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EMPLOYEES’ ADOPTION OF ENTERPRISE WEB 2.0: THE ROLE OF TECHNOLOGICAL ATTRIBUTES

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Abstract

Although the adoption of Enterprise Web 2.0 within organisations is beneficial, it could meet with employees’ resistance and the adoption process can be lengthy. The successful implementation of Enterprise Web 2.0 is based on employee involvement and adoption of such social technology. This paper is part of a larger research project that explored the adoption of Web 2.0 by individuals within enterprises. Using a qualitative study, the findings show that there are number of adoption influences including technological, individual and contextual issues. This paper presents Web 2.0 technological attributes that influence its adoption. The found attributes are: friendliness, reliability, mobility, technical compatibility, discoverability, transparency and Web 2.0 type.

Keywords: Enterprise 2.0 technologies, Web 2.0, IT adoption, qualitative study.
1 INTRODUCTION

Web 2.0 is a new generation of web-based applications that allow people to collaborate and share information online (Wigand 2007). Web 2.0 technologies such as wikis, blogs and micro-blogs offer a shift in how people interact with the web. The explosive growth of such applications has been observed by professionals in the workplace, so organisations have started to introduce Web 2.0 applications. McAfee was the first to coin the term ‘Enterprise 2.0’, which refers to the adoption and use of Web 2.0 by organisations (Brynjolfsson & McAfee 2007).

The aim of this research, namely to explore employees’ adoption of Enterprise Web 2.0, is significant for four reasons. Firstly, employees’ adoption of this technology makes organisations more efficient due to its enhancing collaboration, supporting knowledge sharing and fostering innovation from within (Newman & Thomas 2009). Secondly, previous literature (e.g. McAfee 2006; Parise, Guinan, Iyer, Cuomo & Donaldson 2009) has reported employees’ adoption as a critical challenge facing the implementation of Enterprise Web 2.0. In addition, employees’ adoption determines the success of Enterprise Web 2.0, as such technologies are community-based systems (Bradley 2007). The more employees adopt Enterprise Web 2.0, the higher the chance for this IT system to succeed. Lastly, Enterprise Web 2.0 is not just another IT system; and according to Dwivedi, Williams, Ramdani, Niranjan and Weerakkody (2011), commentators are still unclear about what influences the adoption of such social technologies.

This paper is part of a larger research project and discusses only the Web 2.0 technological attributes that influence employees’ adoption. The remainder of this paper is organised as follows. Section 2 further discusses Enterprise Web 2.0 and its adoption. Section 3 overviews the research method, data collection and data analysis. After that, Section 4 presents the findings and Section 5 concludes this paper by discussing the findings.

2 LITERATURE REVIEW

This section further discuses the notion of Enterprise Web 2.0, introduces its benefits as well as its challenges and discuses the relevant adoption studies.

2.1 Enterprise Web 2.0

Enterprise Web 2.0 technology could be used in several ways: to interface with customers, to interface with partners or suppliers, and for internal use between employees, and for collaboration and knowledge sharing (Corso, Martini & Pesoli 2008). Employees’ use of Enterprise Web 2.0 within organisations is the focus of this paper. Table 1 presents some examples of Web 2.0 applications and their potential uses within enterprises as adapted from Alqahtani, Zakaria and Watson (2010).

<table>
<thead>
<tr>
<th>Web 2.0 Tools</th>
<th>Potential Applications within Enterprises</th>
</tr>
</thead>
</table>
| Blogs (Social Media) | • CEO channel of communication with all employees  
|                    | • Expertise sharing  
|                    | • Internal communication  |
| Wikis (Social Media) | • Managing enterprise projects  
|                    | • Collaborative writing of an enterprise’s reports  
|                    | • Building enterprise information and knowledge  |
| Social Networking | • Leadership development  
|                    | • Enhancing social relations between employees  
|                    | • Finding experts within the enterprise  |
Connecting with colleagues

Tagging and Social Bookmarking (Social Media)
- Categorising enterprise information and knowledge
- Sharing expertise and expertise resources

Podcast (Social Media)
- Advertising organisation’s events
- Communicating employees’ ideas and tips

RSS and syndication (Aggregators)
- Obtaining corporate news
- Keeping track of projects and events
- Connecting with CEO posts
- Linking with experts’ tips

Table 1. Potential applications of Web 2.0 tools within enterprises

The internal use of Enterprise Web 2.0 improves how organisations work by enhancing four key elements: collaboration, communication, connection, and information and knowledge management (Cook 2008). Employees’ use of Enterprise Web 2.0 tools increases work productivity and staff innovation by allowing the use of computer-mediated communication technology to more effectively collaborate with co-workers, to identify experts and opportunities, and to retain cumulative organisational knowledge and experience (Alqahtani, Watson, & Partridge, 2011; Van Zyl 2009). Employees’ adoption is one of the most critical challenges of Enterprise Web 2.0 (McAfee 2009; Parise et al. 2009). In addition, enterprises’ implementation of this emerging technology needs to be acceptable to individual employees as organisations cannot force employees to adopt it (Kosalge & Tole 2010).

2.2 The adoption of Enterprise Web 2.0

Many researchers have investigated and highlighted adoption issues which influence the use of Web 2.0 in virtual online communities. However, less attention has been paid to the investigation of the adoption of Web 2.0 within the organisational context. Enterprise Web 2.0 adoption has begun to receive attention from industry researchers (Bradley 2007; DiMicco, Millen, Geyer, Dugan, Brownholtz & Muller 2008), as well as from academia (Hester & Scott 2008; Paroutis & Al Saleh 2009). Table 2 summarises the studies that were available during the literature review phase of this project.

<table>
<thead>
<tr>
<th>Study</th>
<th>Adoption study</th>
<th>Enterprise 2.0 study</th>
<th>Empirical study</th>
<th>Adoption influences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millen, Feinberg &amp; Kerr (2006)</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>Knowledge sharing</td>
</tr>
<tr>
<td>Bradley (2007)</td>
<td>√</td>
<td>√</td>
<td></td>
<td>Technology, individuals’ability, resources &amp; social influence</td>
</tr>
<tr>
<td>Jackson Yates &amp; Orlikowski (2007)</td>
<td>√</td>
<td>√</td>
<td></td>
<td>Technology, resources, social influence, knowledge sharing</td>
</tr>
<tr>
<td>Hsu &amp; Lin (2008)</td>
<td>√</td>
<td></td>
<td>√</td>
<td>Technology, knowledge sharing, social influence</td>
</tr>
<tr>
<td>DiMicco et al. (2008)</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>Social influence</td>
</tr>
<tr>
<td>Hester &amp; Scott (2008)</td>
<td>√</td>
<td>√</td>
<td></td>
<td>Technology, social influence</td>
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<tr>
<td>Shumarove &amp; Swatman (2008)</td>
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<td>Technology, individuals’ability</td>
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<td>Torning (2008)</td>
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<td>Resources &amp; knowledge sharing</td>
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<tr>
<td>Chai (2009)</td>
<td>√</td>
<td></td>
<td></td>
<td>Trust &amp; social influence</td>
</tr>
<tr>
<td>Paroutis &amp; Al Saleh (2009)</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>Technology, resources &amp; trust</td>
</tr>
</tbody>
</table>

Table 2. Enterprise 2.0 adoption studies
Based on the review of previous studies that investigated the adoption of Enterprise Web 2.0 as well as other related studies, several potential adoption influences were identified, namely technology, social influence, knowledge sharing, trust, individuals’ ability and resource availability. For the purpose of this paper the discussion deals only with the technological influences: Web 2.0 attributes.

These influences refer to technological attributes, such as complexity and reliability, which could affect user adoption. Some studies, for instance Bradley (2007), Hester and Scott (2008) and Jackson et al. (2007) have shown the important role of technology attributes in the adoption of Web 2.0. Bradley (2007) suggested several Web 2.0 technological attributes that need to be considered, including ease of use, ecosystem (the integration of the use of Web 2.0 with the daily work process), and discoverability. The presence of any technical complaints about Web 2.0 would be a barrier that could negatively influence its adoption (Jackson et al., 2007). In contrast, the “increased usage of [Web 2.0 such as] wikis may be facilitated by ensuring that the wiki is easy to use and provides recognizable advantages over previous technologies” (Hester, 2010, p. 162). Hester and Scott’s (2008) previously mentioned DOI-based model emphasised potential wiki adoption factors, arguing that complexity, relative advantage and usefulness of wiki systems would influence its diffusion and usage.

This review of the literature revealed that introducing Web 2.0 into organisations provides valuable benefits such as boosted returns, reduction in costs and increases in the rate of innovation. However, the implementation of Enterprise 2.0 technologies comes with challenges and its low adoption by employees is an enormous obstacle. Finally, there are Web 2.0 attributes which could influence individuals’ adoption of Web 2.0 in positive as well as negative ways.

3 RESEARCH METHOD

The aim of this study was to explore employees’ adoption of Enterprise Web 2.0. A qualitative study was used to understand this phenomenon based on employees’ experience. The suitability of a qualitative approach for explorative research was the basis for using it in this study (Dudley 2010). The researcher used two data collection techniques sequentially in two phases: focus groups and interviews.

In the first phase, two focus groups were conducted to justify, refine and extend the potential adoption issues. A focus group is a technique used in qualitative research that involves a group interview (Morgan 1997). The focus groups started with a general question to evaluate Web 2.0 adoption. The second part of the focus group questions was developed based on the potential adoption issues synthesised from the literature review. The interactive nature of the focus groups helped in verifying Web 2.0 adoption issues relevant to the research context of organisations.

In the second phase of the research, semi-structured interviews were used due to their ability to provide a rich and in-depth understanding (Bernard & Ryan 2010). The interviews revolved around questions pertaining to the current implementation of Enterprise Web 2.0, individuals’ adoption behaviour and the reasons behind such behaviour. The interviews generated in-depth and contextually-based understandings of the adoption of Enterprise Web 2.0.

3.1 Data Collection

The sampling method that was used in this study was snowball sampling in which the researcher asks previous respondents to give referrals for other possible participants (Fink 2003). The nominated participants were assessed according to the following criteria: (1) they were working in (private, small, medium, large) organisations which had implemented Enterprise Web 2.0, and (2) they had already been introduced to Web 2.0.

There were seven participants in the first focus group and six participants in the second one. Additionally, eighteen participants were interviewed individually. Half of them were aged 20 – 29; four were aged 30-39 and the remaining four were aged 40-49. Six of the participants were working in
large organisations, seven were working in medium-size organisations, and the remaining five were working in small-size organisations. They held various positions. One was a general manager, three were middle managers and the remaining were operational staff.

3.2 Data Analysis

The interviews were recorded, transcribed, and then analysed using thematic analysis. Thematic analysis assisted the researcher in identifying, analysing and reporting patterns (themes) (Braun & Clark 2006). The data was analysed using a combination of deductive and inductive thematic analysis. This combination was necessary to obtain in-depth explanations about how the predefined adoption issues influence employees to adopt Web 2.0. Also, the inductive approach allowed new themes to emerge from the data.

4 FINDINGS: WEB 2.0 TECHNOLOGICAL ATTRIBUTES

This study found a number of Web 2.0 technological attributes that influence its adoption. The attributes found are: user-friendliness, reliability, mobility, technical compatibility, discoverability, transparency and the type of Web 2.0 being introduced.

4.1 User-friendliness

In general, Web 2.0 technologies are user-friendly which motivates its adoption. It is noted that most Web 2.0 tools are “easy on the eye to look at and it’s attractive” (Int18JonathanO), “easy to get your head around [...] by exploring” (In10AngusB) and “easy to use” (In14KatreeD).

4.2 Reliability

Reliability refers to the performance quality of Web 2.0. In some cases, it was not found to be influential for the adoption of Web 2.0 as employees “can put up with some faults” (In13GrantO). However, in other cases, where using Web 2.0 is vital to core business processes, the influence of reliability is critical, as articulated by In15CorinnaO:

If that performance is deterring with my work process, I then have to revert back to the old system (In15CorinnaO).

4.3 Mobility

Web 2.0 mobility refers to the feature that enables employees to use Web 2.0 tools via mobile devices, usually to access content (passive adoption). For the time-poor employee, mobility allows them to access key information and to engage in work activities at times and locations convenient to them as noted:

“I look at it most often on the train on the way home because that’s when I’ve got the time, I’ve got the device...a good time to catch up” (In13GrantO).

Also it offered employees who are “often on the road” (In4LukeT) the ability to stay connected to their office and work colleagues no matter where they were based. So mobility makes Web 2.0 more usable by employees regardless of the geographical location of employees, and that increases the usefulness of Web 2.0.

4.4 Technical compatibility

Technical compatibility, the technical integration of Web 2.0 with other enterprise systems, facilitates its adoption. It was found that Web 2.0 compatibility makes it easy to use, as expressed by In17KristyE:
“if the user can feel it as disconnected... or they have to log in again to use it, that’s an ease of use issue ... as [Web 2.0] should be compatible and seamless” (In17KristyE).

Also, Web 2.0’s compatibility with other systems “by its very nature ... includes integrating [Web 2.0] into a business process” (In16Simon), which means that Web 2.0 becomes more relevant to work activities, hence becoming more useful.

4.5 Discoverability

Web 2.0 discoverability occurs via technical features such as social bookmarking and following people. This makes it easy to find people and Web 2.0 content. It is noted that “Web 2.0 allows discovery of new content ... new relations of people” (In14KatreeD), suggesting that passive users benefit from accessing Web 2.0 and “consuming” its content. On the other hand, discoverability encourages active users of Web 2.0 to contribute as well as access the content of this technology. This is due to the satisfaction obtained when colleagues benefit from individuals’ contributions. As one argued: “If [Web 2.0] discoverability wasn’t important, you’d write in a diary that you keep under your bed that no one would ever find” (In6BenD).

4.6 Transperancy

Transparency is the visibility of the participation of Web 2.0 users and of the content that they generate. Web 2.0 is described as a “transparent area where everyone can see what people are saying” (In6BenD). Web 2.0 transparency enhances trust in its content, and hence encourages its passive adoption, as noted by In17KristyE:

The quality of the content by nature; as it’s against your name I think it’s more likely to be good... because it’s there for everybody to see (In17KristyE).

For other employees, transparency, as identified, discourages them from actively adopting Web 2.0:

“The biggest thing is you want to make sure that your information is right because ... you don’t want to look like a fool” (In2DerekT).

4.7 Web 2.0 type

The various types of Web 2.0 tools, such as wikis, blogs and micro-blogs, are different in terms of purposes, usefulness and usability. For example, a micro-blog is a “hundred and forty characters [tool]” (In4LuckeT) used for “status update” (In18JonathanO), whereas blogs are used to “write a blog post” (In13GrantO) to share and discuss ideas. The “usefulness” of different Web 2.0 tools varies, as noted:

“Yammer’s value is not seen ... this is why they’re not picking it up. Whereas the wiki is more um, it’s more ... it’s more useful in our context” (In1Paul).

Also, the time required to use Web 2.0 tools varies, as is clear from In10AngusB’s discussion around adopting wiki:

“For the wiki, time can be an issue, but not for the other [Web 2.0] tools. So if you don’t have much time in the day, writing a wiki article, you might consider it to be less important. So you might just not do it” (In10AngusB).

5 DISCUSSION AND CONCLUSION

We conclude this paper with some key observations. First, we concur with Levy (2009) that Web 2.0 tools are different in terms of their purpose and usability. We extend their work by showing how the differences among Web 2.0 tools influence its adoption. For example, if an organisation needs a social Web 2.0 platform to retain and enhance their employees’ loyalty, then implementing a Facebook-like
enterprise system is an appropriate selection, possibly guaranteeing its adoption. However, implementing wiki technology for this purpose would discourage the adoption because of its limited social features.

Second, this study suggests that understanding Web 2.0 attributes would assist users in overcoming any negative influences as well as strengthening the positive influences. The literature indicates a relationship between innovation characteristics such as complexity and users’ adoption of this innovation (Rogers 1995); this relationship was supported by this study. In the current study, seven Web 2.0 technological attributes were identified as adoption issues. This paper indicates that most Web 2.0 tools are user-friendly, with acceptable levels of reliability. However, they can be much better if they are technically compatible with other enterprise systems.

Specific attributes of Web 2.0 include mobility, discoverability and transparency. Web 2.0 mobility assists in connecting employees with colleagues and organisational updates from anywhere, at any time that best suits them. The mobility of Web 2.0 encourages its passive adoption - where employees mostly read content. Mobile devices have limited capabilities for writing blog posts or wiki articles. The discoverability of Web 2.0 makes content and individuals visible and easy to find (Bradley 2007). As found in the current study, this discoverability motivates content consumers to be more connected with content and updates. Also, content contributors, who write for audiences, might stop adopting such technology if their contributions cannot be seen by colleagues.

Web 2.0 is transparent in nature and the historical development of employees’ participation and content is observable (Hoegg et al. 2006). This study found that Web 2.0 transparency enhances employees’ trust in its content, motivating passive adoption where employees obtain knowledge. However, this transparency could hold some employees back from contributing their thoughts and ideas because, in order to protect their image; they do not want to make mistakes that are visible to all.

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