

An Improvement in Data Privacy and Security by Providing Visualizations-Review

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ABSTRACT

A security of data in era of the internet is important issue in today's world. A lot of people focus their attention on the data privacy and security. If Internet service provider does not gives the proper methodology for data security and data privacy then it may lead lack of trust. In this paper, visualizations can give the positive effect on the trust. Trust in the data privacy and security of internet service providers is increased by this visualization methods.

Keyword: - Data security, Visualizations, Data privacy, Data Communication.

1. INTRODUCTION

Data security and Data privacy are the major issues in the internet's individual users as well as professional organizations. Trust is the serious achievement factor for online vendors. Government and business be familiar with that trust is basic to the success of the internet based business projects, and that public apprehensions regarding individual privacy and the awareness of the risk, relating to the Internet use, cloud collaborate future growth [1]. There are many factors that manipulate trust. People are worry about issues relating to data privacy and data security. Cloud computing providers and online service providers are faced with the challenge to gain the trust of the users and organizations. A communication of data related to the data privacy and data security increases trust of users, so we need to improve the communication. There having the various ways for improving the communication. One way for increasing the communication is to visualize the information.

This paper examines whether giving visualizations as intends to imparting data privacy and efforts to establish safety positively affects trust. A laboratory experiment was conducted to measure the effect of visualization on trust in the provider, trust in the measures of the provider, and on information security and privacy concerns. The result indicates that there is a small positive effect regarding trust in provider and in his measures and no significant effect regarding information security and privacy concerns. Trust is a critical success factor for online vendors and data security of online service providers. Cloud computing providers and online service providers are confronted with the challenge to gain the trust of users and organizations.

2. VISUALIZATION

In visualization, we map data onto visual elements in a way that we hope will help the user to perceive and reason about the structure in the data. There having various methodologies that will allow the user to explore the data in a way that will help to expose structures that were previously hidden [2]. In interactive visualizations, the representation of the data is manipulated and transformed to expose deeper structures in the underlying data. The goal of theory of visualization would be to guess how our perception of the significance in the information relies on

upon these different transformations, and how to match these different representations to our analysis goals and tasks.

In general visualization can be of different shapes. Graph models [3] or videos [4] are the some examples. Visualization can be affect on the perception and cognitive processing of information. Visualization can easily take the attention of users without taking the special focus. We generally observe that pictures help people to comprehend and remember text [5]. Visualization increases individual learning and team performance [6]. Visualization can also help to reduce cognitive information overload. The legal visualization is the new area of visualization. Besides legal visualizations, the research field of information design is considering the question on how to present information in communication so that the information receiver's needs are satisfied. HIBBITS observes a pictorial turn in legal culture [7]. This is remarkable as many lawyers generally "tend to be wary of the pictorial and the imagistic". One manifestation of this pictorial turn is that some legal researchers look into ways of how to enhance contracts with visualizations in order to increase their comprehensibility [8, 9].

3. EFFECT OF VISUALIZATION ON TRUST

This section involves the concept of trust and how visualizations may influence it. Trust is an intricate idea for which there is no all-around acknowledged academic definition. Here the definition of trust is given as "Trust is a psychological state comprising the goal to acknowledge defenselessness based upon positive desires of the aims or conduct of another" [10]. Trust is imperative in numerous value-based connections, particularly those containing a component of danger. Trust is broader notion than security as it includes subjective criteria and experience. There exists both hard and soft trust. Hard trust involves aspects like authenticity, encryption and security in transactions. Soft trust involves human psychology, brand reliability and ease of use [11]. An example of soft trust is reputation, which is a part of online trust that is maybe an organization's most significant resource. Trust as an affect reflected in the feelings of confidence and security in the caring response of the other party. The level of trust is does not necessarily develop gradually over time [12]. Instead, trust is influenced by a variety of factors depending on the phase of the trust-building process. The person who trusts is called trustor, the person, group, or organization that is trusted is called trustee [13].

There are a wide range of courses in which on-line trust can be set up. A security may be one of way of online trust. In traditional security models, a security perimeter is set up to create a trust boundary within which there is self-control over computing resources and where sensitive information stored and processed. In surveying cloud computing provision, mechanisms to give dynamic technological based trust need to be used in combination with social and technological mechanisms for providing persistent trust.

Trust research initially focused on the interpersonal or organizational relationships. Trust relationship at any point in the cloud service chain may be weak, but exist in order that a service can be provided quickly. Communication of implemented privacy and security measures is essential for the development of initial trust in a cloud service provider [14]. Organizations communicates their security practices through privacy policies by providing end users with information about applied privacy and security measures. Here we are providing visualizations in privacy policies may support communication of applied privacy and security measures and thus may have positive effects on trust.

The visualization effects increases trust. Visualization increases the grasp of complex issues; it may influence the perceived ability of provider. Visualization increases trust due to it reduces cognitive information overload and supports a transparent communication. KHAN and MALLUHI suggest that transparent communication of applied privacy and security measures is essential for trust building in the context of cloud computing [15].

There are three hypotheses H1, H2, H3. In the first hypotheses we conclude that providing visualizations in privacy policies in order to illustrate data privacy and security measures leads to greater recognized capacity of the

company than not providing visualizations. The second hypotheses states that, providing visualizations in privacy policies in order to describe data privacy and security measures leads to greater trust in data privacy and security counter measures than not providing visualizations. The third hypotheses states as, providing visualizations in privacy policies in order to describe data privacy and security measures leads to lesser information security and privacy concerns than not providing visualizations.

4. EXPERIMENTAL STUDY

The experimental task of the participants was to learn the passage carefully and to evaluate whether they would trust the imaginary cloud service provider. In order to measure the effects of providing visualizations, we divide the group of participants into two homogenous groups. The only difference was that the participants of one group was presented with only the textual passage while participants of other group was additionally presented with visualizations depicting the same information as was in the text. With regards to the test, we understand by iconic depiction of elements, their interrelations and their textual description.

In our experimental study first, we select a number of data privacy and security measures. The selection was based on an analysis of 25 privacy policies of cloud service providers. The different data privacy and security risks are categorized by two IS researchers. These categories were then compared with existing research on IT risks. Out of these categories, we selected seven categories of privacy and security measures to create the excerpt in our experiment. We tried to select categories that are on the one hand frequently addressed in the analysed privacy policies and on the other hand suitable for creating visualizations. For each category, we created a textual description of the privacy or security measures and the according visualization. The creation of these visualizations was initially conducted by two IS researchers that are experienced in the field of visualizing information. In order to get the best visualizations possible for the security measures, we evaluated the quality of visualizations. We conducted a pretest with seven people that were also experienced in the field of information visualization.

The results indicate that there is a small to medium effect of visualization on trust and trusting beliefs as well as on trust in security measures. The strongest effect could be observed on perceived ability. Research on trust in cloud computing emphasizes the importance of transparency of trust building. The second strongest effect of visualization was observed on trust in security measures. This may be because visualizations may also positively affect customer's belief in the effectiveness of providers' security mechanisms. [16] Research on risk communication has shown that the written and visual communication of risks can have positive effects [17, 18]. For example risk communication facilitates reliability and credibility of the communicator and thereby end user's perception of his or her trustworthiness. Moreover, visual communication of risks can lead to alleviation of customers risk perception. However, to be useful, visualizations must communicate different risk characteristics such as risk magnitude, relative risks, or cumulative risk [18].

5. CONCLUSION

The aim of our study was to test the effect of providing visualizations in privacy policies on trust. To test these hypotheses, we led an investigation. Our result gives slight support for a positive effect of visualization on most of these constructs. The mean values of the constructs were all higher in the visualization condition than in the no visualization condition. As our study could not show significant evidence, further research is required. As there are various ways to design visualizations research should be conducted in order to obtain a deeper understanding of which specific design has the highest influence on initial trust.

6. REFERENCES

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