has increased within 18 month from 4% to 67%, that is, 31 of the 46 private health insurance providers now offer the use of Web 2.0 technologies on their website. Moreover, the public insurers increased their use of Web 2.0 technologies from 34% to 56%. 80 of 152 public insurers use Web 2.0 technologies from the 2009 framework. Regarding our initial research questions, we observe an increasing diffusion of Web 2.0 technologies in the German health insurance landscape. More than 50% of public and private health insurance companies offer the use of at least on of the five original Web 2.0 technologies from the 2009 framework. Especially for the private health insurances we see a sharp raise within the last 18 months.

3.2.2   Statistical Relevance

We subjected the data to a X²-test with Fisher's exact test in order to investigate whether health insurance type and the offer of Web 2.0 technologies are correlated. We found no statistical support for this (Podcast: Pearson Chi-Square=0.401, p= 0.527; Blog: Pearson Chi-Square=2.397, p=0.122; Wiki; Pearson Chi-Square=1.137, p=0.286; Social Tagging: Pearson Chi-Square=0.065, p=0.799; Social Networking: Pearson Chi-Square=1.607, p=0.205). In the next step, we analyzed the statistical significance of the observed changes between 2009 and 2010. We subjected the values to homogeneity tests. The Kolmogorov-Smirnov-Test and the Shapiro-Wilk-Test showed that the data is not normally distributed in both insurance types. The results of the Wilcoxon-Mann-Whitey test for the public health insurances show a significant change for the technologies "Podcast", "Wiki", "Social Tagging", and "Social Networking" in 2010 compared to 2009 (cf. Table 3). "Podcast", "Social Tagging", and "Social Networking" are significantly more provided in 2009 than in 2010. A significant decrease of "Wikis" is also verified. For the private health insurance providers, the changes of "Podcast" "Social Tagging", and "Social Networking" are verified as significant.

3.2.3   Used Web 2.0 Technologies

We also observe an increase in the overall number of Web 2.0 technologies provided by a company (cf. Table 4 for the results).

Web 2.0 technology	Public health insurance	Private health insurance
Podcast	Mann–Whitney U = 12000.00, Wilcoxon-W = 30528.00, Z = -4.058, P = 0.0000< 0.05 two-tailed	Mann–Whitney U = 690.00, Wilcoxon-W = 1771.00, Z = -4.377, P = 0.0000< 0.05 two-tailed
Wiki	Mann–Whitney U = 12104.00, Wilcoxon-W = 23732.00, Z = -5.187, P = 0.0000< 0.05 two-tailed	Mann–Whitney U = 966.00, Wilcoxon-W = 2047.00, Z = -1.680, P = 0.093>0.05 two-tailed
Social Tagging	Mann–Whitney U = 12152.00, Wilcoxon-W = 30680.00, Z = -5.535, P = 0.0000< 0.05 two-tailed	Mann–Whitney U = 897.00, Wilcoxon-W = 1978.00, Z = -2.738, P = 0.0060< 0.05 two-tailed
Social Networking	Mann–Whitney U = 10448.00, Wilcoxon-W = 28976.00, Z = -6.210, P = 0.0000< 0.05 two-tailed	Mann–Whitney U = 437.00, Wilcoxon-W = 1518.00, Z = -6.148, P = 0.0000< 0.05 two-tailed
Blog	Mann–Whitney U =13980, 00, Wilcoxon-W = 25608.00, Z = -1.178, P = 0.239>0.05 two-tailed	Mann–Whitney U =966, 00, Wilcoxon-W = 2047.00, Z = -1.680, P = 0.093>0.05 two-tailed

Table 3.   Statistical Relevance of Changes

In 2009, 55% of the public insurers had one application in use, 33% offered two applications, three or four technologies were rarely available, and none of the health insurance providers had all five technologies in use. The current analysis shows conflicting trends for the public insurers. First, we observe a small increase in the use of exactly one Web 2.0 technology (58%). In contrast, the number of two Web 2.0 technologies decreased from 33% to 18%. The use of three technologies is unchanged. In turn, the use of four technologies rose from 5% to 18%. The average of used technologies by the public insurers slowly increased from 1.6 to 1.9. In contrast, the average of technologies that are used by the private health insurance companies is almost twice as high as in 2009. In 2009, exactly one private health insurance provider offered a "Blog" and another one a "Wiki". So 100% of the companies which use Web 2.0 applications applied exactly one Web 2.0 technology. In 2010 we observe a strong change. 39% are using exactly one of the examined technologies, 35% use two technologies, 19% use three, and 6% use four technologies.

Number of used Web 2.0 technologies	public health insurance		private health	
	2009	2010	2009	2010
1	55 %	58 %	100 %	39 %
2	33 %	18 %	0 %	35 %
3	8 %	8 %	0 %	19 %
4	5 %	18 %	0 %	6 %
5	0 %	0 %	0 %	0 %
used technologies on average	1.6	1.9	1.0	1.9

Table 4.   Number of used Web 2.0 Technologies from the Framework

3.3   Results of the 2010 Framework

Regarding the three new Web 2.0 technologies from the 2010 framework, the Web 2.0 technology applied by most of public insurers is "Forum" (89%), followed by "Chats" (83%). "RSS Feeds" are offered by 32%. In contrast, "RSS Feeds", "Forum", and "Chat" are used by 13% of the private health insurances. Regarding social networks, we observe that private health insurances, if compared to public insurers, have a stronger presence in those communities: 41% of the companies provide an own user-group in "Facebook", 35% of them have a "Twitter" account, and 24% are represented in "XING". The use of social networks by public insurers is lower in comparison: 13% are applying "Twitter" and 3% are represented in "XING"; only their presence in "Facebook" is almost similar (38%). Figure 1 summarizes these findings.
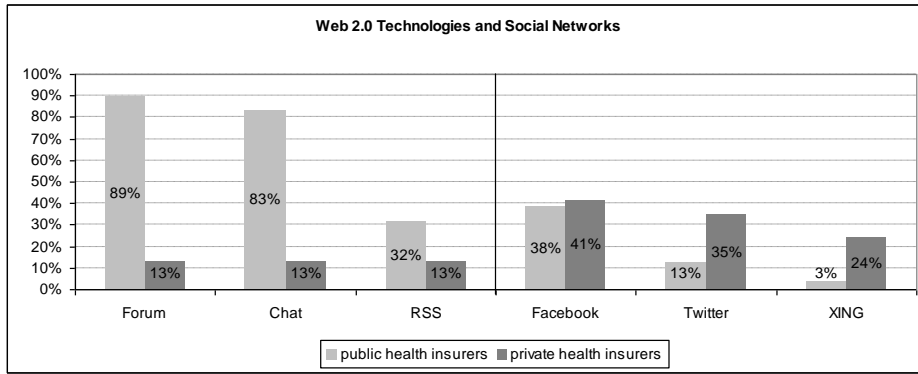
Figure 1.   Applied Web 2.0 Technologies and Social Networks in 2010

67% of the private health insurances use at least one of the five Web 2.0 technologies from the 2009 framework. The consideration of these five Web 2.0 technologies and the three Web 2.0 technologies and three social networks of the 2010 framework in terms of their use have shown that also 31 out of 46 private health insurance providers (67%) use Web 2.0 applications. That means that the same insurance companies who use Web 2.0 technologies and social networks from the supplemented framework are also using the technologies from the 2009 framework. 15 companies do not use any of the examined Web 2.0 technologies and social networks. Regarding the public insurers, 80 companies (56%) use Web 2.0 technologies from the 2009 framework. Adding the results for the technologies and social networks of the 2010 framework, we result in 151 public insurers or 99%; almost all public health insurers offer one of the examined Web 2.0 technologies on their website (or link to a shared website) or provide an own user-groups in social networks (cp. Figure 2).
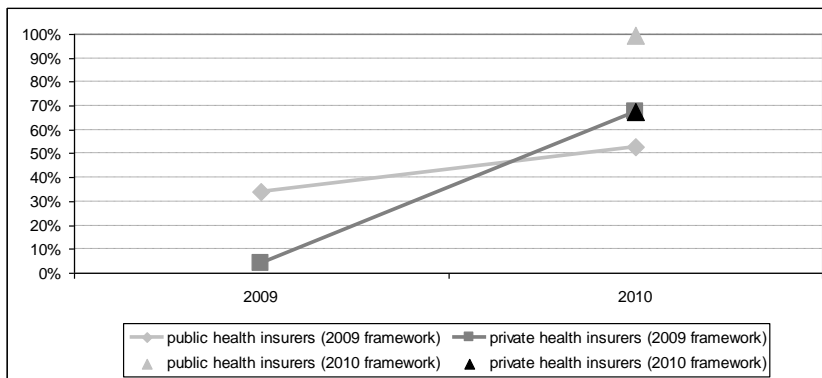

Figure 2.   Development of the Use of Web 2.0 Technologies of the 2009 Framework and Total Use of all Examined Technologies (2010 Framework)

4   DISCUSSION

In our study we observe an increasing and broad diffusion of Web 2.0 technologies in the German health insurance landscape. 56% of the public insurers and 67% of the private health insurances use at least one of the five originally examined Web 2.0 technologies. The consideration of three additional technologies and social networks from the 2010 framework shows that almost all public health insurance providers use Web 2.0 technologies. To sum up, there is a wide-spread diffusion of Web 2.0 technologies in the German health insurance landscape. We also notice a strong increase regarding this diffusion. The use of Web 2.0 technologies increased for public insurers from 2009 to 2010 by 22 percentage points to 56%. For the private health insurances, the growth is much stronger: we observe an increase by 63 percentage points from 4% to 67%. Next to the growing diffusion of companies who use Web 2.0 technologies, we also see an increase in the number of implemented technologies per company. Fashion waves have a similar development. After introducing an innovation, it wins greatly

in importance and is increasingly implemented across organizations. The more organizations adapt an innovation, the stronger is the common belief in the benefits and value, and the faster the innovation spreads over organizations. The diffusion lifecycle describes this distribution and implementation of a fashion across organizations. From our perspective, the results of this study support the assumption that the use of Web 2.0 applications in the German health insurance landscape is a fashion wave. However, a final statement based on these results cannot be taken. The observed period of 18 months provides first evidence for the rise of a fashion wave; however, the period is too short for a comprehensive examination. Therefore we will repeat our study in the near future, where all technologies of Web 2.0 framework and its supplementation will be examined again. These data will provide important information to further developments.

Our findings build the foundation for further research on fashion waves in the context of Web 2.0 and e-Health. Next to a further evaluation on the diffusion of Web 2.0 in the health insurance landscape, a study concerning the discourse on Web 2.0 in the practitioner und scholarly literature appears reasonable. We expect a raising volume on the discourse of Web 2.0 in the context of healthcare. A grounded statement on both diffusion lifecycle and discourse lifecycle could support or deny our assumption of a fashion wave. Both practitioners and researchers may benefit from our findings. Practitioners from health providers are provided with a state-of-the-art overview regarding the use of Web 2.0 technologies and social networks in the health insurance landscape. Practitioners from health insurance providers can benchmark their own company to the market and can decide to go with the fashion or to wait for the next one. Also practitioners from other parts of the healthcare sector can deduce implications for the development of their own workspace. What would also be interesting is a study of the effects of using Web 2.0 technologies on business value. For researchers, our findings show that Web 2.0 plays nowadays a highly relevant role in the health insurance landscape.

5 CONCLUSION AND OUTLOOK

In the present study, the use of Web 2.0 technologies in the German health insurance landscape was investigated. Here, the research was guided by the questions of the diffusion of Web 2.0 technologies and the growth of this diffusion within the last 18 months. The theoretical background of these research questions is the assumption of a fashion wave. Our findings show a strong diffusion and an increase of the diffusion of Web 2.0 technologies in the German health insurance landscape. This underlines our assumption of a Web 2.0 fashion wave. As a next step, we aim to uncover the effects of riding the fashion wave on the extension and loyalty of customers. We attempt to enrich our data with key figures of customer movements, which will be published by the insurance companies in the beginning of 2011, to investigate coherences between the use of Web 2.0 technologies and customers behavior. We will repeat our study in the next months. Furthermore, we will conduct a literature review to examine the corresponding discourse lifecycle.

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