

The Effect of E-recruitment On the Recruitment Process: Evidence from Case Studies of Three Danish MNCs

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Abstract. *The aim of this research is to determine whether the introduction of e-recruitment has an impact on the process and underlying tasks, subtasks and activities of recruitment. Three large organizations with well-established e-recruitment practices were included in the study. The case studies were conducted in Denmark in 2008-2009 using qualitative research methods. The findings indicate that e-recruitment had a noticeable effect on the overall recruitment process in the studied organizations. The investigation revealed changes in the sequence, divisibility and repetitiveness of a number of tasks and subtasks. The new process design supported by information and communications technologies was identified and is presented in the paper. This process allowed recruiters in the study to perform recruitment tasks more efficiently. However, practitioners should be aware of the increasing demands of the quality of online communication with applicants, and with it the electronic communication skills of recruitment professionals.*

Keywords: recruitment, e-recruitment, web-based recruitment, online recruitment, staffing, e-HRM

1 Introduction

The first decade of the twenty-first century saw rapid growth in the use of online recruitment [25] and the transformation of electronic recruitment into one of the fastest growing recruitment techniques [23:119]. The most often reported benefits of electronic recruitment include wider applicant outreach [19], faster information exchange between potential employees and employers [38], lower costs of advertising [41], data accessibility and availability [39], reduced costs of communications [27], and improved organizational attraction [36:284]. The drawbacks of e-recruitment are associated mainly with résumé overload [11:85], increased diversity in quality of candidates [3], lack of personalized response to applicants [8], and issue-related candidate confidentiality [25]. Nevertheless, an online hiring process is regarded as being more cost efficient, and the fastest route to finding the right candidates, than traditional paper-based recruitment [27].

Despite the widespread use of e-recruiting methods, a gap seems to have developed between research into and the practice of e-recruitment [1; 39]. Of the increasing

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number of research contributions, many focus on the design of corporate recruitment websites [29], applicants' perceptions of career websites [5; 9; 16; 39], and e-recruitment system design [14; 26]. Although recruitment by and for organizations is intended to improve organizational performance [2:124], academic research on the subject from an organizational perspective is still relatively sparse [33; 34], possibly because scholars are struggling to keep pace with the sheer rapidity of change [1]. The organizational perspective is understood here as the process of organizing and performing recruitment tasks and activities within organizations and in the context of organizational environment.

The purpose of this study is to identify how e-recruiting affects the overall recruitment process, and whether it causes changes in the nature and sequence of tasks associated with the traditional recruitment of external candidates. The research contributes to the body of knowledge on the subject of e-recruitment, and is relevant for both academia and practitioners.

Case studies of three large multinational Danish companies were carried out in 2008 and 2009. The companies had extensive experience of e-recruiting and deployed a broad range of electronic means in their recruitment practices. The introduction of e-recruitment technology and sources in the case companies affected both recruitment activities and the sequence of some recruitment tasks and subtasks. A new task that of maintaining a corporate career website, was also added to the process.

The remainder of the paper is structured as follows: The next section discusses the theoretical starting point of the study. This is followed by an outline of the research design. The following two sections contain a presentation of the findings and a discussion of the key conclusions. Finally, I briefly discuss the implications for theory and practice.

2 Research Background

There is wide agreement among scholars about the growing importance of organizational recruitment in the development of human capital and strategic human resource management [9; 28; 31]. Given that the primary objective of recruitment is to identify and attract potential employees [2:10], recruitment can be defined as practices and activities carried out by an organization for the primary purpose of identifying, attracting and influencing the job choices of competent candidates [2: 5; 30:178; 35]. Recruitment activities are either directed towards external candidates from outside organizations or towards current employees, in which case it is called internal recruitment. The focus of this study is solely on the process of recruiting external candidates, since internal recruitment often involves other issues, such as career planning and development [2:4].

E-recruitment can be understood as recruitment carried out by the use of various electronic means. Online, Internet, or web-based recruiting can be defined as the use of the Internet to identify and attract potential employees [34], e.g. advertising a vacant position and attracting a pool of applicants through corporate websites and Internet job boards [4]. An e-recruitment system is a back-office system for administrating the recruitment process, and is normally designed to allow applicants to submit their data electronically. E-recruitment can thus be perceived as an umbrella term covering recruitment activities performed using various electronic means and the Internet, including online recruitment and e-recruitment systems.

The recruitment process can vary in complexity and degree of difficulty depending on the recruitment objectives and the recruitment sources chosen [6]. The most commonly used sources for external recruitment are newspaper ads, private and public employment agencies, Internet job boards, corporate websites, employee referrals, colleges and universities, search firms, job fairs, etc. [36:280]. As e-recruitment uses online job ads as the recruitment source, the focus here will be solely on the recruitment process for sourcing applicants from advertising.

Traditional recruitment, which uses formal sources like job advertising, starts with the identification of required applicants, their location and placement in the labour market, and proceeds with activities to attract and persuade qualified applicants to apply. Job applications are then received, screened, and sorted, leading to the drawing up of a shortlist. The process ends with communicating the pre-screening results to applicants. A summary of this type of recruitment process tasks, subtasks and activities is presented in Figure 1.

In this study, recruitment is treated as a business process [37: 328], defined by Davenport and Short [10] as a set of logically related tasks performed to achieve a defined business outcome for internal or external recipients. A business process occurs across or between organizational subunits and is independent of formal organizational structure. In the case of recruiting, this process is normally performed for either internal customers – line managers and executives from various parts of the organization - or external ones, resulting in a shortlist of candidates which customers can choose from (ibid.).

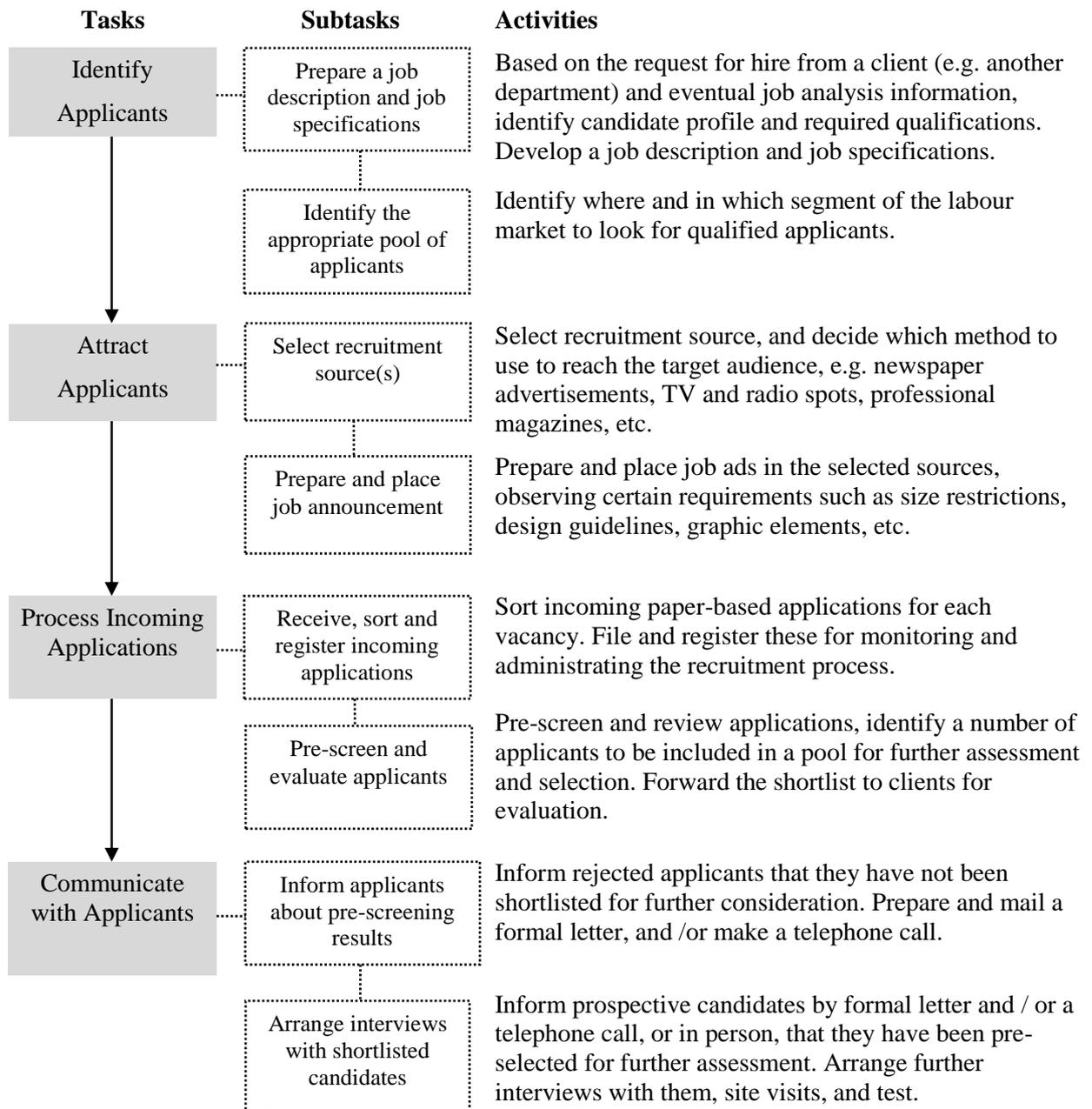


Figure 1. Traditional paper-based recruitment process using job advertising
Adapted from Barber [2], Breaugh & Starke [6], Bartram [3], Dessler [11], Millmore et al., [31], and Newell [32]

A business process change can be caused by many factors and affect organizations in many ways . In order to better understand the complexities related to such changes, Kettinger and Grover [21] propose a descriptive model of business process change (BPC) based on research contributions from other scholars and their observations of practice. The model rests on the assumption that an organization is a complex, social system consisting of mutually interrelated and self-adjusting subsystems of organizational change, namely task, technology, people, and structure [20; 24]. The BPC model is strategy-driven, and adds process, products and services [21].

Figure 2 shows my adaptation of the BPC model to the recruitment process. Following the model's logic, introducing ICTs to the recruitment process, as in the case of e-recruitment, would not only affect business process tasks, but also people, management and structure.

A study of peer-reviewed journal manuscripts on e-recruitment, online and web-based recruitment, and e-recruitment systems identified only a few research contributions on e-recruitment from an organizational or business process perspective. Some of these research contributions are discussed below, and a summary provided in Table 1. And, as noted by Parry and Tyson [33], there has been little empirical research to determine whether e-recruiting leads to radical changes in recruiting practices.

In his study on Internet recruiting, Cappelli [8] examines different service providers, new technologies, and companies' recruitment strategies. In his view, the e-recruiting process consists of three major steps: attracting, sorting, and contacting candidates. The first step involves the appropriate design of web pages, using electronic networks for promotion, tracking potential candidates on the Internet and in on-line databases. The next step – sorting – involves the screening of candidates with the help of sophisticated on-line tests. In the third step, contacting candidates, e-recruitment systems are a big help, since they enable communication tasks to be automated (ibid.).

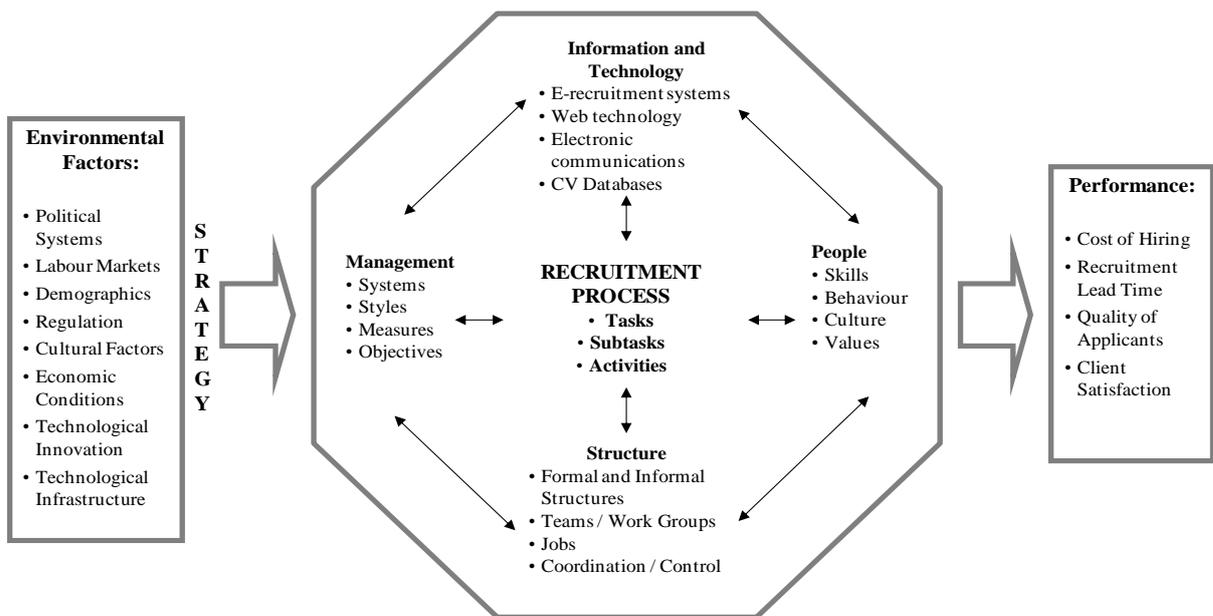


Figure 2. Recruitment process change model
 Elaborated and adapted from Kettinger & Grover [21], and Kettinger, Teng & Guha [22]

Lee [25], who has studied the evolution of e-recruitment systems and analysed the corporate career websites of Fortune 100 companies, emphasises that e-recruiting has fundamentally changed the corporate recruiting process from batch mode to continuous mode, suggesting a major change in the business process. Unlike the traditional paper-based recruiting process, e-recruiting allows around-the-clock collection and processing of job applications. Thus, a modern e-recruiting process is a two-way communication process, web-enabled, time- and space-independent, and a ubiquitous system for both job seekers and recruiters (ibid.).

Based on a review of the literature, Singh and Finn [38] conclude that the increased use of ICTs in recruitment has had a fundamental impact on all aspects of an organization's recruitment function, including people, processes, organizational structures, and forms. They suggest that new processes are needed to lower costs, accelerate transactions, improve efficiency, and provide better service. One example of such processes is the automated, web-based, pre-screening of applicants.

Article	Changes in the recruitment process	Changes in the recruitment process performance
Cappelli [8]	The recruitment process turns into a marketing process of selling jobs, with more activities and resources dedicated to building company reputation, Internet communications, and relationship marketing. Automation of the entire recruitment process. Introduction of sophisticated on-line screening systems. Automated systems for contacting applicants.	Shorter recruitment cycles. Bigger pool of experienced candidates. Efficient selection of best candidates.
Lee [25]	Change from batch mode to continuous mode, with some activities being performed concurrently. Automated pre-screening. Long-term candidate relationship management.	Cost savings, better efficiency, increased convenience for recruiters and clients, and shift of focus on effectiveness.
Singh and Finn [38]	Introduction of new processes, e.g. web-based pre-screening. "Just-in-time" recruiting on demand.	Lower costs per hire. Shorter recruiting lead times. Improved quality of candidates.

Table 1. Summary of previous research into the main effects of e-recruitment on the recruitment process

3 Research design

For various reasons, it was decided to base this research on case studies [40], in particular because they allow the researcher to study processes in their social context [18: 323]. Prior to the study proper, I carried out an exploratory study on the organizing principles of e-recruitment, during which I selected three large organizations with well-established e-recruiting practices which could potentially allow a case-by-case comparison [12] and permit theoretical sampling.

I used the recruitment process as the unit of analysis and focused only on the business process. My interest was primarily in whether e-recruitment had an effect on the traditional recruitment process, its tasks, subtasks and activities. If the introduction of e-

recruitment had resulted in changes in process tasks and subtasks, then it would have meant dramatic or at least significant changes in the overall recruitment process. If the changes had occurred only at the level of activities, the changes would be considered incremental. I was thus looking for possible changes in the tasks, subtasks and activities of the business process of recruiting which could be attributed to the use of electronic recruitment.

The companies selected for the study are all multinational corporations (MNCs) originating from, and with headquarters in, Denmark. To ensure confidentiality of the collaborating organizations and their respondents, the companies in this paper have been given fictitious names - Scandifin, Danadrinco and Energowing. Some general information about the case companies is provided in Table 2. At the time of the study, the case companies had been using Internet recruitment and e-recruitment systems for over 5 years.

Fictitious name	Primary Industry	Ownership	Number of Employees
Scandifin	Banking and investment	Shareholding company	33,000+
Danadrinco	Alcoholic and non-alcoholic beverages	Shareholding company	45,000+
Energowing	Design, production, and installation of energy systems	Shareholding company	20,000+

Table 2. Case companies

Data were first collected at Scandifin, and later, following the replication logic [40: 47-48], at Danadrinco and Energowing . In all three case studies, the recruitment process was embedded in a specific unit: at Scandifin and Danadrinco it was in the HR departments responsible for recruiting in Denmark only, while at Energowing it was in the unit responsible for recruitment for a major division. All the data were collected in Denmark in the years 2009 and 2010. Following Yin [40: 39-53], this research design can be defined as a multiple embedded case study, and is regarded as being cross-sectional.

The data for each case were collected from multiple sources available to the researcher, and were predominantly qualitative [15: 465]. Qualitative data was considered to be more suitable, since it can provide insights into complex social processes [13], such as the recruitment process in this study.

I conducted face-to-face semi-structured interviews with a number of key informants, including HR partners and brand managers, recruitment partners, and others, who were involved in recruitment process tasks. All face-to-face interviews with key informants, normally 2-4 persons per case study, were conducted onsite, digitally recorded, and subsequently fully transcribed. The interviews lasted between 1 and 2 hours.

As the three case organizations used various technological solutions in the recruitment process, I reviewed the functional characteristics of their e-recruitment systems and interviewed representatives of the companies' technology providers. In addition, I made a number of observations at two job fairs and two HR fairs in Denmark, where I had the chance to meet and interview representatives of major job portals and job databases

used by the companies for online recruiting. Notes on observations and conversations were then recorded.

In order to get a more comprehensive idea of how online recruitment methods were used at the studied companies, I analysed the content of corporate recruitment web pages and the job ads that the case companies placed on their websites. Thus, a blend of qualitative methods, techniques, and data sources available at the time of the research were utilized during the study.

The overall data analysis was deductive. The fully transcribed interviews were exported to QSR nVivo - software for the analysis of qualitative data. Most of the brochures, texts, and other secondary text data were scanned and also exported to the nVivo project. The data were then sorted in sets for each case, coded, and triangulated. The coding started with provisional categories, referring to recruitment tasks and subtasks, and proceeded with more specific codes related to activities. The findings were then summarized and analysed using the method of case-to-case comparison.

4 Findings

4.1 Scandifin

Scandifin is a corporation consisting of Scandinavian banks, insurance companies and investment funds, merged and incorporated in 2000. Its main activities include personal and corporate banking, capital markets, savings and asset management, and running pension funds. With a customer base of around 10 million, Scandifin is one of the 15 largest private financial institutions in Europe. It runs 1400 bank branches in Scandinavia and Eastern Europe and has a total full-time staff of 33,000 employees.

The recruitment team in this study was based at Scandifin's headquarters, in the HR department under the supervision of the senior HR partner. The team handled all Scandifin's recruitment in Denmark, including temporary jobs and traineeships. Job ads, including online ones, were the main recruitment source for around 300 to 500 vacancies a year.

The Danish office started using corporate websites and Internet job advertising as a recruitment source in the late 1990s. In the early 2000s, Scandifin acquired an e-recruitment system from a Scandinavian application service provider (ASP), which also hosted and serviced the system. This meant that it could be quickly implemented, since it did not require any installation and maintenance onsite. Scandifin merely had to link its career website to the e-recruitment system when posting new job ads. The system was web-based, and, using a standard Internet browser and a login, it gave instant access to data from any location with a computer and Internet connection. From then on, Scandifin no longer accepted paper-based applications, and systematically directed prospective applicants to their career website for further information and submission of applications, whether unsolicited or for an advertised position.

According to the interviewed recruiters, Scandifin's career website became an efficient source of communication with candidates. One of the interviewees said: "... On our website one can log in and subscribe to [receive] job announcements. This is one of the first functionalities we implemented, and we have continued doing this for 10 years... At some point we reached 3000 subscribed users... It is a very effective place for hiring, say, students... Student jobs can be 100 different things, and once they find out which job they want, they can write an application explaining why they think they are the right ones for the jobs. For many years we have not processed unsolicited applications for

student jobs...instead we ask them [i.e. students] to keep an eye on our website where all jobs announcements get posted, and where it is easy to subscribe to email notifications..." (own translation).

Most of Scandifin's job ads were placed on the corporate career website and a number of job portals. Sometimes, recruiters chose to use printed media for advertising jobs, although this was for other reasons than attracting applications from qualified candidates. Scandifin's use of printed media was mainly for reasons of employer branding and maintenance of corporate reputation. One of the interviewed recruitment partners explained why Scandifin still used printed media: "... If there is a vacancy, e.g. in Aarhus or Skive, and there is a local free newspaper distributed weekly to all households, then sometimes our local branches place a job ad there. You could say that this is a bit of local marketing... There are also industry magazines... Most employees in Danish financial institutions receive NN (a financial magazine) 10 times a year, but placing a [job] ad there does not usually generate any applications ..." (own translation).

Overall, Scandifin's recruiters were satisfied using e-recruitment in the recruitment process. The main benefits mentioned were streamlined communication with applicants, less paper administration, ease of accessing applicant data, reduced labour intensity in processing résumés, and a shorter recruitment cycle.

4.2 Danadrinco

Danadrinco is part of an international group of companies, with more than 45,000 full-time employees in 25 countries. The company has 2,000 employees in Denmark, mainly in running corporate headquarters, production, and the distribution of alcoholic and non-alcoholic beverages.

In 1996, Danadrinco introduced an e-recruitment system supplied by a major international HR technology and Internet job portal provider. The system was used for all Danadrinco's internal and external recruitment, including when handled by a third party, e.g. employment agencies and search bureaus. As explained by the company recruiters, the main reason was purely administrative - to keep track of all new employees and their flow and status.

The recruitment partners and their assistants worked out of the HR department, carrying out a number of HR-related tasks. Annually, they handled 130-150 recruitments, of which about 100 were sourced externally through job advertising. The majority of job ads were placed online on Danadrinco's corporate recruitment webpage and external Internet job portals. One of Danadrinco's recruitment partners described Danadrinco's choice of sources in the following way: "... 80% of all vacancies are sourced through the Internet and the remaining 20 through head-hunters... Of the job ads which we place during a standard recruitment process, only 5% are placed in printed media. And this is a drastic change compared with just 5 years ago. Basically, either we do it on the Internet, or we go to a head-hunter..." (own translation).

All incoming applications to Danadrinco were sent electronically. The corporate career webpage could either be used to apply for a concrete vacancy or to send an unsolicited application. Each application submission was automatically confirmed by email. The e-recruitment system was web-based, and Danadrinco's recruiters and line managers could access vacancy-related data and incoming applications from any geographical location through a web browser.

Danadrinco's recruiters were generally satisfied with the e-recruitment system. The benefits mentioned included a reduced administrative burden, shorter recruitment lead time, ease of follow-up on each case and individual applicant, and the benefits of outsourcing some applicant screening and communication tasks to line managers. One of Danadrinco's recruitment partners recalled his previous experience with another employer: "...What I like most [about the e-recruitment system] is that it saves you from the administrative part. I remember my time with company N, where we counted how many times we typed the names and addresses of job applicants, and we managed to use 7 different systems during the process, for letters of acknowledgement, thank you letters, etc. The new system saves you from all this..." (own translation).

The disadvantages of using e-recruitment mentioned included the increased number of unqualified applicants, limitations imposed by job portals on the size and design of the job ads, and the lack of personal contact with applicants.

4.3 Energowing

Energowing is a multidivisional MNC with headquarters in Denmark. Its core business comprises R&D, and the manufacture, sale and maintenance of energy systems.

The recruitment team in this study came from one of Energowing's divisions in its core business operations. Recruiters were placed in the divisional HR department and reported to the divisional HR Partner, and Energowing's corporate vice president and corporate employer brand manager.

Energowing's recruiters used a wide range of recruitment sources in their staffing activities. The corporate career website and a number of Internet-based job portals were the main recruiting sources for external candidates. The corporate career website received the special attention of the corporate employer brand manager, who was responsible for conceptual design, content and updating. Unlike the other two companies, Energowing used professional online communities like LinkedIn for its employer-branding activities and job advertising. At the same time, Energowing had a strict corporate policy, which prohibited using online social networks, e.g. Facebook and MySpace, for either branding or recruitment.

Energowing used an e-recruitment system which was a modular part of a wider enterprise resource planning (ERP) system implemented universally throughout the company in Denmark and abroad. The system was installed centrally onsite and maintained by highly qualified IT personnel, and none of the company's units were allowed to make adjustments or changes. The interviewed recruiters expressed general satisfaction with the possibilities and functioning of the e-recruitment system, but complained about the system's complexity and excessive functionality, which in their view had a negative effect on the application experience of prospective candidates.

Unlike Scandifin and Danadrinco, at the time of the study Energowing continued to receive paper-based applications, though recruiters had to register and file them in the e-recruitment system manually. One of the HR partners explained the reason for this: "...There are not a lot of them [i.e. paper-based applications], and we receive them primarily from factory workers... It is OK that they are on paper. So we type them in ourselves. We do not ask candidates to do this, because I think that it's just arrogant. We cannot tell them that we want their applications but they must go home and submit them through the website. You just can't do that ..." (own translation).

Another concern about the e-recruiting system was the apparent lack of a personalized response to rejected applicants. As one of the recruiters put it: “I think that candidates feel like that they are just a number in a row, especially if they are not selected for the first interview. We have actually considered conducting telephone interviews with all the qualified candidates just to be closer to them... Even if they are rejected, a telephone interview might give them a positive image of Energowing anyway... It is important to me that applicants receive an explanation for why they were not hired, instead of just being rejected through the e-recruitment system. So, I would say that the main weakness of such a system is that candidates may feel impersonalized” (own translation). However, the same recruitment partner admitted that, due to the growing number of applications submitted electronically, telephoning all applicants was not feasible.

4.4 Case-by-case comparison of the recruitment process

A case-by-case comparison of the three companies’ recruitment process, involving similarities and differences in tasks, subtasks and activities, is summarised in Table 3.

As can be seen from the summary, in all three companies, there were no e-recruitment activities prior to the task of attracting applicants. E-recruitment systems were then used for the preparation and submission of job advertisements from the system interface, enabling previous texts and job descriptions to be easily reused and reformatted for new vacancies and potentially new e-recruitment sources.

Online or web-based recruiting was the main recruitment source for the studied recruitment processes. All three case companies were largely reliant on their corporate career websites, and used them for communicating with prospective applicants and as the entry point for the online submission of job applications. All three companies had a localised Danish career website with the possibility to submit applications for positions outside the country. At Scandifin and Danadrinco, the task of providing and updating the content was the responsibility of the HR departments at headquarters, while at Energowing the career website was updated and maintained under the supervision of the corporate employer brand manager. In all three companies, new job ads were posted directly by divisional recruitment teams using their e-recruitment systems. All three studied organizations also had long-term agreements with a number of major Danish Internet-based job boards, and occasionally added other online sources, e.g. in the case of Energowing, online professional communities and networks.

Unlike with traditional paper-based recruitment, the processing and pre-screening of incoming applications could start and run concurrently with the activities for attracting candidates. As confirmed by the informants from the case companies, the screening of résumés was often initiated by line managers even before the deadline for applications. The timing and sequence of this subtask was strongly dependent on the line managers themselves.

None of the recruitment teams used automated screening of incoming applications; in fact, all the recruiters in the study rejected this as an option. The rationale behind this was well put by one of the informants from Scandifin: ... “We have 300-500 different jobs with a job description. And in my opinion, if we are to think seriously about screening questions, we have to look at each job individually, and also at each job description. We then need to evaluate what is important for us to know [about the candidates]... and the [screening] questions should be very precise and correctly formulated so that we can get correct answers. And even then we may not get the answers we want, as people interpret questions differently, and therefore also answer

differently... Therefore I think that it would be extremely resource-intensive to have to formulate [screening] questions for each job” (own translation).

In all three companies, communication with prospective candidates and job applicants started with job advertisements being posted on the Internet. This was due to job-seekers subscribing to automatic alerts on new job vacancies, which they received by email and/or SMS. In addition, the companies’ e-recruitment systems always sent an e-mail confirming that they had received a job application. By means of the automation features of the e-recruitment systems, rejected candidates were often notified immediately about the result of the pre-screening even before the vacancies were formally filled. All three companies considered this to be an advantage, since it meant that recruiters did not have to keep them waiting unnecessarily long just to hear that they had not been selected for further assessment. In the case of Energowing, the system allowed applicants to create individual web pages on the employer’s server, where they could submit their files and monitor the progress of their application. Recruiters were uncertain how much this feature was used, however.

After the pre-screening was completed, a number of candidates were contacted to arrange further assessment and selection activities. E-recruitment systems were used for this as well, but all the studied recruitment teams and their clients, i.e. line managers, would normally do this by telephone, and would use the system only for scheduling and tracking purposes. This electronic tracking ended with the employment of a selected candidate.

The technological solutions used by all three companies in the recruitment process enabled individual recruitment data to be integrated with other HR information systems, such as Talent Management and Employee Development systems, as well as with wider ERP systems, but none of the companies made use of this . The reasons differed for each company, and varied from the apparent lack of coordination between functional units to differences in the employee data required by departments.

Table 3. The recruitment process at the case companies

Task	Subtasks	Similar Activities	Divergent Activities	Recruitment Process Change
Identify applicants	Prepare a job description and job specifications	Based on the request for hire from line managers and job analysis information, recruiters draw up a candidate profile and required qualifications and develop a job description and job specifications.		No change.
	Identify the appropriate pool of applicants	Recruiters determine where to look for qualified applicants geographically and in which segment of the labour market to generate a substantial inflow of applications.		No change.
Attract applicants	Select recruitment source(s)	Recruiters choose among a number of online sources, e.g. job databases and job portals, with which they have a long-term agreement.	<p>Scandifin: Specialised websites, e.g. financial institutions and the state regulator are sometimes used as sources.</p> <p>Danadrinco: Job portals outside Denmark are sometimes used as sources.</p> <p>Energowing: Professional (though not social) networks like LinkedIn are frequently used as a source.</p>	Changes in activities. No change in the nature of the task or the subtask.

Task	Subtasks	Similar Activities	Divergent Activities	Recruitment Process Change
	Prepare and place job announcement	Recruitment personnel prepare and place job ads in the selected sources, observing certain requirements, e.g. size restrictions, design guidelines, graphic elements, etc. Job ads are posted on corporate websites.	<p>Scandifin: Job ads from the corporate website are posted by Internet job portals and database systems.</p> <p>Danadrinco: Job ads are posted automatically, through the e-recruitment system, in Internet job portals and databases.</p> <p>Energowing: Job ads are forwarded by email to the selected Internet job portals and databases and posted by them.</p>	<p>Changes in activities. No change in the nature of the task or the subtask.</p> <p>Changes in the sequence of tasks – the task of communicating with applicants starts here.</p>
Process incoming applications	Receive, register, and sort incoming applications	All incoming applications are received and sorted automatically through an e-recruitment system. The subtask is fully or almost fully automated.	<p>Scandifin and Danadrinco: No paper-based applications accepted.</p> <p>Energowing: Paper-based applications are registered and transferred into the e-recruitment system by an Energowing employee.</p>	Changes in the sequence of subtasks, i.e. pre-screening may commence simultaneously, as well as continuation of the task of communicating with applicants.

Task	Subtasks	Similar Activities	Divergent Activities	Recruitment Process Change
	Pre-screen and evaluate applicants	Line managers and recruiters pre-screen and review applications using the data stored in e-recruitment system. They identify and rank a number of applicants to continue through assessment and selection. The rankings and eventual comments are stored in the e-recruitment system.		Changes in activities. No change in the nature of the task or the subtask.
Communicate with applicants	Inform applicants about pre-screening results	Rejected applicants receive an email sent through the e-recruitment system. Sometimes, they are contacted by telephone.	Scandifin and Danadrinco: Line managers are responsible.	Changes in activities. No change in the nature of the task or the subtask.
	Arrange interviews with shortlisted candidates	Arrange further interviews, site visits, and test with them.	<p data-bbox="1140 836 1581 896">Energowing: Recruitment partners are responsible.</p> <p data-bbox="1140 911 1608 971">Scandifin: Line managers arrange interviews by telephone.</p> <p data-bbox="1140 1031 1637 1123">Danadrinco: Further interviews are planned and arranged through electronic scheduling and e-calendar.</p> <p data-bbox="1140 1150 1637 1214">Energowing: Recruitment partner arranges interviews by telephone.</p>	Changes in activities. No change in the nature of the task or the subtask.

5 Discussion and conclusions

In the three studied organizations, the traditional recruitment process was completely replaced by e-recruiting. The investigation confirmed that the recruitment process as described in Figure 1 no longer existed in the studied organizations in its original form and design. The most significant differences identified were attributed to changes in the sequence of tasks and subtasks, and their increased divisibility, as well as in the nature of the related activities.

The detailed analysis of the recruitment process in the three case companies has shown that the introduction of e-recruitment affected process tasks and subtasks to a varying extent. For example, the subtask of receiving, sorting and registering incoming applications was significantly affected, since the e-recruitment systems did this automatically, apart from the one case when recruiters had to register and type in paper-based applications manually. Therefore, it can be concluded that this subtask is irrelevant where an e-recruitment system has been introduced and applications are accepted solely through the system's submission facility.

Due to the affordances (don't quite know what you mean by 'affordances' – do you mean 'cost' or 'functionality' or 'ease of use' or something completely different?) of the technology, communication with current applicants started simultaneously with the posting of job ads, and continued through the entire recruitment process. Apart from the apparent change in timing, the subtask of informing applicants about the pre-screening results was transformed into the subtask of informing them about the progress of their applications. Furthermore, in all case companies, the subtask of pre-screening incoming applications was often initiated shortly after job advertisements were posted online.

This meant that the tasks of attracting applicants, processing applications and communicating with candidates were often performed concurrently, supporting the findings of Lee [25]. However, this study found no evidence to support Cappelli's [8], Singh and Finn's [38] and Lee's [25] assumption that the pre-screening of candidates can be handled by sophisticated online systems, and none of the recruiters in the study regarded this option as being feasible.

According to the informants in the study, the introduction of e-recruitment has led to a number of performance outcomes, most of which were considered positive. Many informants mentioned the reduced costs of job advertising, improved recruitment lead times, ease of communication with candidates, and exposure to a wider candidate pool. The corporate websites were also very much appreciated as an effective way of branding the companies as an attractive place to work. These findings correspond with the results of Parry and Tyson [33] and a number of other research contributions.

Traditional paper-based recruitment by means of job advertising, as shown in Figure 1, is often viewed as a discrete, fixed process [17], initialized by an apparent need and request for new employees. It consists of tasks and subtasks which are fairly well-defined and repeated for each new vacancy, but which are sequential and not easily divisible. Such process design is viewed by organizational design researchers as being *complicated*, since it requires the coordination of connected processes and continuous attention [7: 111-114]. The recruitment process investigated in the study rests on the process design, which is characterised by a high level of repetitiveness and a medium to high level of divisibility, as a number of tasks and subtasks can run con-currently, or even be performed independently. Such task design can be defined as *orderly* [7: 112-

113]. The orderly design has a major advantage over the complicated design in its task divisibility, inasmuch as problems encountered in performing one task do not necessarily prevent progress in other tasks. This therefore requires less coordination and is more efficient (ibid.).

One of the highly divisible tasks, which emerged together with the spread of the Internet and the use of e-recruiting, is that of maintaining career websites. This is an ongoing task and is independent of individual hiring cycles, yet it is interrelated with the objectives and outcomes of each individual recruitment cycle. Therefore, the task of maintaining corporate career websites is added to the new recruitment process, as shown in Figure 3. The move from complicated to more orderly task design might explain why recruiters in all three companies reported a reduced administrative burden and less coordination of the recruitment process.

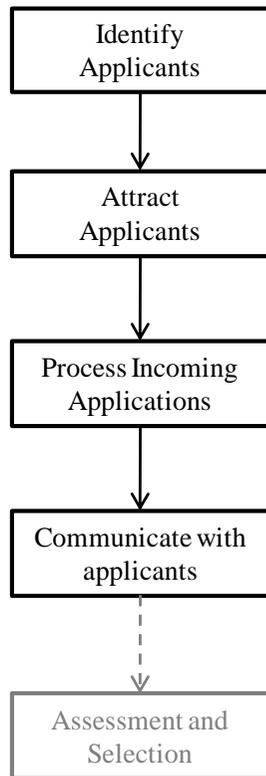
As can be seen in Figure 3, with the new process, the task of communicating with candidates becomes one of the focal tasks, because it “binds” several tasks and subtasks in the process and is performed practically throughout the entire recruitment process. This may explain why, in two cases companies, HR departments were hiring communication experts, e.g. an Employer Brand manager at Energowing and a new graduate in corporate communications at Scandifin, suggesting changes in required skills and personnel competencies.

6 Limitations and implications

The above research has some limitations. The main purpose of the study was to determine whether the introduction of e-recruitment had affected the overall recruitment process. Therefore it did not address in depth any changes related to management, formal and informal structures of the recruiting teams, etc. Although applicants are the other major player in the recruiting process [2:7], they were not included in this study either. Furthermore, the reasons for adopting e-recruitment were not investigated.

Practitioners considering introducing online recruiting and e-recruitment systems might feel apprehensive about the less consecutive nature of the recruitment tasks in the new process and the need to learn a new technology. However, this study does not reveal any specific problems for HR professionals using various e-recruitment technologies, and none of my respondents reported or complained about being forced to learn a lot of new technology. On the contrary, the e-recruitment systems were very easy to use, and when hosted by an external ASP, were up and running in literally no time. However, as communication with applicants plays a more significant role in the new process, recruiters should be aware of the increased demands associated with this task. In particular, special attention should be given to activities related to Internet communications and automated mailing. This was a concern expressed by many recruiters, and two of the case organizations made extra resources and specially educated staff available to deal with the issues of online communications.

Traditional recruitment process using job advertising



Recruitment process with e-recruitment

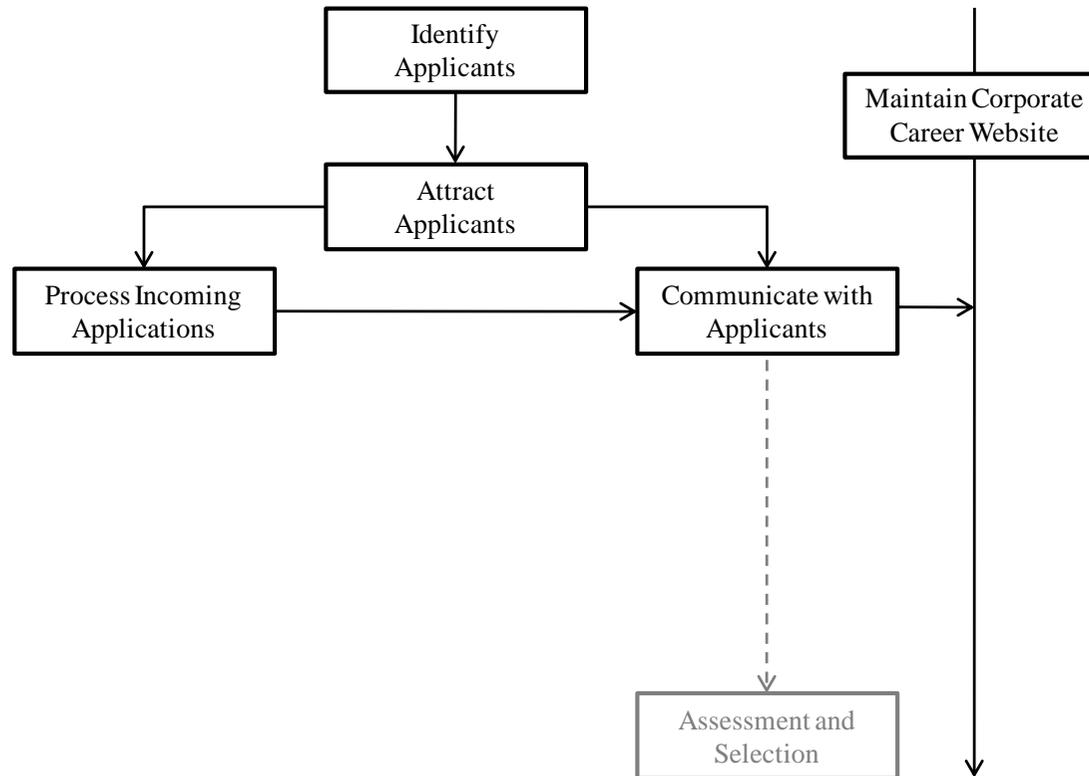


Figure 4. Traditional paper-based recruitment process vs. the (new) recruitment process with e-recruitment

The Business Process Change (BPC) model presented in Figure 2 suggests that, if there are changes in one of the subsystems, i.e. technology, personnel, management and structures, then the other subsystems will be also affected. This is a potential starting point for research into organizational design and management of HR departments and recruitment teams, and would address the question of how e-recruitment affects these subsystems. Lee [25], for instance, argues that management practices evolve together with e-recruitment systems. And Cappelli [8] suggests that changes related to the introduction of e-recruitment may be manifested in a decentralization of the hiring function, where line managers can find their candidates on job boards and other vendors. These propositions may constitute some relevant avenues for future research. This study finds that, although line managers began playing a bigger role in the tasks of pre-screening and communicating with candidates, there was no evidence to suggest that they were performing recruitment activities without the involvement of their recruitment partners.

Research at the macro-level can contribute to the field by determining how environmental factors attributed to society in general, e.g. culture, regulations, etc., affect organizations' recruitment strategies and practices. For example, Cappelli [8] argues that on-line recruiting is more than just an HR tool, but represents a change in the culture of how to get hired. If this is true, then companies without an e-recruitment-enabled process of hiring will have to review their strategies and practices to conform to the norms of the society in which they operate.

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