Factors affecting the acceptance and effectiveness of electronic human resource systems

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Abstract

Electronic human resource (eHR) systems are being used with increasing frequency in organizations. However, there is relatively little research on factors that influence the degree to which they result in functional versus dysfunctional consequences for individuals and organizations. Thus, the major purposes of this article are to: (a) present a model that relates a number of antecedents to such consequences, (b) describe the impact of individual and eHR system characteristics on four important eHR-related variables (i.e., information flows, social interactions, perceived control, and system acceptance), (c) offer a set of hypotheses that can be used to guide research on eHR systems, and (d) advance recommendations for the design of such systems.

Keywords: Electronic human resource (eHR) systems; eHR-related variables; Acceptance and effectiveness of eHR systems

In the last decade the Internet has radically changed our social and economic lives, and has had a profound effect on the way organizations are managed. For example, it has altered human resource (HR) practices and changed strategies for attracting and retaining employees. The same strategies have become particularly important because organizations increasingly depend on workers’ knowledge, skills, abilities, and other attributes (KSAOs) to compete in today’s economy (Ulrich, 2001). In addition, the Internet has enabled organizations to become more collaborative, connected, and responsive to the changing needs of the workforce. For instance, new electronic human resource (eHR) systems allow individuals to apply for jobs, change their job-related benefits, and enhance their knowledge, skills, and abilities (KSAs) through web-based training systems. Furthermore, the Internet has helped organizations modify work arrangements so that work can be performed from many locations (e.g., the office, home) at virtually any time of the day or night (e.g., telecommuting).

Although eHR systems can be functional for both organizations and individuals (i.e., job prospects, job applicants, job incumbents), they also can be the cause of a number of dysfunctional consequences for organizations and individuals (Stone & Stone, 1990; Stone, Stone-Romero, & Isenhour, 2004; Stone, Stone-Romero, & Lukaszewski, 2003). These are considered below.

Despite the widespread use of eHR systems, little research has focused on such issues as (a) the degree to which they are accepted by users, and (b) the extent to which they produce functional versus dysfunctional consequences for

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individuals and organizations (Eddy, Stone, & Stone-Romero, 1999; Gueutal & Stone, 2005; Stone, Lukaszewski, & Stone-Romero, 2001; Stone et al., 2004; Stone-Romero, 2005). Therefore, the primary purposes of this paper are to (a) consider the impact of eHR on a set of human resource (HR) processes (i.e., recruitment, selection, performance management, compensation), (b) present a model that describes how individual and organizational factors affect the outcomes of eHR, (c) offer hypotheses that can be used to guide research on eHR, and (d) provide suggestions for the design and use of eHR systems. The model is shown in Fig. 1. A brief description of it is offered next.

1. A model of the factors affecting the effectiveness and acceptance of eHR systems

Our model is based largely on a combination of theory and research on work adjustment (Lofquist & Dawis, 1969) and individual–organizational linkages (Porter, Lawler, & Hackman, 1975). It posits that the effectiveness of eHR systems is, in part, a function of the degree to which they are congruent with both organizational and individual goals. Consistent with models of work adjustment and individual–organizational linkages (Lofquist & Dawis, 1969; Porter et al., 1975), it specifies that organizational values, goals, and resources lead to the development of organizational systems and processes that are designed to facilitate goal achievement (Arrow 1). For example, organizations develop systems and processes for such purposes as (a) recruiting, hiring, and retaining employees, (b) motivating employees to work toward the attainment of organizational goals, and (c) facilitating goal achievement through a variety of other means. As suggested by Arrow 2, the nature of organizational systems and processes affects the capacity of the organization to achieve both short-run (e.g., profit) and long-run (e.g., growth, survival) objectives (Katz & Kahn, 1978; March & Simon, 1958).

Individuals have values, goals, and other job-relevant resources (e.g., energy, KSAs). These serve as important determinants of their intentions and behaviors in organizations (Ajzen & Fishbein, 1980), including (a) joining and remaining a member of an organization, and (b) working in the service of its goals (Arrow 3). As suggested by Arrow 3, the attitudes, intentions, and behaviors of individuals are a function of their values, goals, and resources.

The model also posits that there is a direct effect organizational systems processes and goals on organizational outcomes (Arrow 2). In addition, there is a direct effect of the attitudes, intentions, and behaviors of individuals on their outcomes (Arrow 4).

1.1. Correspondence between goals of individuals and organizations

Ideally, the values and goals of individuals would be consistent with those of an organization (Line a). However, consistency is not assured in most organizations, and the resulting conflict can have a detrimental effect on the achievement of the objectives of both individuals and organizations. Thus, our model posits that four important variables are affected by the joint influences of eHR systems (Arrow 5) and individual attitudes, intentions, and behaviors (Arrow 6). As described

![Fig. 1. Factors that influence individual and organizational outcomes of using eHR systems.](image-url)
below, these are information flows, social interaction patterns, perceived control, and system acceptance. In turn, this set of variables influences the outcomes of both organizations (Arrow 7) and individuals (Arrow 8).

Consistent with the relation implied by Arrow 6, eHR systems are less likely to yield desired outcomes if individuals work to subvert them. For example, because of differences in individuals’ values and goals, their acceptance and use of eHR systems may differ (Stone-Romero, 2005). The more they perceive that such systems will help them gain access to job-related outcomes, the more likely they will be to use the systems in appropriate ways (Ajzen & Fishbein, 1980). In addition, consistent with Arrow 7, the nature of eHR systems may serve to diminish the outcome (e.g., pay, promotion, mentoring) levels of individuals. For example, to extent that such systems contain invalid (unreliable, biased) information about individuals, the link between performance and outcomes will be affected adversely.

1.2. Some variables influenced by degree of correspondence

In the sections that follow, we focus on four major variables that may be influenced jointly by the nature of eHR systems and individuals’ attitudes, intentions, and behaviors: (a) information flows, (b) social interaction patterns, (c) the perceived control of individuals, and (d) system acceptance. We now offer brief general descriptions of these four variables. In subsequent sections we indicate how they are affected by specific eHR subsystems (e.g., the selection subsystem).

1.2.1. Information flows

The use of eHR systems may change information flows. For example, they may increase the organization’s ability to access, collect, and disseminate information about such factors as the nature of job openings, and (b) the KSAOs of individuals. In addition, such systems may provide individuals with rapid access to information about job openings, and the capacity to apply for jobs online.

1.2.2. Social interactions

eHR systems may also modify social interaction patterns in organizations (referred to hereinafter as social interactions). In particular, such systems often substitute electronic communications for face-to-face interactions. As a result, for example, they decrease the likelihood that job incumbents (referred to hereinafter as incumbents) will interact on a face-to-face basis with supervisors and other organizational members. These and other changes in social interactions may negatively affect the attainment of both individual and organizational goals. One reason for this is that incumbents often use face-to-face communication for such purposes as clarifying the requirements of their roles and coordinating their actions with those of other organizational members (Hackman, 1976; Katz & Kahn, 1978). As a consequence, for example, eHR systems may decrease the degree to which individuals understand role requirements and behave in accordance with them. In addition, to the degree that face-to-face interactions are curtailed, there may be negative effects on trust levels between supervisors and subordinates (Cardy & Miller, 2005).

1.2.3. Perceived control

One of the major purposes of eHR systems is controlling the behavior of individuals (e.g., insuring that incumbents behave in ways that promote the achievement of organizational goals). However, because such systems limit the freedom of individuals, their use may evoke reactance and resistance in individuals (Brehm, 1972; Katz & Kahn, 1978; March & Simon, 1958; Stone & Stone, 1990; Stone et al., 2003). For example, individuals may resist computerized performance management systems that keep track of such variables as the number of keystrokes or the amount of time spent on tasks. One way of doing so is to engage in rigid bureaucratic behavior (e.g., behave in ways that make them look good to the control system) or provide inaccurate data to the system (Katz & Kahn, 1978; Lawler, 1976; March & Simon, 1958; Stone & Stone, 1990). Unfortunately, the same behavior may have dysfunctional consequences for both individuals and organizations.

1.2.4. System acceptance

We posit that the acceptance of eHR systems will be joint function of the nature of the systems and the attitudes, intentions, and behaviors of individuals who use them (e.g., job applicants, incumbents; Gueutal & Stone, 2005; Stone-Romero, 2005). Thus, for example, individuals are unlikely to use such systems in intended ways if their attitudes about them are negative (Ajzen & Fishbein, 1980).
1.3. Overview

In the following sections of this article we illustrate how eHR systems may affect outcomes associated with four major HR processes (i.e., employee recruiting, personnel selection, performance management, and employee compensation). Note that space limitations preclude the consideration of a number of other HR processes (e.g., training, human resource planning, alternative work arrangements).

For each process considered, we (a) describe its purpose, (b) specify how eHR affects associated information flows, social interaction patterns, perceived control, and system acceptance, and (d) offer testable hypotheses. Following this we recommend strategies for enhancing the effectiveness of eHR systems.

2. E-recruitment

In terms of the organization’s objectives, the primary goal of the recruitment process is to attract potential applicants (prospects) who have the KSAOs needed to meet the requirements of organizational roles. Thus, organizations are increasingly using the Internet to advertise job openings and attract qualified prospects. The web-based advertisements often provide prospects with information about (a) job vacancies, (b) job descriptions, (b) the organization’s culture and its “brand identity,” and (d) the inducements (e.g., pay, fringe benefits, learning opportunities, promotion prospects) offered its employees.

Interestingly, some estimates indicate that 100% of large firms currently use the Internet to announce job openings, and 82% of large firms use intranet systems to post openings or identify qualified employees within the organization (Cedar, 2002). For example, organizations have developed sophisticated web-based recruiting systems to convey information about job opportunities and give applicants the ability to complete applications online (Stone, Johnson, Navas, & Stone-Romero, 2005; Stone, Lukaszewski, & Isenhour, 2005). In addition, organizational intranet systems are often used to search employment records to determine if the KSAOs of current employees are consistent with the requirements of vacant or soon-to-be vacant roles. Such systems may automatically provide managers with lists of qualified employees, and notify individuals about new job opportunities. In addition, the same systems may send messages to employees that ask about their interests in job openings. Overall, eHR-based recruiting systems are thought to reach a much wider set of prospects than traditional recruiting systems (Gueutal & Stone, 2005; Stone, Lukaszewski et al., 2005).

Internet-based eHR systems are also used to provide job applicants (applicants) with virtual previews of organizations. For instance, some organizations use “real time” cameras to give prospects a preview of what it is like to work in the organization on a daily basis. Other organizations (e.g., Cisco Systems) use such systems to give job applicants the opportunity to “make friends in the organization.” Through the resulting contacts, prospects can gather considerable information about the benefits and challenges of working for the organization. As a result of the availability of information about role requirements and inducements, applicants can determine if their (a) needs can be satisfied by offered inducements, and (b) KSAOs are likely to enable them to meet role requirements.

2.1. Effectiveness of e-recruiting

Our model posits that organizational goals are an important determinant of the nature of e-recruiting systems, which in turn affect the effectiveness of such systems. All else constant, e-recruiting systems are more likely to be effective if they enable organizations to attract applicants who meet organizational expectations than if they do not. In accordance with this proposition, research suggests that e-recruiting helps to attract candidates with high levels of drive, previous achievement and work experience (Jattuso & Sinar, 2003; McManus & Ferguson, 2003). However, other studies indicate that relative to traditional recruiting systems, e-recruiting systems are more likely to produce candidates who have unfavorable backgrounds and are frequent job hoppers (McManus & Ferguson, 2003). In addition, research shows that whereas e-recruiting systems tend to attract more job applicants, they are not always of higher quality than the applicants attracted by traditional recruiting systems (Chapman & Webster, 2003). Given that the findings of research on the effectiveness of e-recruiting are mixed, research is needed to examine the factors that moderate the relation between its use and various criteria.

2.2. Information flows

In order to be effective, e-recruiting systems must attract qualified prospects by disseminating information about both (a) the requirements of organizational roles, and (b) the inducements offered in exchange for membership in an
organization. Ideally, such systems should provide prospects with greater access to such information than traditional systems. Armed with such information, prospects can determine if (a) their KSAOs are sufficient to meet role requirements, and (b) the inducements offered by the organization have the potential to meet their needs. In addition, because eHR systems can rapidly transmit vast amounts of information to prospects, they should enhance (a) information flows about jobs to prospects, and (b) their ability to access information about both job requirements and the inducements offered to employees. Thus, we offer the following hypotheses:

**H1.** E-recruiting systems will provide prospects with greater amounts of information about role requirements and inducements than traditional recruiting systems.

**H2.** E-recruiting systems will provide prospects with easier access to information about role requirements and inducements than traditional recruiting systems.

### 2.3. Social interactions

Our model suggests that e-recruiting systems modify social interactions. In particular, they lead to electronic, as opposed to face-to-face, communication. As a consequence, they reduce social interactions between prospects and agents of organizations (e.g., recruiters, current employees). In addition, such e-systems often result in one-way communication (organization to prospects) that is uniform for system users. If information that prospects want is not provided by the e-system, the organization may have little or no capacity to provide such information. For example, e-recruiting systems may not provide prospects with the opportunity to ask and have answered questions that would serve to clarify either role requirements or the mix of inducements offered employees. As a consequence, the prospects may either (a) not apply for jobs for which they are qualified or (b) apply for jobs for which they are not qualified. If the latter occurs, e-systems may generate many more applications than traditional systems, but they may not be from the most qualified applicants. Although there has been some research on e-recruiting systems (Stone, Johnson et al., 2005; Stone, Lukaszewski et al., 2005), we know of no research that has explicitly examined the impact that decreased social interactions might have on the effectiveness of these systems. Therefore, we propose the following hypotheses:

**H3.** E-recruiting systems will be less effective in clarifying role requirements and inducements than traditional recruitment systems.

**H4.** E-recruiting systems will give prospects or job applicants fewer opportunities to convey full information about their KSAOs than traditional recruiting systems.

**H5.** E-recruiting systems will be less likely to attract prospects who can meet role requirements than traditional recruiting systems.

### 2.4. Perceived control

Although there may be a number of reasons for the differences in the use of e-recruiting systems, our model suggests that some prospects may not use such systems because they decrease perceptions of control. For example, prospects who have low levels of computer ability may perceive they have little control in using such systems. Consistent with this argument, research on the digital divide shows that women often have lower levels of computer self-efficacy and are less likely to use computers than are men (Miura, 1987; Whitley, 1997). In addition, it indicates that some ethnic minorities (e.g., African-Americans and Hispanic-Americans) have less access to computers and are less likely to use them than are Anglo-Americans or Asian-Americans (Johnson, Stone, & Phillips, 2005). In view of these findings and the logic of our model, we advance the following hypothesis:

**H6.** The greater the degree to which individuals have computer self-efficacy, the more likely they will be to (a) accept and (b) use e-recruiting systems.

Another reason that women and some ethnic minorities may be less likely to use e-recruiting systems is that the same systems may be incongruent with their values and needs. For instance, research by Stone, Johnson et al. (2005) shows that women, African-Americans and Hispanic-Americans have stronger relationship-oriented needs and values
than Anglo-American men. As a result, women and some ethnic minorities may perceive that e-recruiting systems are impersonal, and have lower potential to meet their needs for social interactions than traditional systems. In light of these findings, we offer the following hypothesis.

**H7.** The greater the degree to which prospects value social relationships, the less likely they will be to use or accept e-recruiting.

Given that e-recruiting systems may be incompatible with the values and abilities of members of some social groups, the use of such systems in organizations may inadvertently decrease the diversity of organizational members. One way in which this may occur is that the same systems may prevent individuals with low socio-economic status from applying for jobs because these individuals often lack access to computers. Thus, we believe that organizations should work to ensure that their recruitment methods attract all qualified prospects, rather than those who have access to and the ability to use computers. Strategies for enhancing the acceptance of eHR systems are considered in a subsequent section of this article.

### 2.5. Acceptance of e-recruiting

Our model posits that acceptance and effectiveness of e-HR systems is a joint function of system characteristics and individuals’ beliefs, attitudes, intentions, and behaviors. For example, the acceptance and use of e-recruiting systems will be influenced by the degree to which prospects perceive that they will facilitate the attainment of their job- and career-related goals (Ajzen & Fishbein, 1980). Interestingly, research on the acceptance of e-recruiting shows that job applicants (referred to hereinafter as applicants) continue to prefer traditional recruitment sources (especially newspaper ads and employee referrals) to e-recruiting (Galanaki, 2002; McManus & Ferguson, 2003; Zusman & Landis, 2002). Although no explanations were offered for the findings of these studies, our model suggests traditional recruiting systems may be preferred because they provide prospects with the opportunity to obtain customized information about various factors (e.g., role requirements, inducements).

Research and theory also suggest that individual differences (e.g., culture-based differences in values) may influence the acceptance and use of e-recruiting systems (Stone-Romero, 2005). For example, e-recruiting is more likely to be used by young, highly educated, white job candidates than those who are older, less well-educated, or members of ethnic minority groups (Galanaki, 2002; McManus & Ferguson, 2003). Illustrative of this, a study by Kuhn and Skuterud (2000) showed that (a) only 7% of Hispanic-Americans and 9% of African-Americans use e-recruiting systems to search for jobs, and (b) women are less likely to use web-based recruiting systems than are men.

### 3. E-selection

Selection systems are important because they are one of the means that organizations use to increase the likelihood of incumbents meeting role requirements. Such systems may rely on a variety of specific strategies (e.g., interviews, ability tests, personality measures) for assessing the degree to which applicants have criterion levels of KSAOs. Interestingly, an increasing number of organizations are using the Internet to both (a) assess applicants’ KSAOs, and (b) evaluate the effectiveness of selection systems (Kehoe, Dickter, Russell, & Sacco, 2005). For example, a recent study revealed that 12% of companies surveyed use online selection systems (Recruitsoft/Logos, cited in Cappelli, 2001). Such systems typically allow (a) applicants to submit resumes or complete applications online, (b) organizations to use sophisticated software to scan applications for key job-related information, and (c) applicants to get very rapid feedback about their suitability for jobs.

Organizations use online testing for a number of purposes. Some use it to assess the KSAOs of applicants in a cost-effective manner. For instance, Home Depot recently placed kiosks in stores to test applicants, and reported saving $135 per applicant in administrative costs (Gueutal & Falbe, 2005). In addition, they found an 11% reduction in turnover among candidates who were tested at the kiosks.

Other organizations use e-selection systems to conduct online interviews or simulations that are designed to assess the critical thinking or decision-making skills of applicants (e.g., Price-Waterhouse Coopers; cited in Cappelli, 2001). Still other organizations (e.g., Texas Instruments) provide applicants the opportunity to complete online self-assessments of personality. The purpose of doing so is to assess the degree of fit between the applicant’s traits and the organization’s culture.
3.1. Effectiveness of e-selection systems

Our model suggests that the values and goals of an organization are important determinant of the nature e-selection systems. Such systems will be effective to the extent that (a) they promote such values and goals and (b) the attitudes, intentions, and behaviors of individuals are supportive of the systems. For example, for e-selection to be effective it must enable organizations to hire individuals who are capable of meeting role requirements and are willing to work in the interest of the organization’s goals. Interestingly, despite the widespread use of e-selection systems, there has been very little research on their effectiveness (Kehoe et al., 2005).

3.2. Information flows

Researchers have argued that e-selection systems are beneficial because they allow organizations to directly collect large amounts of predictor information about applicants from the applicants or other sources and use it in networked data bases (Stone et al., 2003). For instance, organizations can quickly conduct online background checks to assess the backgrounds and experiences of applicants. As a result, they may be able to make more informed selection decisions. E-selection also may be beneficial to applicants in that applicants can apply forjobs easily through either Internet or intranet based systems. Thus, e-selection has the potential to both increase the efficiency of the selection process and provide applicants with an easy means of applying for jobs (Kehoe et al., 2005). Regrettably, there is virtually no research on the just noted issues. Therefore, we present the following hypotheses to guide research:

H8. E-selection systems allow organizations to collect greater amounts of data about the KSAOs of individuals than traditional selection systems.

H9. E-selection systems make it easier for applicants to apply for jobs than traditional selection systems.

In spite of the just-offered arguments, some researchers argue that e-selection systems may not always enable the organizations to hire the most qualified individuals (Jones & Dages, 2003; Mohamed, Orife, & Wibowo, 2002; Stone et al., 2003). For instance, Mohamed et al. (2002) maintain that key word scanning systems may not provide highly relevant information about individuals because they are not always based on a job analysis. In addition, they contend that applicants may distort key word systems by choosing words for their resumes that match words in either job descriptions or organizational mission statements. As a result, rather than selecting applicants who are most qualified for jobs, resume scanning systems may select applicants who are most capable of intuiting and using the right words in applications.

Still other researchers argue that online testing systems may not predict job success because the tests are often completed with no monitoring of test takers (Chapman & Webster, 2003; Stone et al., 2003). As a result, there is no way of ensuring that applicants complete tests honestly (e.g., without assistance from others). In an effort to deal with this, some firms use confirmatory tests before final job offers are made. However, there is still a great deal of uncertainty about the impact that online testing has on the selection process (Kehoe et al., 2005). For instance, applicants who complete online tests in an honest manner may have less of a chance of being interviewed for a job than those who do not. Thus, organizations that use online testing without monitoring may make more classification (selection) errors (e.g., false positives, false negatives) than those that use traditional selection systems.

3.3. Social interactions

Our model suggests that a major problem with e-selection systems is that they decrease social interactions and modify the norms of social systems (e.g., those relating to honest communication). As a result, applicants may be more likely to embellish or falsify data in the application process when electronic systems (e-systems) are used than when traditional face-to-face systems are used. The primary reason for this is that the norms or consequences of falsifying data may be much less explicit in electronic settings than in traditional social settings. For instance, in a traditional social setting applicants may perceive that they will experience embarrassment or be ostracized if another person catches them cheating on an employment test. However, they may less likely to perceive they will suffer these consequences if they cheat on a test that is administered electronically. In support of this argument, social psychological research on disclosure suggests individual are more likely to fabricate data when talking to strangers than family or close friends (Jourard & Lasakow, 1958).
In addition, organizations may be less likely to inform (implicitly or explicitly) applicants of the consequences of falsifying data in the selection process (e.g., loss of job opportunities) when e-systems are used than when traditional systems are used. In organizational social settings, people monitor the administration of employment tests, and can inform test takers of the consequences of cheating. However, when tests are administered electronically, there are no live monitors or associated normative controls. As a result, applicants may be more likely to cheat on tests when firms use electronic testing systems than traditional systems. In addition, they may be more prone to provide false information when it is supplied to an organization electronically than in a face-to-face encounter with an HR specialist. Consequently, e-selection systems may be less likely to promote the achievement of selection goals than traditional selection systems. Unfortunately, there is no research on these issues. Therefore, we offer the following hypotheses to guide research:

**H10.** Applicants will be more likely to (a) cheat on tests, and (b) falsify data when e-selection systems are used than when conventional selection systems are used.

**H11.** E-selection systems will be less likely to help organizations meet their selection-related goals (i.e., select individuals who can meet role requirements) than traditional selection systems.

### 3.4. Perceived control

Our model posits that the acceptance of e-selection systems may depend on the degree to which applicants perceive they can control information in the selection process (Stone & Stone, 1990). The reasoning here is that e-selection systems may enable organizations to collect large amounts of data about applicants, including background information, credit reports, and medical history. As a result, applicants may perceive they have less control over personal information when e-systems are used than when traditional selection systems are used. In addition, applicants may perceive that relative to traditional selection systems, e-selection systems are more likely to reveal embarrassing or stigmatizing information (e.g., credit problems, juvenile transgressions) that will prevent them from getting jobs. Consequently, applicants may perceive e-selection systems to be more invasive of privacy (Stone & Stone, 1990) than traditional selection systems.

E-selection systems may also limit the extent to which applicants can manage positive impressions in the selection process (Stone & Stone, 1990). For example, such systems may give them fewer opportunities to emphasize their interpersonal or communication skills than traditional systems (e.g., face-to-face interviews). As a result, applicants may have fewer opportunities to get jobs when e-selection systems are used than when conventional systems are used. Regrettably, there is no research on applicants’ reactions to e-selection systems. However, results of a study by Stone-Romero, Stone, and Hyatt (2003) show the lesser the degree to which selection systems enable applicants to manage positive impressions or control the dissemination of personal information, the more negatively individuals react to the systems.

In view of the widespread use of e-selection and the lack of research on it, we advance the following hypotheses:

**H12.** The greater the degree to which applicants perceive that e-selection systems will enable them to attain their goals, the more likely they will be to accept and use them.

**H13.** The greater the degree to which applicants perceive that e-selection systems limit their ability to (a) control the release of personal information and (b) manage positive impressions, the lesser their acceptance and use of such systems.

**H14.** Applicants will be more likely to perceive that e-selection systems are invasive of privacy than traditional selection systems.

### 3.5. Acceptance of e-selection systems

As our model suggests, the acceptance and use of e-selection systems is a function of the extent to which they enable individuals to meet their goals. For instance, the greater the degree to which applicants believe that such systems will allow them to get jobs, the more likely they will be to accept and use such systems. Interestingly, despite the widespread use of e-selection, very little research has examined their acceptance by applicants (Kehoe et al., 2005). Interestingly,
however, research by McManus and Ferguson (2003) shows that some ethnic minorities (e.g., African Americans) prefer online selection systems to traditional systems. One potential reason for this finding is that African-Americans may perceive e-selection systems to be more objective and less discriminatory than traditional selection systems (McManus & Ferguson, 2003). Similarly, Stone and Williams (1997) have argued that people with disabilities may be more likely to prefer e-selection systems to conventional systems because the e-systems can be modified to meet their needs (e.g., enlarged font sizes on computer screens).

4. E-performance management systems

The primary goal of a performance management system is to control employee behavior, ensuring its alignment with organizational goals. The typical system has subsystems devoted to (a) establishing performance standards, (b) assessing employee performance, (c) providing feedback to employees about the degree to which the performance standards are being met, and (d) taking remedial action if performance does not meet standards. In order to meet the overall goal of controlling employee behavior, many organizations now use e-systems to facilitate the performance management process. These systems typically help managers measure performance, write performance reviews, and provide feedback to employees (Cardy & Miller, 2005; Stone et al., 2003). For instance, computerized performance monitoring (CPM) systems facilitate the measurement of performance by keeping counts of such variables as number of work units completed, key strokes, time spent on tasks, and error rates. CPM is increasing in use and some estimates indicate that CPM systems are used to monitor the work of over 40 million workers. One of the many reasons for organizations using such systems is that they allow for greater spans of control and eliminate the need for managers to spend time observing the behavior of employees and assessing their performance (Cardy & Miller, 2003).

Electronic performance management systems also help managers compose and write appraisals (Cardy & Miller, 2003). For example, they simplify the process of completing appraisal forms through the use “canned” sentences and paragraphs. One benefit of this is that managers can evaluate employees more frequently than once a year (Cardy & Miller, 2003). In addition, e-systems are also used to assist managers with the provision of feedback to employees. For instance, intranet systems are now being used for multi-rater or 360° feedback (Cardy & Miller, 2003). More specifically, such systems send emails to raters and ask them to complete online evaluations of the performance of ratees. The resulting data are merged and feedback is provided to the ratees. With such systems, employees can receive feedback from multiple raters in a timely manner, and the information can be used to enhance their performance.

E-performance management systems also can be used to track and compare unit (e.g., group, plant) performance with respect to such criteria as attendance, tardiness, grievances, and turnover (Stone et al., 2003). The unit-level data can be used to (a) identify human resource problems, (b) highlight exceptional performance, (c) uncover potential rating errors (e.g., leniency, central tendency), and (d) provide feedback to managers on the incidence of such errors.

4.1. Effectiveness of e-performance management systems

As noted above, our model suggests that the effectiveness of e-performance management systems is determined by the degree to which their design is predicated on relevant and appropriate organizational goals. For example, to be effective they should serve to control employee behavior, ensuring that individuals performing in accordance with role requirements. Despite the increased use of such systems, little research has focused on their effectiveness (Ambrose, Alder, & Noel, 1998; Cardy & Miller, 2003).

4.1.1. Information flows

Extant research on e-performance management systems suggests that they may enhance the efficiency of the process by increasing the organization’s ability to collect data about the performance of incumbents (Cardy & Miller, 2003). In addition, such systems may increase the frequency with which performance feedback is provided to them (Cardy & Miller, 2005). As a result, the same systems are thought to increase the flow of performance information in organizations.

Although e-performance measurement systems may increase the flow of performance information, many of these performance measurement systems (e.g., CPM) can only be used for low level jobs with objective performance standards. As a result, these systems may not enable organizations to measure the performance of incumbents in high-level positions (Stone et al., 2003). In addition, e-performance management systems may not have the capacity to measure all of the behaviors that workers must perform for an organization to be successful. For instance, these systems often measure the
quantity, but not the quality, of products and services produced by incumbents. What’s more, such systems have little or no capacity to assess organizational citizenship and cooperation. As a result of providing deficient criterion data (Cascio & Aguinis, 2006; Smith, 1976; Stone-Romero, 1994), the same systems may not be as useful in terms of organizational goal attainment as traditional systems.

Regrettably, little research has examined the effectiveness of e-performance management systems. Therefore, we offer the following predictions:

**H15.** E-performance management systems will enable organizations to measure some criteria more accurately than traditional systems.

**H16.** E-performance management systems will enable organizations to provide more frequent feedback to individuals than traditional systems.

**H17.** E-performance management systems will be more likely to produce deficient criterion data on incumbent behavior than traditional systems.

### 4.1.2. Social interactions

It seems reasonable to argue that e-performance management systems will decrease social interaction in organizations, adversely affecting both the quantity and quality of communication between incumbents and their role set members (Katz & Kahn, 1978). This is important because role set members develop expectations about the performance of incumbents, and may provide ratings of their performance.

Many eHR systems replace face-to-face interaction with electronic communication. As a result, incumbents may not be able to ask questions of role senders or otherwise clarify role expectations. Therefore, the incumbents may have a reduced ability to meet the requirements of their roles. In addition, e-systems may increase the psychological distance between incumbents and role senders, negatively affecting levels of interpersonal trust (Cardy & Miller, 2005). As a result, when e-performance management systems are used, incumbents may be less likely to attend to feedback from role senders and modify their behaviors in response to it than when traditional systems are used.

Unfortunately, there is almost no research on the effectiveness of e-performance management systems. Therefore, we advance the following hypotheses:

**H18.** E-performance management systems will lead to communication of lower quality and accuracy than traditional performance management systems.

**H19.** The use of e-performance management systems will be negatively related to the quality of supervisory–subordinate relationships and trust levels.

**H20.** The feedback provided by e-performance management systems will be less likely to enhance the performance of incumbents than that provided by traditional feedback systems.

### 4.2. Perceived control

Interestingly, some research suggests that e-performance management systems increase satisfaction levels because they provide incumbents with greater amounts of feedback and control over their performance than traditional systems (Cardy & Miller, 2005). However, other studies indicate that the same systems reduce the freedom and control levels of individuals. For instance, the results of one study indicate that individuals whose performance is monitored by computers have lower satisfaction and higher anxiety than people who are monitored by supervisors (Ambrose et al., 1998). This may stem from the impact that e-monitoring has on individuals beliefs about their privacy being invaded by e-systems (Ambrose et al., 1998; Stone & Stone, 1990).

Theory and research suggest that e-performance management systems may elicit resistance on the part individuals, and motivate them to supply inaccurate data and/or engage in rigid bureaucratic behavior (Brehm, 1972; Katz & Kahn, 1978; Lawler, 1976; March & Simon, 1958). Consistent with this theory and research, our model suggests that the use of e-performance management systems may meet considerable resistance from incumbents because the systems threaten their ability to satisfy their needs and goals. For instance, e-performance systems may decrease the autonomy of incumbents, especially if the systems provide rigid specifications of the way work should be performed (Lawler, 1976). In addition, they
may threaten social needs because they decrease social interactions and opportunities for face-to-face communication. Furthermore, they may threaten incumbents’ security needs because they change status and power relationships (Lawler, 1976). For example, individuals in supervisory roles may perceive that e-systems will make many of their supervisory skills and responsibilities superfluous. Interestingly, although we argued above that individuals may derive satisfaction from these systems because they increase feedback levels, along with others (e.g., Lawler, 1976) we believe, that feedback may not compensate for the lack of autonomy, security or social interactions inherent in these systems. Thus, we predict that individuals will react negatively to e-performance systems when they serve to block goal attainment.

As noted above, e-performance monitoring systems may lead employees to behave in rigid ways that make them look good vis-a-vis the systems, but do not promote organizational effectiveness (Katz & Kahn, 1978; Lawler, 1976; March & Simon, 1958). We believe that this sort of behavior will be especially likely when the systems focus on deficient criteria (Cascio & Aguinis, 2006; Stone-Romero, 1994); that is, they fail to adequately assess all the behaviors necessary for individual or organizational success (e.g., teamwork, altruistic behaviors). For example, when e-monitoring systems are used to count the numbers of calls completed in a call center, an increase in the quantity of calls taken may serve to decrease the quality of service provided to customers. As a result, the use of e-performance management systems that appear functional in the short-run may be dysfunctional for organizations in the long-run.

In addition, e-performance monitoring systems may lead incumbents to provide invalid data about the performance of members of their organizational role sets (Lawler, 1976). For instance, in multi-rater systems individuals may provide negatively biased ratings of the performance of their coworkers (e.g., peers, subordinates, supervisors) in the hopes of enhancing others’ evaluations of their own performance.

In spite of the increased use of e-performance management systems, little empirical research has examined individuals’ acceptance of these systems. Therefore, we offer the following hypotheses:

**H21.** Incumbents will be (a) less satisfied and (b) more resistant to e-performance management systems than traditional performance management systems.

**H22.** Incumbents will be more likely to (a) engage in rigid bureaucratic behaviors and (b) provide inaccurate data when e-performance management systems are used than when traditional performance management systems are used.

**H23.** Incumbents will be more likely to perceive that e-performance management systems are invasive of privacy than traditional performance management systems.

### 4.3. Acceptance of e-performance management systems

Our model suggests that the acceptance of e-performance management systems depends on the extent to which incumbents view them as facilitating the achievement of their goals (Stone-Romero, 2005). Regrettably, very little research has focused on the acceptance of e-performance management systems (Ambrose et al., 1998; Cardy & Miller, 2005; Stone et al., 2003), and the results of this research have been mixed. Thus additional research is needed on this issue. It should focus on both the organizational and individual determinants of acceptance (Stone-Romero, 2005).

### 5. E-compensation systems

E-compensation systems are used for such purposes as developing and implementing pay systems, providing benefits, and evaluating the effectiveness of compensation systems (Dulebohn & Marler, 2005; Stone et al., 2003). As our model suggests, such systems will be effective to the degree that are developed in the light of and function in the service of organizational goals. Thus, for example, such systems will be effective if they provide individuals with rewards and other inducements that enhance their motivation to meet or exceed role expectations.

#### 5.1. Development of pay systems

Organizations typically develop pay systems by (a) identifying the important characteristics of jobs through job analysis, (b) determining the relative worth and compensable factors associated with jobs through job evaluation, (c) translating job evaluation points into a pay structure by surveying pay rates in relevant labor markets, and (d) attaching dollar values to jobs. E-compensation systems facilitate this process in a variety of ways (Dulebohn & Marler, 2005). First, they allow HR
managers to collect job analysis data through online questionnaires. The systems automatically collect job analysis data from subject matter experts (e.g., incumbents, supervisors), summarize the data, and generate standardized job descriptions. In addition, they convert the job analysis data to job evaluation point scores. Furthermore, they integrate the job evaluation point scores with online labor market data. Then they use the data to create pay grades and establish pay levels in organizations.

5.2. Benefits

E-compensation systems are also used to communicate data about benefits options to employees, and give them the opportunity to select benefit plans online (Gueutal & Falbe, 2005; Stone, Johnson et al., 2005; Stone, Lukaszewski et al., 2005). In fact, research shows that 85% to 95% of eHR applications focus on compensation and benefits (Gueutal & Falbe, 2005). Although benefits are often over 40% of the total costs of compensation, employees are not always aware of the types of benefits offered by organizations (Cascio, 2006). One reason for this is that information about benefits is often buried in large employee handbooks or orientation packets.

Online systems also facilitate the use of cafeteria or flexible benefits systems. They typically use employee self-service systems (ESS) that give employees the opportunity to alter their benefit packages as their needs change (Gueutal & Falbe, 2005). As a result, such systems may meet employees’ needs to a greater degree than traditional benefits systems.

5.3. Modeling the impact of compensation systems

E-compensation systems also allow managers to develop budgets, model the impact of incentive systems, and ensure the fairness of salary allocation decisions (Dulebohn & Marler, 2005; Stone et al., 2003). For instance, such systems give managers access to salary data that can be used for budgeting and modeling the costs of incentive systems with different components (e.g, profit sharing, merit increases, stock options). Furthermore, these systems can be linked to e-performance management systems, increasing the odds that pay raises are based on employee performance. Moreover, they can be used to ensure that compensation systems have internal and external equity (Dulebohn & Marler, 2005). Interestingly, research shows that high performing companies are more likely to share details about their compensation systems with employees than low performing companies (Gherson & Jackson, 2001). In addition, research reveals that individuals have higher satisfaction and retention levels when pay systems are perceived as fair (Bergmann & Scarpello, 2002).

5.4. Effectiveness of e-compensation systems

Our model suggests that the effectiveness of e-compensation systems depends on the extent to which they allow organizations to provide rewards that enhance the motivation and performance of incumbents. In spite of the widespread use of such systems, little research has assessed their effectiveness (Dulebohn & Marler, 2005; Gueutal & Falbe, 2005).

5.4.1. Information flows

Not surprisingly, some research shows that e-compensation systems streamline compensation processes and increase the extent to which organizations can access and disseminate information about compensation and benefits (Dulebohn & Marler, 2005). For instance, relative to traditional systems, they allow organizations to more easily collect job analysis and job evaluation data. In addition, they give organizations access to salary survey data that were formerly available only in paper publications (Dulebohn & Marler, 2005). As a result, these systems enable organizations to ensure that salaries are competitive in the labor market.

E-compensation systems are thought to have a number of other benefits, including giving (a) employees greater access to benefits data and offer them greater control over their benefits (Gueutal & Falbe, 2005), and (b) managers greater access to compensation data, and enabling them to make better salary allocation decisions (Dulebohn & Marler, 2005). Unfortunately, research has not tested these predictions. Therefore, we propose the following hypotheses:

H24. Relative to traditional compensation systems, e-compensation systems will increase the capacity of organizations to (a) access data, and (b) maintain competitive salary systems.

H25. Relative to traditional compensation systems, e-compensation systems will give incumbents greater access to compensation and benefits data.
5.5. Social interactions

One potential dysfunctional consequence of e-compensation systems is a reduction in face-to-face interactions in organizations. For instance, such systems may increase the extent to which information about salary or pay raises is communicated electronically rather than through face-to-face meetings with supervisors. Similarly, they may decrease the degree to which supervisors discuss the reasons for pay raises or merit allocations with incumbents. As a result, incumbents may be less likely to perceive that their pay raises are fair with e-compensation systems than with traditional systems. As a result, incumbents may be less satisfied with pay raises and less motivated to enhance their performance under e-compensation systems than under traditional systems.

E-compensation systems may lead to another dysfunctional consequence; that is, they may decrease the degree to which individuals have access to help with benefits from knowledgeable HR professionals (Bloom, 2001). As a result, employees may not have the information needed to make informed benefits decisions or select the types of benefits that meet their needs. Regrettably there is almost no research on the effectiveness of e-compensation systems. Therefore, we offer the following hypotheses to guide future studies:

**H26.** Employees will be (a) less satisfied and (b) less likely to perceive that pay systems are fair when information about pay increases is communicated via e-compensation systems than through the face to face interactions of traditional systems.

**H27.** Employees will be (a) less satisfied with benefits and (b) less likely to perceive that benefits meet their needs when e-compensation systems are used than when traditional compensation systems are used.

5.6. Perceived control

Our model suggests that incumbents’ perceptions of control over e-compensation systems will influence their acceptance of these systems. Interestingly, some researchers (Gueutal & Falbe, 2005) argue that online benefits systems may give individuals greater control over their benefits than traditional systems. The reason for this is that they use employee self-service systems that allow individuals to change benefits (e.g., investments in retirement plans, type of health care coverage, enrollment in childcare programs) any time of the day or night (Gueutal & Falbe, 2005). Unfortunately, there is no research on the effects that such systems have on incumbents’ perceptions of control over information. Therefore, we posit that:

**H28.** Incumbents will report greater levels of control over benefits allocation when e-compensation systems are used than when traditional compensation systems are used.

5.7. Acceptance of e-compensation systems

We posit that the acceptance of e-compensation and benefits systems will be a function of the degree to which they enable incumbents to achieve their goals. All else constant, the greater the more such systems serve to increase the workload of incumbents, the lesser will be their satisfaction with and acceptance of such systems. Thus, another potential dysfunctional result of the use of e-compensation systems is an increase in incumbent workload (Stone et al., 2003). The reason for this is that such systems shift responsibility for updating employee records and benefit plan options from the HR office to the incumbent. As a result, we posit that to the degree that e-compensation systems increase the workloads of incumbents, their satisfaction with and acceptance of such systems will decrease. However, no research has directly tested this prediction. Thus, we advance following hypothesis:

**H29.** To the degree that e-compensation systems increase the workload of incumbents, their satisfaction with and acceptance of such systems will decrease.

6. Summary

In summary, eHR systems have the potential to yield a number of functional and dysfunctional consequences for both individuals (e.g., prospects, applicants, incumbents) and organizations. In addition, there are several important determinants of the degree to which such systems will be both accepted by individuals and will result in functional consequences. First, they should promote bi-directional flows of valid information between and among individuals and
the systems. Second, they should allow for sufficient types and levels of social interaction between and among individuals. Third, they should not threaten the perceived control of incumbents. At a more general level, the acceptance and effectiveness of eHR systems will be enhanced to the degree that there is congruence between the values and goals of individuals and those of organizations.

Along with others (Gueutal & Falbe, 2005; Stone-Romero, 2005), we believe that properly designed eHR systems have the potential to increase organizational efficiency. For instance, they may increase an organization’s ability to access, collect, and disseminate information. In addition, they may give individuals greater access to information about job opportunities, benefits, and performance feedback. Nevertheless, such systems may lead to a number of dysfunctional consequences. For example, they may decrease social interactions and negatively affect the quality and accuracy of information about organizational expectations, incumbent performance, and compensation. In addition, they may decrease the degree of perceived control of incumbents and increase the degree to which the systems are viewed as invasive of privacy. As a result, system acceptance may suffer, leading to reduced organizational efficiency and effectiveness. In view of these and other potential outcomes of eHR systems, we offer a number of recommendations for enhancing the functional consequences of such systems in the paragraphs that follow.

7. Strategies for enhancing the effectiveness and acceptance of eHR systems

A number of strategies might be used to increase the effectiveness eHR systems. We offer a few recommendations for achieving this goal. First, we urge organizations to use what might be called “blended” HR systems, i.e., systems that combine eHR systems with traditional HR systems. For instance, organizations might allow applicants to apply for jobs online, but use interactive systems to give applicants the opportunity to clarify role requirements with recruiters or current employees. Similarly, organizations might use eHR systems to collect performance data and write performance reviews, but continue to have supervisors provide feedback to ratees in face-to-face meetings. Likewise, organizations might collect data about the KSAs of applicants online, but administer employment tests at a site where the applicants can be monitored.

Blended systems may also be helpful in terms of reducing the extent to which HR systems lead to perceived losses of freedom and control in organizations. For instance, organizations might give applicants the choice between the use of a traditional or an e-selection system. This may enable individuals to present more detailed information about their KSAs. In addition, it may enhance the capacity of organizations to make valid sound selection decisions.

Perceptions of control can also be increased by e-selection systems that are both easy to use (e.g., touch screen systems, kiosks), and do not require high levels of computer-related KSAs. Such systems will allow individuals who are not very proficient with computers to access information about jobs and apply for them.

Perceived control can also be enhanced through fair information policies (Stone & Stone, 1990; Stone & Stone-Romero, 1998; Stone-Romero, 2005). Such policies should limit the numbers and types of individuals who can gain access to information about data subjects (e.g., incumbents). In addition, to the extent possible, they should allow data subjects control over the dissemination of personal information (Stone et al., 2003; Stone & Stone, 1990; Stone & Stone-Romero, 1998; Stone-Romero, 2005). Moreover, data subjects should have the ability to access and correct invalid information in eHR systems. Taken together, these strategies should decrease the extent to which eHR systems are perceived as invasive of privacy.

We also recommend that organizations minimize the use of computerized monitoring systems that greatly limit an individual’s freedom and control in organizations (Stone & Stone-Romero, 1998). For example, they might enhance both productivity and employee well-being by allowing employees discretion over the way tasks are performed (Hackman & Lawler, 1971; Stone, 1976). It merits emphasis that with strategy incumbents would continue to have accountability for meeting role requirements, the added discretion should lead to reductions in stress levels (Frankenhaeuser, 1978). Furthermore, it should enhance individuals’ satisfaction levels, and decrease the degree to which they engage in dysfunctional bureaucratic behavior (Katz & Kahn, 1978).

Finally, we recommend that organizations expand definitions of performance to include all of the behaviors of incumbents that are likely to have a measurable, positive impact on important criteria (Borman, 1991; Katz & Kahn, 1978). For instance, a broader definition of performance would not only consist of the quantity of work performed, but all those behaviors that increase the welfare of the individual, group and organization (e.g., providing guidance to others, altruistic behaviors, teamwork).

In concluding this article we stress that eHR systems are being used increasingly by organizations in the United States and other countries. Their use is often predicated on unproven claims about their functional consequences. This
is unfortunate because, as we have detailed here, the same systems may also lead to a number of dysfunctional consequences. Thus, we urge that well-designed studies be conducted to test the many hypotheses offered in this article. The results of such studies will provide valuable knowledge that can be used to design and implement eHR systems that promote the welfare of both individuals and organizations.

References


