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Building HR Decision Support: Insights from Empirical Research

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ABSTRACT

Decision support for human resource management (HRM) and especially for personnel recruitment and selection to date is rather scarce. This is astonishing as the complexity and impetus of recruitment decisions is considerable and information systems (IS) could potentially provide important assistance. Also, when looking at the other phases of the HRM cycle, e.g. personnel attraction as well as personnel development and retention, one perceives that these elements are increasingly digitalized. So what factors retard the development of decision support for the recruitment function? In this paper, we based on own empirical research present a phase model for the adoption of IS for the recruitment function. We show that as companies increasingly attract candidates online a natural need for IS supported personnel selection emerges. We conclude with an outline of what requirements such functionality has to meet and what methods could be used to build such decision support.

INTRODUCTION

The internet in recent years has considerably transformed Human Resource Management (HRM) and among others the early phase of the recruitment function represented by the personnel attraction stage. Researchers pointed out that the interactive manner of the internet provides a highly suitable means to attract large numbers of candidates at low cost and within shortest delays (Allen, 2004; Lievens, 2003). For job seekers vice versa, it has been shown that the high volumes of job ads available on the internet provide many benefits to job seekers such as the reduction of search or opportunity costs (Roy, 2003). Some amount of literature has been generated on how to bring both players on the labor market together online (Cober, 2003; Zusman, 2003).

Despite this fact, little research so far has been carried out on what happens *after* the candidate is effectively attracted online, e.g. *after* he has applied for a certain vacancy in consideration, and on what IS can contribute to this process stage. So our research question is: How are

recruitment practices currently organized and what are drivers and inhibitors of IS-based decision support for personnel selection?

THE RECRUITMENT FUNCTION AND ITS FORMS OF IS SUPPORT

The recruitment of employees is a core function of HRM dealing with the sourcing of labor as one of the factors of production (see e.g. Wright and Storey 1997; Armstrong 1995). With the *attraction* and the *selection* phase two main phases of recruitment can be distinguished (Schneider 1995, pp. 24-25). While the attraction phase can be decomposed into long-term *employer branding* and short-term *personnel attraction* activities, the selection phase typically starts with the *pre-screening* of the submitted resumes that are then analysed as part of the *final selection* stage (Kompa 1989, p. 114).

As depicted in figure 2, the above phases of the recruitment function are currently supported by mainly three different elements of IS. The career sections of *corporate websites* and of *internet job portals* serve as channels to attract candidates and also provide a means for candidates to apply via E-Mail or via online application forms. *Applicant management systems* are invisible to candidates and support internal workflows such as the posting of job ads, internal communication or the status management of the overall recruitment process (Färber et al., 2003).

THE EMERGENCE OF DECISION SUPPORT FOR HRM

Based on own empirical research, we are now going to derive a model of IS adoption for the recruitment field. Since 2002, we have been questioning the Top-1000-companies in Germany on their current and future recruitment practices. The response rates ranged from 14.1% to 19.6%. In order to complement this quantitative research we conducted a total of 17 cases studies. Also, starting in 2003 we began to carry out additional surveys with internet job seekers on their IS usage when seeking new opportunities.

Figure 1. The Recruitment function as part of the Human Resources function

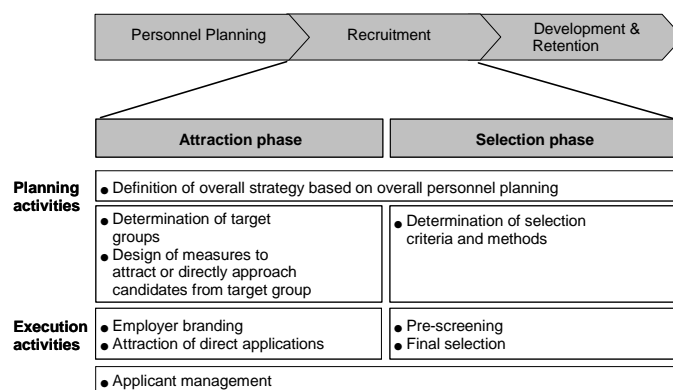


Figure 2. Forms of IS-support in E-Recruitment

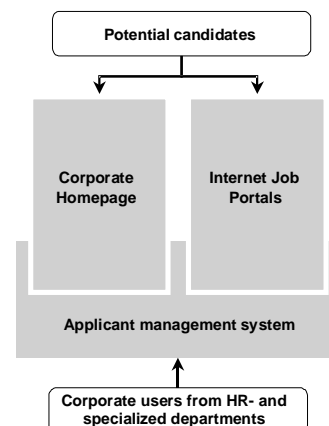
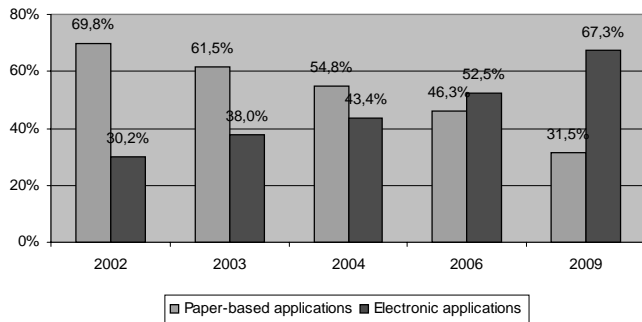


Figure 3. Past and expected diffusion of digital applications (Keim et al., 2005a)



A Phase Model for IS Adoption within the Recruitment Function

Among the most striving results of our quantitative research is that on average 58% of all hires from the external labor market go back to a job ad in either an internet job portal or on the corporate website thus illustrating the effectiveness of modern IS based recruitment channels. Moving from the attraction to the application phase, one sees that the successful attraction of candidates over the internet drives the diffusion of digital applications. As figure 3 illustrates, large German companies expect a complete shift in the ratio between paper-based and digital applications within only seven years until 2009 (Keim et al., 2005a). Even though this development drives the adoption of applicant management systems, this form of IS support still lags behind with only one out of five companies currently using such systems. Thus, one can say that even though the adoption of IS grows over time, its diffusion decreases along the different stages of the recruitment process.

From both, the data gained from the quantitative research as well as the deeper qualitative information retained from the case studies, we developed a theory-driven model of IT diffusion for the recruitment field. As depicted in figure 4 below, five different stages can be identified. These stages are classified by the locus of impact in which the diffusion of IT takes place. A detailed description of the model can be found in (Keim, 2005b). The stages of the model are the following:

- **Stage 0:** The HR-department of a company decides to attract candidates over the internet, e.g. by posting job ads on its corporate website or on internet job portals.
- **Stage 1:** The company not only attracts candidates over the internet, but also generates applications over this channel. Therefore, it builds up a database in which all incoming structured digital applications are stored.
- **Stage 2:** In order to implement a company-wide internal candidate pool for external candidates, all incoming applications are stored in this database. Incoming paper-based and E-Mail applications if necessary are digitalized and then at least partly indexed.
- **Stage 3:** The database is not only used to represent external candidates, but also internal employees that wish to change their position within the company.
- **Stage 4:** In the final scenario the infusion of the recruitment software is reached: not only do all internal members of the company have different rights to access the system and actively use the system, but it is extended to the field of inter-organizational collaboration.

Modeling and Implementing HRM Decision Support

The above considerations showed that (1) the diffusion of IT along the recruitment process decreases. Also, (2) an assimilation gap emerges as

soon as locus of adoption and locus of impact diverge. This can be considered as an inhibitor for successful HRM decision support. (3) However, as many companies currently undergo internal restructurings in order to meet this stage or scenario, we argue that decision support for personnel selection will be a crucial functionality for any solution on the market. For example, we spoke to one large German car manufacturer generating 200,000 applications per year. Another large company had already a five-digit number of applicant profiles in its database. How would you want to identify and select a suitable candidate from this database in case a vacancy needs to be filled?

We argue that Boolean search is not adapted for this scenario as keyword-based searches cannot appropriately handle the complexity of such kinds of searches. We therefore consider the candidate selection as a matching problem in which:

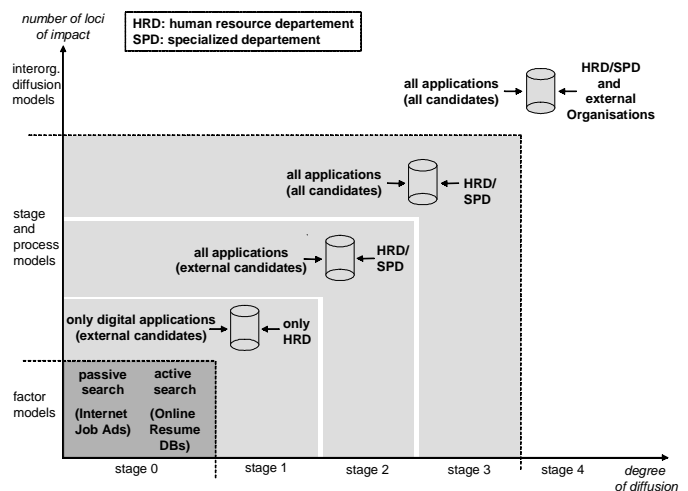
- Individuals need to be brought together with tasks for which they possess the skills and abilities to carry them out (person-job fit).
- These same individuals need to be matched to other individuals, i.e. their potential team members (person-group fit / person-organization fit).

Starting from this consideration, we built a recommendation approach that based on a latent aspect hybrid recommendation approach recommends so far unknown, but relevant profiles to the recruiter (Färber et al., 2003b). We then enhanced this approach to consider bilateral and relational aspects by developing two additional modules. Thus, we transferred existing recommender systems methods from the search for objects to the search for subjects. For a detailed description of the approaches as well as first validation results, please see (Keim et al., 2005c), (Malinowski et al., 2005) and (Malinowski et al., 2006).

CONCLUSION

In this paper, we empirically motivated the need for decision support for HRM and here especially for the personnel selection decision within the recruitment phase. Based on own quantitative and qualitative research as well as IT adoption and diffusion theory, we showed that an assimilation gap can be identified in current recruitment practices that largely contributes to the lack of suitable decision support. However, as the assimilation gap can be overcome by various means and as companies strive to close this gap in order to increase the efficiency of their recruitment processes, HRM decision support will be the next big issue within this field making it a promising arena for further conceptual research.

Figure 4. E-HR-diffusion and locus of impact (Keim et al., 2005b)



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