Sustainable e-Recruiting Portals:
How to Motivate Applicants to Stay Connected throughout their Careers?

Elfi Furtmüller
University of Twente
Department of Information Systems & Change Management
P.O. Box 217, 7500 AE Enschede, Netherlands
Email: e.furtmueller@utwente.nl
Tel. +31 (0) 53 489 5468

Celeste Wilderom
University of Twente
Department of Information Systems & Change Management
P.O. Box 217, 7500 AE Enschede, Netherlands
Email: c.p.m.wilderom@utwente.nl
Tel. +31(0)-053-489-4159

Rolf van Dick
University of Frankfurt
Department of Psychology and Sports Sciences
Kettenhofweg 128, 60054 Frankfurt, Germany
Email: van.Dick@psych.uni-frankfurt.de
Tel. +49 69 798 23727
Sustainable e-Recruiting Portals: How to Motivate Applicants to Stay Connected throughout their Careers?

ABSTRACT
Since most e-recruiting portals suffer from outdated applicant profiles and receive little user return as soon as applicants have found a new job, in this study we explore how to motivate applicants to keep their profiles up-to-date and stay connected with one specific recruiting portal throughout their careers. We interviewed applicants, system analysts and programmers of a nationwide (Austrian) e-recruiting portal. Narratives showing striking differences between these three stakeholders’ interpretation of system requirements for long-term usage are discussed. The identified requirements point to niche recruiting: integrating social network and community features for specified user segments sharing a similar social identity and fostering pre-existing offline ties among users for career purposes. Implications are sketched for more sustainable e-recruiting research, design and development.

Keywords: e-Recruiting, Requirement Analyses, Applicant Retention, Narratives.

INTRODUCTION
Communication between customers using a web service and the staff responsible for the service’s development (such as system analysts, programmers, web designers, system testers, etc.), is often absent although it is important in all phases of systems development. This communication is crucial, from a sustainability point of view, and is even more essential during requirements analysis. In its simplest form, requirements determination entails eliciting and encoding into the new system the requirements that potential and/or current users verbalize to system analysts. Usually, the analyst works with end users to establish an understanding of their needs, then designs system alternatives and writes up a documentation of those requirements for the programmers. One consistent finding in the literature concerned with IS (Information Systems) development is the communication difficulty between analysts and users (Bostrom, 1989). The communication between analysts and users is often problematic due to cognitive and vocabulary-type limitations (Byrd et al., 1992). Much interview-type research portrays a mismatch in the expectations of analysts, programmers and clients.
Several IS researchers argue that the interview remains the best elicitation technique for requirement analyses (Alvarez & Urla, 2002). Independent of the type of interview (e.g., structured or unstructured), this technique depends on interactional talk between those who (re-)design or further develop the service and those who use it. Since the obtained data is, in this sense, partly a function of the talk between a (potential) client and a system designer, the study of this talk is central to the understanding of how information is captured in this client-analyst link. While much attention has been given to the problematic nature of system analyst-to-client communication, very little of the extant research involves any intermediate communication among system designers, programmers and users; there is not much research that analyzes their different interpretations of requirement specifications and communications outcomes (Pfleeger & Atlee, 2010).

This paper seeks to make a contribution to the scholarship on requirements analysis in the context of sustainable e-recruiting services. Based on in-depth interviews with users, system analysts and programmers of a niche e-recruiting platform for engineers, we show how differently these three stakeholders interpret system requirements for long-term usage. We will argue, based on their insights, that so-called domain expert researchers (i.e., those professionals with expertise in a specific related field such as e-recruiting platform design) may add value (incl. unbiased requirement insights) from narratives of involved participants in a system-development project. Using such an intermediary expert researcher for purposes of interpreting and comparing focused communication outcomes may help in better recognizing, understanding, and ultimately making use of the experiences of involved parties. This type of captured tacit knowledge may enable e-recruiting providers to better serve their customers and help them to differentiate themselves from other providers. We first review the relevant literatures; we then present the research site and the collected data. Following, we illustrate the narrative analyses, results and derive concluding as well as future-study insights.

THEORECTICAL BACKGROUND

IS Requirement Analyses and User Involvement
The idea of involving users in IS development stems from the belief that involving users provides multiple benefits. As a result of their pre-involvement, potential users may form stronger intentions to actually use the new/revised service; it might even enhance their service experience. It will further increase user accountability for the system’s design, thus resulting in higher user satisfaction, commitment and reduced resistance to renewing or innovating
services (Amoako-Gyampah, 2007). Also, innovative and market-oriented development of new products and services has been associated with high-user involvement (von Hippel 2007). High IT-service success has been shown already to be a function of the active involvement of members of the user community (Doherty et al., 2003). Moreover, development times have been shown to be shortened if continuous acceptance tests occur during service development (Iansiti & MacCormack, 1997). Exactly how and how extensively user involvement needs to be organized into the (re)design process of services and their organizations is unknown as of yet (Rondeau et al., 2006). Although it has been found that involving users can lead to innovative service ideas, sometimes the users’ ideas are too difficult to create or too costly to realize. A general definition of user involvement is still lacking as well. It has been seen as synonymous with contacting with users (Grudin, 1991), participation of users (Ives & Olson 1992), user-centred design (Noyes et al., 1999), and user engagement (Wagner & Piccoli, 2007).

Research findings report that many system failures are due to the lack of clear and specific information requirements (Davis, 1982; Buchanan, 2007). Most development engineers have little or no experience as an end-user in the application domain for which they develop the software. As a result, development often tends to be technology (or solution) driven without a contextualized sense of the specific issues to be addressed. We tend to offer products and services to our customers not based on their actual needs but rather on what updated hardware and software packages allow engineers to do. In a study of information systems projects, Jenkins (1984) found that over half of the systems examined had problems and required the analysts to return to the requirements analysis phase. Moreover, if errors in requirements analysis are not found until later stages of the implementation process, costs or failure rates can rise significantly (Marakas & Elam, 1998). Hence, determining accurate information requirements is important to both researchers and practitioners alike. Requirements analyses play an increasingly important role in software development because most persistent problems are caused by an incorrect analysis of customer’s requirements. Information systems implementations are notoriously difficult. Of the variety of problems that present themselves, obtaining a robust set of system requirements is one of the most important as well as one of the most difficult tasks. Requirements analysis approaches are intensely interactive and demand effectual communication between the user and analyst. In its simplest form, requirements analysis during a systems development project entails encoding into the new information system any requirements that users verbalize. The primary means for obtaining data during requirements analysis interactions is the direct interview (Hotzblatt &
Beyer, 1995). However, interviews are recognized as a potentially rich but notoriously difficult method of data elicitation (Moody et al., 1998). While some system analysts perceive user narratives collected in interviews as messy or uncodeable data, we find the insights they provide to be valuable. This may be especially true for e-recruiting service portals that, unlike other information systems, such as social networks (www.facebook.com) or business networks (www.LinkedIn.com), face more struggles to maintain active user (applicant) profiles. Hence, a better understanding of the stories, explanation and interpretations of users, system analysts and programmers for continued use of such portals is needed.

Narratives and IS Research
Narratives have been defined as tales, stories or the recital of facts, and usually are told in the first person. In this research tradition, stories and individuals’ experiences rather than logical arguments are assumed to be the vehicle through which meaning is communicated (Sarbin, 1995). Narrative theory can also be seen as part of social construct theory, as meaning is assigned through definite processes of interaction. This account is also closely linked to Weick’s (1995) emphasis on organizational sensemaking. The narrative approach stands in contrast to rationalist perspectives since events are not explained by establishing their causes, rather they are made understandable by integrating them within a sequence. Similarly, Czarniawska (1998) describes narratives as interpretations of events that reflect the significant issues that actors seek to dramatize and emphasize. In a similar vein, interviewees not only organize their world through these narratives, they also perform stories that are consistent with their expectations, values and identity.

In the area of information systems, research on narratives has recently begun to spread. For instance, Davidson (1997) used narrative analysis to examine sensemaking and interpretation during an IS development project. Further, Scarbrough (1997) explored the idea of strategic IT as a particular form of social labelling. Brown (1998) examined the use of narratives that organizational members produced to create meaning and gain political advantage during an IT implementation. In another case, Brown and Jones (1998) examined a failed IS project and the types of individual narratives that emerged after the project. Fincham (2002) explored a narrative perspective on success and failure in computer-systems development. Alvarez and Urla (2002) argue that in the field of information systems implementation, narrative analysis provides richer data than the data obtained by conventional systems requirements analysis. According to these authors, narratives do provide a window into the pragmatic and emic perspectives of information system users. They argue that these
perspectives are valuable to the successful assessment and design of a new information system, and analysts need to become better skilled at conducting and interpreting interviews. Hence, interviewers should actively engage in seeking stories from users, system analysts, developers, designers and testers and interpret them to reveal their encoded information. Requirement analyses would not only benefit from the improvement of interview techniques but also from methods for analyzing the rather messy qualitative data that interviewees provide. Also, Bartis and Mitev (2008) recently combined constructionist and critical approaches through a narrative methodology to discuss the launch of an information system.

Of particular interest to the art of conducting requirement-analytical interviews, we see the concept of identity construction as useful. During those interviews individuals express their thoughts, intentions, desires, feelings, values and attitudes. Put differently, in narrating our experiences and attitudes (etc.), we define ourselves as the implied subject of the narrative, and possibly at the same time as members of groups sharing a similar identity (such as Programmer, System Analyst or User Identity or Professional of a certain organization). Through the elicitation of requirements, the interviewees are regarded as the object of knowledge. In this sense, researchers have argued that through linguistic expressions the interviewees’ identities are produced. The research findings presented in this paper seek to contribute to this growing research stream by analyzing user, system designer and programmer narratives to better understand and make use of different requirements produced by different interviewee groups. Interview-generated narratives from different involved stakeholders, mediated by a communicative or action researcher, are assumed to provide valuable insights into system-development projects.

**Research on e-Recruiting**

During the past 10 years, e-recruiting services have been spreading across the globe. Although research into e-recruiting is still sparse, surveys from professional organizations such as the Society for Human Resource Management (SHRM) frequently report the staffing/recruiting area and specifically online recruiting as one of the most critical HR duties. Until about five years ago, most studies focused on applicant reactions (e.g., Feldman & Klaas, 2002; Zusman & Landis, 2002; Dineen et al., 2007). Research in this area has been carried out also in order to find out why companies and recruiters decide to use e-recruiting (Parry, 2008). Further, Wolters’ study on job boards found that there is a negative relationship between the amount of information given about the job and the percentage of suitable reactions (Wolters, 2006). The emerging importance of e-recruiting services to identify talent
and meet staffing needs is quite pronounced. One could get the impression that too many e-recruiting portals are emerging, considering that, for instance, in the current German market a new e-recruiting portal announces their operating start approximately every two weeks.

Unlike social networks, one of the main problems e-recruiting portals have is that in general their registered users are not long-time active users. Usually, employees who are looking for a job tend to search through the published job ads and apply to the e-listed jobs. As soon as they have found a new job, there is hardly any reason to return to a site again. Consequently, large numbers of e-recruiting initiatives fail (Feldman & Klaas, 2002; Lin & Stasinskaya, 2002). It is difficult to design technical features of online services and seed at the same time new social practices for ongoing communications, in addition to the initially perhaps only instrumentally oriented users (Szmigin et al., 2005). Another struggle still tends to be the challenge of delivering semantically accurate search results when offering applicant-pool search functions. Besides this, posting resumes on job boards also calls for consideration of privacy and security issues. Often, both an applicant’s and recruiter’s name, address and phone number are displayed for anyone to see. Another problem e-recruiting portals are facing is the frequently reported dissatisfaction with slow responses from applicant pools. Consider for instance business networks such as LinkedIn.com or Xing.com, where most of the registered users have jobs and are generally not easily motivated to switch jobs. While business networks are too slow in meeting urgent staffing needs, many general job boards are overloaded with job postings, hence minimizing the visitors per job ad. Further, many portals allow visitors of the recruiting sites to upload resumes or fill out pre-defined online resume forms and find information about suitable job openings. However, some recruiting providers advertise that they delete applicants’ profiles after a certain period of time (e.g., every 6 weeks) so as to only offer up-to-date profiles. The latter practice is causing some frustration among many registered applicants who spent a significant amount of time filling out resume forms. Other providers accumulate masses of resumes and advertise having the most registered applicant profiles. However, in such resume databases, many of the profiles are not up-to-date anymore: the applicants have already found a job or their contact data has changed. This is especially important if recruiters can search in the applicants’ pools. If company recruiters search in such pools, they may not have effective access to their desired candidates. Hence, a major challenge e-recruiting services are facing is to keep the applicants’ profiles up-to-date. E-recruiting services also need to demonstrate their performance through high amounts of applicants visiting their sites and clicking on ads; high ratings on page impressions; a high accuracy of the matching between job ads and resumes; and by their
ability to quickly suggest appropriate candidates to recruiters (Smith & Rupp, 2004; Zhao et al., 2007).

Increasingly, niche recruiting portals are entering the market. We assume that niche recruiting portals are similar to niche communities, which are based on shared interests and where the commonality of users will contribute to a higher sense of belonging to the platforms and a higher likelihood to remain and contribute to the shared goals of those portals. In general, communities depend on people visiting the sites, participating in social interactions, and on the loyalty of users (Kim, 2000). Although communities are conceptualized and studied in many diverse ways (Knoke & Kuklinski, 1982; Castells, 2000; Van Dijk, 2005; Boyd, 2007), many researchers agree that networked communities are defined on the basis of shared identity, interests, and commonality among their members (Turkle, 1995; Preece, 2000; Castells, 2004; Plickert et al., 2007). Further, offline activities have been found to increase the solidarity and cohesiveness of virtual communities, and to strengthen the ties between members (Wellman & Haythornthwaite, 2002; Wellman et al., 2002; Ellison et al., 2007). It may well be that these concepts apply to niche recruiting portals (i.e., career community platforms). Thus, there is enough justification for exploring actual user requirements that applicants, system analysts and programmers associate with sustainable e-recruiting services.

Given the paucity of academic research on these issues, our guiding research question is: What system requirements do e-recruiting services need to implement so as to motivate users to keep their applicant profiles up-to-date (even though they may have a job) and stay connected with one specific recruiting portal over their entire career?

**METHOD**

**Research Site and Data Collection**

The chosen e-recruiting company aims to become Austria’s leader in intelligent online recruiting and career networking for engineers. Since its establishment in 2005, the company has developed many partnerships with engineering schools and companies across Austria and has obtained research grants for developing Web 2.0 technologies for e-recruiting services. The company’s employees’ regularly participate in international conferences and are recognized within the [www.drupal.org](http://www.drupal.org) developer community. They also participate in international programming competitions and regularly assume mentor roles at the Google Summer of Code event. The company actively collaborates with its registered applicants, recruiters and developers in an effort to capitalize and distribute knowledge for system design.
improvements (e.g., von Hippel, 2007). The organization was to determine its information requirements so as to enhance applicant retention.

Given the exploratory nature of our study, we adopted qualitative requirement interviews with registered applicants, system analysts and programmers. Our narrative research methodology focuses on understanding how interviewees deal with experience by constructing stories and listening to the stories (Riessman, 1993). All interviewed participants were asked about their ideas on system requirements to get users to return to the site throughout their careers and how to motivate them to keep their applicant profiles up-to-date.

We randomly selected (from the recruiting database) one registered user from each Higher Technical School (HTL) in Austria. The interviewees had a minimum of three years of work experience, and were telephone interviewed. Fifty-eight male engineers and two female engineers were interviewed, which represents the gender ratio for Austrian HTL engineers. On average, the interviews lasted 20 minutes. All telephone interviews were taped to capture the narratives. Also, during all interviews field notes of salient themes were taken. Further, several follow-up interviews were conducted when interviewees had too little time for the interview or needed time to think about answers to the questions. In addition, we interviewed six system analysts and eight programmers experienced in e-recruiting portal development. These 14 interviews lasted about an hour each. Narratives were recorded anonymously and with the consent of interviewees. Our aim was to gain their confidence in telling us their side of the story in a climate of trust. This was supported by the neutral investigation of a researcher instead of the usual direct requirement interviews done between system analysts and end-users. We noted several contradictions and overlaps of requirement specifications across subjects’ narratives right after the first interviews. Also, meeting minutes from several status-update staff meetings with system analysts and programmers were compiled. It is a general policy that the system analysts record memos of their new ideas or requirements for system improvements. An administrative assistant usually types those memos once a week and the system analysts review, structure and publish the ideas on the company’s project intranet site. We got access to the memos and studied the user-based system requirement comments. Programmers typically do not record memos but type their status updates on the same project intranet. On this project management site, programmers communicate textual messages via theme-oriented blogs, upload manuals, define milestones and schedule project tasks. We received a log-in account to get full access to the digital communications. We also had the opportunity to access the e-recruiting system, which provided us with a deeper understanding of the software’s current features and functions. While interviewing, tracking
digital data, observing meetings and asking questions, we kept a detailed record of field notes that enhanced the quality of later in-depth analysis. Researchers such as Van Maanen (1995) regard field notes as the secret papers of social research that comprise the most important observations.

Data Analyses
We followed the suggestion of Buchanan and Dawson (2007) that narratives should be analysed in relation to the sense-giving and sense-making of other stories and interpretations. In this vein, story analyses of certain groups of interviewees seek to accommodate the overlaps, ambiguities and contradictions that are part of the storytelling process and audience interpretations. The challenge lies in analyzing components of data while also engaging in a meta-analysis that provides a synthesis that is both poly-vocal and represents coherently the meaning of the collected data. Hence, we followed the call for more informed studies that combine elements of a narrative research with contextual analysis. We did not rely only on stand-alone stories to understand the sensemaking and sense-giving associated with interviewee experiences. We also tried to understand the broader context in which repeated descriptions both account for and shape the processes of which they seek to make sense (Buchanan & Dawson 2007).

We first listened to all audio tapes of the interviews with the applicants, system designers and programmers. Then, we compiled narratives of salient parts of the interviews and compared them with the content of the field notes, meeting minutes and digital communications. Next, we identified broad themes in the data and reduced them to more precise categories (Miles & Huberman, 1994; Yin, 2003). We went back and forth between the different perspectives of the three groups of interviewees and altered existing requirement categories as other categories were created or eliminated (see Table 1). We found this first structural analysis helpful for the purpose of getting a broad overview of emerging themes, categories and sub-categories.

In order to enhance theoretical grounding and to more comprehensively understand the interview text, we analyzed the collected narratives. The emphasis during this stage of analysis was placed on stories and based on the language and interactions used to describe users’ intentions for returning to an e-recruiting site and staying actively involved over time. Therefore, we included also intonation, volume, pacing and other qualities of speech to capture the feel of the interviews. Symbols used in the transcribed extracts are: Exclamation [!]; word emphasized by speaker [Italics]; pause […]; hesitating [<<]; {nonlexical
utterances}; [explanatory note]. Speakers are identified by I [Interviewer]; P [Programmer]; SA [System Analyst], U [User]. We also relate our analysis to Goffman’s (1982) suggestions for requirement-analysis interviews. He defined *footing* as the relationship between speakers. This means speakers can take on several different social roles from which they can move in and out. For instance, in one moment a speaker may be a *User* of an information system and in the next moment a *Programmer* of a different system himself. As we speak, we shift footing which helps us to establish relationship with others such that the meaning of what we say can be better interpreted and understood. We found these social interactions --- representing particular presentations of self and dynamic shifts between frames --- useful for analyzing users’, system analysts’ and programmers’ communication.

**RESULTS**

We present the results in line with our guiding research question: What system requirements do e-recruiting services need to realize so as to motivate users to keep their applicant profiles up-to-date (even though they may have a job) and stay connected with one specific recruiting portal over their career? We illustrate the results with quotes from system analysts, applicants and programmers to show the richness of our data.

A general trend among the three interviewee groups emerged. First, system analysts tend to talk about future requirements and hypothetical possibilities to achieve competitive advantage and differentiate the portal on the market. They tend to switch into different roles during the interview and better empathize with user needs than programmers do. Second, applicants describe system requirements in the form of past stories where the language is inviting and rich. Applicants also talked about their experiences with, and perceptions of, other effective and similar information systems they used. Finally, programmers describe requirements in a rather abstract and analytical way. Many times, they do not use full sentences to describe requirements but rather refer to standards, code requirements, integration and code adaptability optimization. Further, many interviewees describe system requirements closely related to system, service and information quality criteria of general website usage (DeLone & McLean, 2003). Table 1 presents a summary of the interview results. The following passages portray several conversations between the interviewer and the involved study participants.
(1) Requirement Interview with System Analyst

1. I: I want to find out what system requirements that e-recruiting services need to realize so as to motivate users to keep their applicant profiles up-to-date (um) and stay connected with one specific recruiting portal over their career stages.

2. SA: Well (um); first of all, we have to make sure that we list as many jobs as possible; we need to list all jobs available in a specified region (!) This means, we need to develop a sophisticated job crawler that automatically collects new listed jobs from all existing websites in Austria that have job openings for our target group.

3. I: Why is this so important?

4. SA: If we have all the available open engineering jobs online for our niche group, then users might use our system rather than the general job boards which are overloaded with many irrelevant job postings. [SA shakes head, laughing].

5. I: (um) but if you have so many jobs, the clicks per ad may be fewer, no?

6. SA: You need to make the service more exclusive so that people feel good. <only registered users should be able to see all job postings. This way, we will get more people to sign up and make them curious and come back.

7. I: But why should the users keep their profiles up-to date just because you have many jobs for the specific niche and have them registered once?

8. SA: After you get the job crawler right, you need to give them accurate and customized search results. […] Sure, users will most likely not return to our website and maintain their profiles if they get disappointed with our search.

9. I: So what does this mean?

10. SA: This means, we have to improve the semantic matching (!) and integrate users’ voice by crowd-sourcing and build up adaptive skill ontologies. […] If users get bad job search results and are overloaded with job offers that don’t fit their applicant profile, they are more likely to lose trust in the quality and credibility of our platform. It’s a waste of their time to look through irrelevant job postings. If our goal is to get them come back to the site, we should work to provide better search results than other providers”.

11. I: Well, […] I guess there are many platforms out there with good search results, so why exactly should the users re-visit your e-recruiting service for the long run. Many have already found a job, so why re-visit the site?

12. SA: It comes down to niche portals. They are arranged around users who have something in common, who share something << whatever this is, doesn’t matter. << Our internal analysis shows << listen, what really matters is that recruiting portals should develop strong ties with specific niche communities, educational portals or branch networks (um) and get users to sign up when they still have offline ties to other potential users. If you get a whole network of people sign up together, (um) whole graduating classes this is the best[!] This will certainly have an impact on user return rate.

13. I: But (um) usually they already have alumni clubs, what’s the advantage?

14. SA: The advantage is that they can simply keep in touch (um) and follow each others career paths. […] If they just sign up for the sake of getting a job and can not connect with people online, the portal has little to offer other than at the time the applicant searches a job.
15. **I:** So why should they maintain the profile then?

16. **SA:** *Just look at facebook, myspace or studivz [*] they maintain their profile because their friends do also, so if you get people who have connections with each other, they are more likely to continue these connections online, for whatever reason, if this is about jobs or something else. In our case it’s jobs*. 

The interview opened with the basic introductory question on how e-recruiting portals can achieve an actively participating user base. The system designer responded with (*"first of all"*) what indicates to the listener that he will describe a series of events or actions over time in order to get users come back to the site, rather than what took place at a specific point in time. He spoke in the plural, indicating that he thinks and works in “we” instead of “I.” Specific suggestions included listing all jobs available in a specified region and continuously updating the job offers for specific target groups or niches so that users see highly relevant content. The interviewer inquired into the importance of these suggestions. Then, the system analyst made hypothetical statements (*“then users may rather use our system”*) and blamed the inefficiencies of general job boards that list many irrelevant and no niche-specific job postings. The interviewer kept challenging the system analyst by more directly questioning his narratives. An argument to make the service exclusive followed (*“only registered users should be able to see all job postings.”*). The interviewer reframed the interview by returning to the same question but reformulating it. Finally, the system analyst got back to the sequence that he started in line 2. (*“After you get the job crawler right, you need to give them accurate and customized search results”*). He concluded by explaining how to improve the semantic matching and integrate users’ voice by crowd-sourcing and building up adaptive skill ontologies. In this sense, he suggested that the registered user community should be an active part in the development and maintenance of the portal. The analyst further identified future requirements and derived hypothetical possibilities to achieve competitive advantage and differentiate the portal on the market. The interviewer maintained a critical voice. Following, the system analyst came to the conclusion what really matters is receiving many users from niche communities who have strong offline ties with other potential users. However, the interviewer countered that some users may already be part of other alumni networks. The system analyst also made strongly emphasized claims (*whole graduating classes this is the best [*] This will certainly have an impact on user return rate*”), which should be presented as a hypothesis about what could prove to sustain recruiting portals. In the context of designing active communities, research has been conducted, for instance, on how to improve community-supporting systems design (see, e.g., Rheingold, 2000; Geib et al., 2005).
Concluding, the analyst searched for universality of his responses (“If you get people who have connections with each other, they are more likely to continue these connections online, for whatever reason, if this is about jobs or anything else. In our case it’s jobs”).

(2) Requirement Interview with User ( Applicant )

1. I: Can you think about system requirements the e-recruiting portal where you recently registered would need to realize so as to motivate you to keep your applicant profile up-to-date […] and also to stay connected with this specific portal over your career stages?

2. A: I was wondering {um} you must have many people registered in the engineering portal, and probably I know some people who are registered there. I have been out of school already a couple of years and lost touch with most of my former schoolmates. However, in your resume forms I had to fill out my graduating year and my school. So I would be interested what careers those people have now.

3. I: How could this be done?

4. A: You have all the data and the database behind. Just open the platform for search so that people see who is there.

5. I: What do you want to do, just find their profile and that’s it?

6. A: Maybe they work in some interesting company where I am also interested, we could exchange experiences. […] Or they went to some graduate school that I am interested in.

7. I: How could this system requirement be realized?

8. A: I don’t know […] maybe a forum, blog or something like that where people can discuss job-related stuff. I am on studiVz, there you can put up more stuff about yourself, not just stuff about your job, but fun stuff. All kinds of community or social network features would enhance the current e-recruiting platform.

9. I: Would you use the recruiting platform more intensely and for the long run if it included such community features?

10. A: I don’t have much time. {um} I am already on several networks. On the other hand, << I spent 5 years in this school. I am an HTL engineer like many others. I would use it if there are people I know. I would not just link up with strangers. I have a job now, {um} so I would not use it for getting a job right now, maybe in the future. Currently, I would only like to see who else is there, how many folks from my former class, school are registered and then get in touch with them, it’s also easier than calling.

11. I: Do you primarily communicate about job-related things in such a platform? {um} What are the information requirements, the necessary contents on the platform?

12. A: It is a starting point to talk about jobs. << This is a recruiting portal right, so you could blog how work is in different companies, how much they pay or how the work climate is. Maybe for the recent graduates some help in preparing application documents or interview tips. It is more authentic if it comes from fellow graduates than from some external agency.

13. I: What else could such a portal offer so that you and other registered applicants come back and re-use it?

14. A: Nowadays privacy is an issue. {um} How can you make sure {um} that my current boss will not find my profile in the database? I would prefer to have a private and a public profile, one for friends and one for the
rest of people. Also, there needs to be the possibility to deactivate my profile, hence including many options of profile setting is an issue so that I would maintain my profile there.

15. I: What else matters to you?

16. A: Most important is the job aspect. I would find it interesting to follow others career paths. However, only talking about jobs is boring. I spend some time on games. Probably some possibility to play games with other users, maybe even solving some tricky technical question together, some intelligence games, I always liked to play games.

17. I: Now, when you think about rather technical system requirements, what comes into your mind?

18. A: First, the site needs to load fast and be accessible all the time. I need to find stuff that I am looking for, it needs to be easy to get my things done, if this concerns applying for a job or blogging or linking with other users. I already lost some resume data at other portals, *I certainly will never return to a site where I invested time and lost my data.*

The usefulness of networked online communities, as indicated in the interview above, has already been discussed in e-recruiting. Butler (2001), for instance, describes that online career services may be seen as virtual social communities rather than only instrumental career-move services. In this regard, Khapova (2006) argues that studies of online career services need to include the design principles of a traditional community as well as the incorporation of social network research, so as to understand the various ways people make use of online career services. Therefore, some researchers support the idea that innovative online career services require more “cross-fertilization” across users and those who design und sustain services (von Hippel, 2007; Khapova, 2006). There is ground to assume that e-recruiting platforms can only be sustainable if they evolve or transform into highly participative and continuously innovating e-community platforms organized around niches of users sharing a similar social identity. This requires more customer-centric and niche approaches to e-recruiting than the “one-size-fits-all” Monsterboard-type services. Hence, exchange-based e-recruiting platforms are challenged to transform into lasting career networks.

Many of the interviewed engineers noted that a common online career service for all HTL engineers across Austria is needed. In particular, an integrated social network and community features within career services have been frequently found to make it easier to keep in touch with and follow their fellow students’ career paths. One engineer noted: “*When getting a job in a different location in Austria, it’s great to search if any of my schools’ graduates works in the same area or company.*” In this sense, some researchers suggest that people use communities1 by merely adding internet contact to existing telephone and face-to-

---

1 Examples are facebook (www.facebook.com), myspace (www.myspace.com) or Friendster (www.friendster.com).
face contact, or by shifting their means of communication to the internet (Wellman et al., 2001; Wellman et al., 2002). This also seems to apply to most of the interviewed applicants who want to get back in touch with former classmates and communicate with them via the platform. Engineers identified a wide range of ideas that they want to share and exchange online with other fellow engineers (see Table 1, Information and Social Requirement). They predominantly intend to communicate online with offline-known fellow acquaintances from their schools or via extended networks (friends of friends). Interestingly, the interviewed engineers did not seem to be keen on developing or maintaining a strong network with fully unknown fellow engineers. Fifty-six of the sixty interviewed engineers reported that they would use an online career service for the long run if specifically targeted at engineers’ needs. Most of the interviewed users are not inclined to sign up at a general online job board that attracts many different job searchers; General jobs boards are seen as exchange-based career tools for finding a job when needed, but among the interviewed users it was not desirable to connect online in such job boards with unknown users.

Social presence theorists (Biocca et al., 2003) describe that the presence of other members (which can be complemented by offline interactions) may foster the ties of community members to their online community. Hence, we assume that determinants of long-term sustainability of online career communities need to range from understanding how users judge online features, such as the quality of a career community’s service, its system, and the provided information (DeLone & Mclean, 2003), to understanding offline features such as the offline activities of users (Wellman & Haythornthwaite, 2002). Offline activities have been found to increase the solidarity and cohesiveness of virtual communities, and they strengthen the ties between members. A better understanding of the match between what is being offered (the supply) and (potential) users’ interests has been found to promote a stronger desire to participate and interact with other members, leading to shared feelings of belonging, responsibility, and commitment to the community (Kim, 2000). In other words, when developing recruitment sites, the social identity of various user segments needs to be considered. We noted that engineers were very open to interacting with their fellow engineers, online as well as offline. These insights offer a fairly new network opportunity for transforming classical "job boards" to sustainable "career communities."

Engineers’ impressions of the webpage and resume forms were largely positively evaluated and regarded as meeting users’ needs. This is reflected in the following statement: “I was impressed how well this career service knows the details of my specific subjects of study, and guides me though the online application by making suggestions. I have already
filled out other online resumes at some corporate homepages, but none of the other forms has been so carefully adjusted to the profile of an HTL graduate.” Some engineers had minor concerns with the length of resume forms or the support of uploading bigger file sizes. It appeared important that the career site is clearly structured into sections for applicants and companies. Further, important factors for re-using the service are: feeling a sense of privacy and being in control; enabling social connections with peers; and integrating playful features, easy navigation and quick loading of the pages (see also Davis, 1989; DeLone & McLean, 2003). The possibility to designate themselves in their own career profile as either an active or a passive job-searcher was an idea that was supported by many users. Importantly, system designers are challenged to create private (for friends) and public (for HR recruiters) spaces of the users’ applicant profile so as to build trust and in order to ward off the fear that personalized resume data will be misused. As one engineer described: “How can you make sure that my boss will not find my profile in the database?” and “Sure, I want my profile for friends to look different than my applicant profile.”

Summing up, while many of the identified requirements in the previous section overlap with criterion identified in prior literature on e-service quality, in particular, e-recruiting services should pay close attention to users’ social and psychological requirements such as by enhancing self-esteem, fostering a sense of privacy and a feeling of being in control, enabling social connections with peers and integrating playful features.

(3) Requirement Interview with Programmer
1. **I:** When you think about your programming work {um} what can you do, {um} I mean what kind of system requirements can you think about so as to motivate applicants to keep their profiles up-to-date and re-visit this specific recruiting portal over their career stages?
2. **P:** Include cookies so that users remain logged in and system recognizes returning users {um}; and when they open our website, automatically move cursor to log in.
3. **I:** Why is this so important?
4. **P:** Always logged-in […] rather re-visit the site when specifications are set that way.
5. **I:** Interesting. Anything else from the developing side that you can do to get applicants to be more active and re-visit?
6. **P:** APIs, clearly define applications for integration, {um} open ID integration, […] Ajax, {um} [Interviewer expresses uncertainty what the terms mean] accessible on every internet browser, {um} sure strong hardware […] good code is modular, allow modules to be built, tested, and debugged independently […] SPI plug-in interface, enabling multiple implementations.
7. **I:** Well, {um} there are a lot of different things. << First, what is and how do APIs and open ID integration motivate applicants to keep their profiles up to date and re-visit the site?
8. **P:** API stands for application programming interface. *It saves time.* Optimizing APIs helps to access parts of other sites and integrate it with our own site. This is good for users, because APIs guarantee that other programs using a common API, e.g., other social networking sites will have similar interfaces. {um} So API-like interfaces allow applications on different platforms or written in different languages to interoperate. This makes it much easier to integrate stuff, e.g., your personal profile from other social networking sites, easier for users to learn new programs, saves time, convenient.

9. **I:** So why is this in particular important for e-recruiting sites?

10. **P:** *It is not just for e-recruiting sites, developers in general need to think about including APIs in whatever applications they develop,* especially if they expect the applications to last and interact with other applications. It saves time for users and developers if you include APIs, it’s also easier to review the source code.

11. **I:** And because it saves time, they are more likely to update their profile and stay connected?

12. **P:** {um} No, but everybody has many other profiles, has signed up elsewhere, so if they can use their personal data that they typed in elsewhere, it is convenient, take all your data with you, all your friends etc.

13. **I:** What else is important?

14. **P:** HR-XML interface to link the recruiting platform to different companies, this make the communication and data transfer more efficient.

15. **I:** What does this exactly mean?

16. **P:** Then the applicant can directly apply to more companies at once by only filling out the profile only one time, this would be one application, for instance. So, they would re-use the site because it is convenient.

17. **I:** What else can motivate applicants to keep their profiles up to date and re-visit the recruiting site?

18. **P:** It depends if they want news and what kind of news. News reader that displays RSS feeds about or any other content they want to keep up-to date. The applicant needs to have enough customization options without having to regularly check the site for updates, they don’t need to re-visit the page if they get the info via newsfeed, this is also fine.

19. **I:** Ok, I understand.

20. **P:** And also the standard things SEO {um} SOA {um} don't use strings if a better type exists {um} coupling between software components so that code can be reused {um} << WSDL {um} UDDI […] SOAP which allows different distributed web services to run on a variety of software platforms and hardware architectures << Choosing the proper language, *java is really good when it comes to platform independence.* Sorry, I don’t know if this all makes sense to you, I mean for programmers this is all standard requirements to think about when coding.

21. **I:** You are right, {um} there are a lot of terms that I am not familiar with. Nevertheless, I will note all of them. Just continue what you think matters most in respect of developing sustainable e-recruiting portals.

22. **P:** *You always have to balance* between pre-defined standards, e.g., within the specific software you are using but also develop customized solutions, e.g., for specific user niches. Also, you should follow the WCAG, web content accessibility guidelines. […] *Privacy settings, SSL encryption is an important issue* [!] due to all the sensitive data we collect from the applicants.

23. **I:** In how far do privacy settings help you to get them back and re-visit the site?
While system analysts described requirements more from a long-term strategic and market-oriented point of view, the interviewed programmers based their arguments on purely technical requirement specification. Programmers use technical terms and abbreviations (e.g., APIs, Follow WCAG Guidelines for, e.g., disabled users, open ID integration, Ajax, SSL encrypted etc.) when referring to system requirements. It is interesting to note that programmers, in fact, can explain many coding procedures they apply so as to get applicants to be more active and to re-visit e-recruiting sites. In the programmers’ talk, we find frequent use of generalizations. For instance, they mention that some features are not solely focused on enhancing user retention in e-recruiting services, but for general website retention. Also, many features are described as standard in coding. Moreover, programmers claim that they do not necessarily require users to re-visit a website so as to maintain user retention. They describe customized communication means such as news reader that displays RSS feeds so that applicants do not regularly need to re-visit the page and still remain updated and active users.

**CONCLUSION AND OUTLOOK**
This paper addressed what it takes in e-recruiting to achieve active long-term participation of its users (registered applicants). We conducted requirement interviews with registered users, system analysts and programmers. By using narrative analyses we showed how raw data collected in system requirement interviews are rich, meaningful and give insight into interpretations and intentions to use e-recruiting systems for the long-term. The involvement of an e-recruiting researcher who acted as intermediate analyst and interpreter of the collected interview data helped to reveal new perspectives.

Although our analysis is qualitative and interpretative in nature, our theoretical stance helped to gain insights into the interpretation of multi-voiced divergent narratives in IS requirement analyses interviews. The users’ perspective indicates that it is not enough to develop niche portals for specific applicants (such as engineers, lawyers) or branch segments (such as chemistry, pharmacy). What seems to have an influence on users’ active long-term participation in niche portals is the opportunity to maintain communication with other professionals (in this study’s case: engineers) who already know each other from their offline network or via friends of friends (FoF). We find that applicants are more likely to re-use e-
recruiting services (and keep their applicant profiles up-to-date) if the services transform into highly participative career communities organized around niches of users sharing a similar social identity, common interests and pre-existing offline ties. Engineers are eager to combine and transform their offline interactions with fellow engineers with online interactions in niche-based career communities. They are also willing to maintain these online ties if they have been properly connected within groups sharing a similar social identity offline (before entering the online career community). Thus, we confirm Boyd’s finding (2008) that users of online communities are not only looking to meet new people. Instead, the interviewed engineers primarily expressed interest in communicating with people who are already a part of their extended offline social network. Further, the interviewed system designers described system requirements more from a long-term strategic and market-oriented point of view whereas the programmers based their arguments on purely technical requirement specification. As the language and the expression of requirement specifications of the three stakeholders is very different, we conclude that the inclusion of a neutral researcher as observer, interviewer and data analyst provides meaningful new insights in system requirement analysis.

This study’s limitations (especially this study’s focus on only one niche e-recruiting service) may suggest that the findings point to only one of many possible interpretations. Nevertheless, the collected data (memos, taped interviews, digital and textual data, meeting minutes) embody a multi-threaded chain of evidence that is important in achieving reliability in qualitative research (Yin, 2003).

On a practical level, niche career platforms are advised to complement their traditional job posting services with social network and community applications so that users can find, connect with and/or follow their peers’ career paths. Our results suggest that e-recruiting portals require not only useful information sections on careers and continuing education, but can also encourage friendship and social activities of their users. The future is likely to belong to those providers that best understand their users’ shared social identity and succeed in providing semantic technologies with which they enhance users’ online experiences in terms of social community, social belonging, self esteem, privacy, sense of control and playfulness.
<table>
<thead>
<tr>
<th>Requirement Specifications</th>
<th>Users (Applicants)</th>
<th>System Analysts</th>
<th>Programmers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Requirements</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fast loading of website</td>
<td>Fast and strong server, stable system availability</td>
<td>Accessible on every internet browser</td>
</tr>
<tr>
<td></td>
<td>Stable system availability</td>
<td>Strong hardware: when more users are online at the same time, Optimization of software</td>
<td>Strong hardware to be equipped when many users come, high server power</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Strong software</td>
<td>Keep updating to new software versions so as to enhance possibilities for user</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High reliability</td>
<td>When opening website, automatically move cursor to log in</td>
</tr>
<tr>
<td></td>
<td>Possibility for different profile views: for friends and public view</td>
<td>Optimize back-up saving</td>
<td>Include cookies so that user remain logged in and system recognizes returning users</td>
</tr>
<tr>
<td></td>
<td>Different options to determine privacy settings</td>
<td>High security and privacy settings, invitation by friends necessary to register, make platform exclusive.</td>
<td>Ajax</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Privacy, SSL encrypted</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Define processes, interfaces e.g. HR-XML to link the recruiting platform to different companies and make the communication and data transfer more efficient e.g. applicant can directly apply to more companies at once by only filling out profile once</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SPI, SEO, SOA, WSDL, UDDI, SOAP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Modular code structure, re-useable code and possibility to extend the code, documentation, tests, layering</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Balance between pre-defined standards e.g. within the specific software such as <a href="http://www.drupal.org">www.drupal.org</a> but also develop customized solutions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Code reliability, nodes relevance, debugging</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Multilingual capability</td>
</tr>
<tr>
<td><strong>Information Requirements</strong></td>
<td>Timeliness: latest news, latest and many relevant, customized job postings, structured content</td>
<td>Timeliness: whenever re-visiting the page, provide new content and target specific information: new jobs exactly meeting my skill set and search specifications, new statistics about me: how do I score compared to others, automatic updates of contents, surprising news and experiences</td>
<td>State-of-the-art in all features compared to competitors</td>
</tr>
<tr>
<td></td>
<td>Send job updates</td>
<td>Concrete use meeting/exceeding expectation: leave data active for your next career move, communicate that the portal is accompanying your career throughout the life, stay online with your applicant profile so that you get better job offers, possibility to use free applicant page with individual address e.g. <a href="http://www.fh-absolventen.at/lastname_firstname">www.fh-absolventen.at/lastname_firstname</a></td>
<td>Classification of content</td>
</tr>
<tr>
<td></td>
<td>How to prepare application documents</td>
<td>Don’t overload page: list only relevant jobs for user niche</td>
<td>Relevance matching, multivariate ranking (e.g. show me only jobs from companies &gt; 5000 employees)</td>
</tr>
<tr>
<td></td>
<td>Interview tips</td>
<td>Classify contents carefully e.g., jobs and related jobs</td>
<td>Video tutorial to show what page offers, how to register, navigate, connect with user, ask questions etc</td>
</tr>
<tr>
<td></td>
<td>Infos on trainee programs</td>
<td>Job notification where only few people have applied + matches own skills</td>
<td>Faceted search and browsing</td>
</tr>
<tr>
<td></td>
<td>Links to companies, internal contact persons</td>
<td>Education &amp; employer matching: which employer pays more for certain graduates/skills</td>
<td>Filter content using multiple taxonomy terms at the same time</td>
</tr>
<tr>
<td></td>
<td>Company Career Day info</td>
<td>Show educational offers if skills are missing for a specific job ad</td>
<td>Search Engine Optimization (SEO)</td>
</tr>
<tr>
<td></td>
<td>Online story pages</td>
<td></td>
<td>Push services add-ons (sms or email) rather than pull services</td>
</tr>
<tr>
<td></td>
<td>First years as an engineers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>My worst and best career start</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not overloaded</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Download section</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Salary calculator, Alumni calendar</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Career ABC, search for A (Audi), B (BMW) and link with users’ experience reports</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Branch categorization</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Links to continuing education</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Technical blog</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requirement Specifications</td>
<td>Users (Applicants)</td>
<td>System Analysts</td>
<td>Programmers</td>
</tr>
<tr>
<td>----------------------------</td>
<td>--------------------</td>
<td>-----------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Social Requirements</strong></td>
<td>− Community and Social Network features: possibility to connect with friends and FoF and follow each others’ career paths, share pics, reports, exams etc.</td>
<td>− Community and Social Network features: provide applicants the possibility to link to friends, common interest groups e.g. VIP club of Company XY, commonality of interests, goals</td>
<td>− APIs, define applications for integration of other social network features</td>
</tr>
<tr>
<td></td>
<td>− Entertainment/ Playfulness: Typical community features: inviting, blogging, tagging etc.</td>
<td>− API Interface to other social networks, open integration of contacts</td>
<td>− Open ID integration</td>
</tr>
<tr>
<td></td>
<td>− Interest groups for shared hobbies, sports, music, companies, travel etc.</td>
<td>− Entertainment/ Playfulness: e.g. Fun factor, applications to enable comparisons with others, registered users, friend compare etc., functions that applicants enjoy, curiosity, possibility for interactions (tagging etc.) with other registered users</td>
<td>− Follow WCAG - Web Content Accessibility Guidelines for e.g. disabled users</td>
</tr>
<tr>
<td></td>
<td>− Discussion board, social support from community how to deal with negative job experiences</td>
<td>− Indicate on users profiles who has visited their site</td>
<td></td>
</tr>
<tr>
<td><strong>Psychological Requirements</strong></td>
<td>− Reputatiom: word of mouth, who of my friends know and use the portal, experience reports about good internships, highly recognized jobs at certain companies</td>
<td>− Reputation, credibility, high quality standards, blogs about experiences, word of mouth advertising, make site more known by e.g. search engine optimization, user reports of successful placements, transparency of information</td>
<td>− No</td>
</tr>
<tr>
<td></td>
<td>− Self esteem/competency features: games with other users on technical problems, rank best players</td>
<td>− Self esteem/competency features: ontology extension e.g. molecular biology – offer applicants different terms and ask them to order into specific ontologies (crowd-sourcing). If one user becomes domain expert (e.g. 10 persons order it the same way in one field, give user credits and enable to use score for resume, invite former bosses to provide online recommendation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>− Success rate of placements: return if I or my friends received good jobs via the portal</td>
<td>− Feel of control: many adjustment possibilities, moderated content</td>
<td></td>
</tr>
<tr>
<td></td>
<td>− Feel of control: many adjustment possibilities in privacy settings, different newsfeed selection options, moderated content</td>
<td>− Check your market value: challenge users with intelligence games, rank users, cause users to search for what job ad they are the top candidate, show me how I rank compared to other users, friends in my network, all graduates from a specific school etc.</td>
<td></td>
</tr>
<tr>
<td><strong>Service Requirements</strong></td>
<td>− Responsiveness of recruiters to applications</td>
<td>− Responsiveness of recruiters, customer representatives and other users to requests</td>
<td>− Feedback forms</td>
</tr>
<tr>
<td></td>
<td>− Responsiveness to questions posted in blog</td>
<td>− Communications: different channels: email, chat, phone, video interviewing, blogging etc.</td>
<td>− Service representative contact forms</td>
</tr>
<tr>
<td></td>
<td>− Active profiles of other users in the database</td>
<td>− Customer representatives training, routines, fixed times to get back to applicants</td>
<td>− RSS</td>
</tr>
<tr>
<td></td>
<td>− Friendly emails and other communications even though I might not be their ideal candidate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>− Range of possibilities (services)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ease of use</strong></td>
<td>− High usability</td>
<td>− High usability</td>
<td>− High usability</td>
</tr>
<tr>
<td></td>
<td>− Quick and easy registration</td>
<td>− Easy navigation; sub-menus, put similar contents together, different views for different user needs, e.g. structural or icon-based</td>
<td></td>
</tr>
<tr>
<td></td>
<td>− Easy navigation</td>
<td>− Appearance: harmonic colors, proportion of text and buttons</td>
<td></td>
</tr>
<tr>
<td></td>
<td>− Possibility to upload different files, i.e. resume and testimonials files (doc, pdf, jpg etc)</td>
<td>− Ongoing usability testing with users, FAQs, video tutorial, analyze website navigation and understanding of textual meaning for different user groups</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>− Design appropriate for target group (age group, branches etc.)</td>
<td></td>
</tr>
</tbody>
</table>
REFERENCES


