

## **ELECTRONIC PORTFOLIOS IN RECRUITING? A CONCEPTUAL ANALYSIS OF USAGE**

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### **ABSTRACT**

Electronic portfolios constitute a prominent educational innovation which aims at the systematic self-controlled development of qualifications based on a meaningful collection of electronic items. As a commonly supposed interesting side effect, literature supposes e-portfolios also as particular suitable tools for recruiting employees, while systematic studies are missing. The current paper therefore critically examines this view using a parsimonious model of technology acceptance and uncovers diverse usage conditions. As the main result, recruiting e-portfolios have to be understood as a distinctly ambivalent concept, adoptable only in a restricted and contingent way, while there are several organizational and particularly technical measures that could improve future e-portfolio usage in recruiting.

Keywords: electronic portfolios, recruiting, electronic HRM, technology acceptance

### **1. Introduction**

For some time past, electronic portfolios (also digital, virtual, web or online portfolios) have been constituting a prominent educational innovation which aims at the systematic self-controlled development of qualifications [e.g. Carney 2004; Abrami and Barrett 2005; Carliner 2005; Butler 2006]. Following the idea of portfolios in visual arts, relevant qualifications should be comprehensively planned, successively developed and systematically documented based on a meaningful collection of electronic items. Concordantly, the self-controlled way of learning with (co-) determination and development of learning objectives and content along with the self-reflective evaluation of learning outcomes by the learner is seen as the major advantage of the concept. Regarding the range of application, e-portfolios are understood as a broadly applicable concept which can be used from primary schools to postgraduate professional education to support the development of all kinds of qualifications. A large number of practitioner reports indicate a generally widespread and increasing adoption of e-portfolios. Moreover, there are diverse (inter)national e-portfolio initiatives, for instance the “e-portfolios for all”-initiative which pursues an ambitious target of a midterm exhaustive availability of e-portfolios within the European Union [European Institute for e-Learning 2009].

As a consequence of increased usage and widespread approval, e-portfolios are frequently also seen as a particular suitable tool for employers to recruit employees. Commonly, this is justified based on the improvement of information that should empower employers to find applicants that possess exactly the specific qualifications they need [e.g. Powell and Jankovich 1998; Arnaud 2006; Abrami and Barret 2006; Lyons 2008; Woodbury et al. 2008]. Given ever-increasing requirements in identifying qualified individuals [e.g. Anderson et al. 2004] e-portfolios indeed may contribute to recruiting. Since the growing research on e-portfolios is mostly done by educational disciplines [see e.g. Jaafri and Kaufmann 2006; Cambridge et al. 2008], this, however, is hardly examined at present. There are a few empirical studies that address the usage of e-portfolios in recruiting, mostly in an explorative and qualitative manner [Temple and Temple 2003; Leece 2005; Mosely 2005; Brammer 2007; Ward and Moser 2007; Brady 2008; Gehris and Fundaburk 2008]. Yet, the results are few and opposing, as findings reveal that employers consider e-portfolios as both particularly suitable [e.g. Brammer 2007] and obviously impractical [e.g. Brady 2008] for recruiting purposes.

The current paper hence aims at the first general evaluation of e-portfolio usage in recruiting. Supposed that e-portfolios constitute a quite unfamiliar tool in current recruiting, the concept is firstly generally depicted and peculiarities of e-portfolios in recruiting are elaborated (chapter 2). Subsequently, it is analyzed whether and which characteristics of e-portfolios basically match with major theoretical usage conditions, while propositions

concerning usage are derived (chapter 3). Based on this, limitations and implications for future research and practice are discussed (chapter 4).

## 2. Depiction: Electronic Portfolio-Concept

### 2.1. Electronic Portfolios in General

An integrative e-portfolio definition is missing at present [e.g. Challis 2005; Grant 2005]. As a general approximation e-portfolios can be understood as

- a reflected and structured collection of electronic items,
- produced and used by a creator,
- with the help of information systems,
- in order to reach specific objectives.

Following this concept, e-portfolios are composed of *portfolio-items*. The first crucial item category is constituted by artifacts, which can be accompanied by statements, feedbacks and certificates among others. Artifacts are items that are neatly produced by the portfolio-creator and able to prove the process and/or the outcomes of his or her qualification development. Examples are learning-diaries, publications, work examples, learning-blogs, software code, written reports and learning-wikis among others. Statements are reflected propositions of the portfolio-creator concerning the objectives, procedures and/or outcomes of learning activities as well as personal values, interests, plans, etc. Examples are justifications of learning objectives or self-evaluations. Feedbacks are comments of persons participating in the qualification development of the portfolio-creator, such as lecturers or co-learners. Finally, certificates are formal confirmations of qualifications provided by participating institutions and organizations. Examples are high school diplomas or employers references. Due to their *electronic character*, items, hence, can be presented in the format of digital texts, pictures, videos or audio files among others [e.g. Kimeldorf 1999, Borgen et al. 2004, Gibson 2006]. E-portfolios, therefore, offer a richer, multimedia palette of items, which can also refer to newer web-based learning tools such as learning blogs or web feedback [e.g. Cambridge et al. 2008]. Additionally, the presentation of electronic items is not limited to a sequential order, but can also show a heterarchical or netlike structure if considered as appropriate. Because of electronic character, e-portfolios can be presented electronically, in particular, via e-mail or web access, while comprehensive search and navigation possibilities can facilitate the retrieval of information from the e-portfolio. Finally, the *reflected and structured way* of composing items to an e-portfolio is a central feature [e.g. Rees 2005]. A reflected procedure implies that portfolios are planned and made in a cognizant and justifiable way closely referring to the portfolio objectives. A structured presentation implies that portfolio-items are arranged in a systematic way again referring to the objectives of the portfolio [Challis 2005].

E-portfolios are developed by *portfolio-creators*, while individuals, groups and organizations can be distinguished. Portfolios that are made by individuals constitute the most common variety discussed in literature. However, within the frame of collaborative learning it becomes also possible to create group portfolios, while even entire organizations may create “institutional portfolios” [Lorenzo and Ittelson 2005]. As a rule, the creator of an e-portfolio simultaneously acts as its owner; hence, both terms are often used synonymously. However, there are also varieties with individuals as creators and educational institutions as owners of the e-portfolio [e.g. Heinrich 2008]. Therefore, the distinction between creator and owner of an e-portfolio is useful.

The creation and the subsequent utilization of e-portfolios are necessarily based on *information systems*. Since e-portfolios are not only developed and used by creators but also used by different organizations, it is supposed to distinguish individual and organizational e-portfolio functions, respectively individual and organizational e-portfolio systems [Ravet 2007]. *Individual functions (systems)* primarily support the portfolio-creator and refer to the planning, reflecting, organizing and publishing of e-portfolios. *Organizational functions (systems)* primarily support organizations in performing diverse e-portfolio related processes. For instance, certain functions support educational institutions in managing the development and the evaluation of qualifications or employers are supported in recruiting employees based on e-portfolios [Ravet 2007]. Besides specific e-portfolio systems (respectively learning management systems with specific e-portfolio modules) also more general systems (in particular authoring-, web design-, web content management-systems) are offered [Baker 2005; Richardson and Ward 2005; Sweat-Guy and Buzzetto-More 2007; Himpsl and Baumgartner 2009]. However, current systems emphasize in particular individual functions, while organizational functions are only marginally realized [Himpsl and Baumgartner 2009]. In order to enable the exchange of portfolio-items as well as of complete portfolios between diverse systems and/or organizations there are comprehensive technical standardization efforts for e-portfolios [IMS Global Learning Consortium 2005].

The creation of e-portfolios aims at serving different *objectives* [for a discussion of objectives Carney 2004; Barrett and Carney 2005; Abrami and Barrett 2005; Butler 2006]. However, there are only a few systematic

categorizations of e-portfolio objectives in literature, which in addition use rather heterogeneous category designations. Performing a content analysis of the respective category descriptions, however, uncovers quite analogous denotations of single categories while three major objectives – the development, the assessment, and the documentation of qualifications – could be derived [see Fig. 1].

literature categorizations			
Zeichner and Wray 2001	learning portfolio	credential portfolio	show case portfolio
Greenberg 2004	learning e-portfolio	structured e-portfolio	show case e-portfolio
Barret and Carney 2005	learning portfolio	accountability portfolio	marketing portfolio
Abrami and Barrett 2005	process portfolio	assessment portfolio	show case portfolio
Brady 2008	PDP* portfolio	assessment portfolio	presentation portfolio
	learning portfolio		
derived categorization			
	development oriented e- portfolio	assessment oriented e-portfolio	documentation oriented e- portfolio

\* personal development planning

Figure 1: Objectives-based categorizations of e-portfolios

Given the overall purpose of e-portfolios, the *development of qualifications* of course constitutes the first major objective therewith introducing development-oriented portfolios as the first category. Development-oriented portfolios are generally comprehensive and comprise of artifacts, statements and feedback as the main items, which should be generally orientated towards learning process and progress. Besides the portfolio-creator, educational institutions and co-learners constitute further target groups which use the portfolio to offer support and feedback to the creator. In addition, the *assessment of qualifications* constitutes an increasingly accepted portfolio objective. Here, e-portfolios serve corresponding educational institutions in examining the learning achievements – often in the run-up to a formal certification of qualifications. Such e-portfolios are of smaller scope and comprise especially artifacts and statements as items which are necessarily orientated towards the learning objectives that are to be certified. Finally, the *documentation of qualifications* serves to exemplify illustratively the acquired knowledge, skills and competencies to the third parties – prominently also to possible employers. Documentation-orientated portfolios show again a smaller scope of mainly result-orientated items. Besides, artifacts and statements, particularly, certificates play an important role. As long as the kind as well as the scope of included items differ considerably with regard to objectives, the possibility of a “multipurpose-portfolio” is deemed questionable [Smith and Tillema 2003; Barret and Carney 2005; Gibson 2006]. Accordingly, it is supposed to create different e-portfolios to serve different objectives, respectively, to create different portfolio-“views” based on a basic “working-portfolio” in order to realize different objectives [e.g. Arnaud 2006]. Given that e-portfolios are neither quick nor easy producible, it becomes evident that these goals will only be achieved based on a certain e-portfolio quality, while for instance fragmentary, ragged, faulty or faked e-portfolios of course will not support the respective goals. In literature this aspect is discussed as e-portfolio *maturity*, while it is proposed to judge maturity based on different evaluation criteria such as level of reflection, selection of items, or item content, among others [e.g. Love et al. 2004; Challis 2005]. A mature e-portfolio, for instance, demands that content demonstrates depth as well as breadth and actually reveals personality and thought of the creator [Challis 2005].

## 2.2. Electronic Portfolios in Recruiting

The above-mentioned discussion elucidates that in the context of recruiting in particular documentation oriented, individual, and creator-owned e-portfolios are imaginable while, to be more concrete, e-portfolios function as an alternative to current application credentials. Current literature uses different terms to designate such recruiting orientated e-portfolios. Besides “employment portfolios” [e.g. Temple and Temple 2003] or “job search portfolios” [e.g. Brammer 2007] also “career portfolios” [e.g. Woodbury et al. 2008] and “professional portfolios” [e.g. Mosely 2005] constitute commonly used expressions.

To demonstrate an applicant's qualification and motivation for a desired job artifacts, statements and certificates should regularly constitute the major items of recruiting orientated e-portfolios. Artifacts should offer deep information as well as evident confirmation of the knowledge, skills and competencies of the applying individual. Reflected self-statements may offer deeper insights into personality of the applying individual. Additionally, statements may also stem from the involved third parties such as co-learners and tutors, who again give information concerning the qualification and motivation of the applying individual. Finally, as a formal confirmation of qualifications provided by educational organizations certificates constitute further items. Overlapping with conventional application credentials also letters of application, resumes, applicant photos etc. can be incorporated as further items. An e-portfolio based application process can take place via mailing of an offline- or via activating an online-version of the e-portfolio which allows the employer to access the e-portfolio. However, systems which comprehensively offer e-portfolio-related recruiting functions to employers are missing at present. This applies in particular to functions which automatically extract meaningful information from e-portfolios [Ravet 2007], and for instance allow to rank, filter, and match applicants based on e-portfolios. Therefore, by now such information has to be “manually” extracted by recruiters using the navigation and search functions offered within a specific e-portfolio.

Like in other application domains, the utility of e-portfolios depends on their *maturity* also in recruiting. In the recruiting domain two specific aspects should be additionally relevant for maturity. Firstly, given that information requirements distinctly differ depending on specific jobs, organizations, and even recruiters, a mature portfolio should be customized towards the specific organizational information needs [e.g. Powell and Jankovich 1998; Temple and Temple 2003]. This customization of e-portfolios however is laborious for the creator and demands specific information concerning the actual information needs of the respective recruiting organization, which may not be fully met by current job advertisements. Secondly, also the authentication of e-portfolios is of relevance [e.g. Lougheed et al. 2004; Brady 2008; Chen-Wilson et al. 2009], since for instance artifact fakes, artifact plagiarism, or artifact “ghost-writing” of course seriously impact e-portfolio utility. Hence, the application of currently developing authentication measures [Chen-Wilson et al. 2009] should add to maturity of e-portfolios in recruiting.

Compared with other types of application credentials there are some similarities as well as clear differences of e-portfolios. Fig. 2 roughly compares the items, quality, carrier, transmission and analysis of information within common types of application credentials. Obvious differences refer to the scope and kind of incorporated information items and the resulting information quality. While current types are restricted to aggregated overview items, e-portfolios comprise of a broader set of items, which aim at deep and self-evident information concerning qualification and personality of an applicant. This is also supported by a variety of multimedia information carriers, which allow specific and adequate documentation of multiple facets of qualification and personality. Hence, e-portfolios surpass the usual application credentials in scope, depth as well as conclusiveness of offered information items. With respect to the analysis process, e-portfolios resemble the text-oriented types, while, given the scope of material, the analysis should turn out more complex and lengthy. Compared to analysis of structured data of web-based application form, a fully automated analysis is not possible at present.

	application credentials			
	application folder	e-mail / attachment	web-based application form	e-portfolio
(main) information items	CV certificates	CV certificates	application data	artifacts statements certificates ...
information quality	aggregated externally certified	aggregated externally certified	aggregated externally certified	profound self-evident
information carrier	paper	text-file (document)-file	data-file	(multimedia) portfolio-file
information transmission	postal	e-mail	web	e-mail / web
information analysis	manual	manual with search functions	automated	manual with search and navigation functions

Figure 2: Central types of application credentials

### 3. Discussion: Electronic Portfolio Usage

#### 3.1. Foundations of Usage

Considering that the use of e-portfolios in recruiting mandatorily implies the usage of information systems as depicted above, it becomes clear that the question of potential usage of e-portfolios in recruiting directly refers to the well-established domain of information systems adoption, diffusion or acceptance research [for an overview e.g. Jeyaraj et al. 2006; Venkatesh et al. 2007; Williams et al. 2009]. The current paper hence constitutes a further study concerning the potential adoption (diffusion or acceptance) of a certain type of information system (“e-portfolios”) in a certain new application area (“recruiting”), while the current lack of knowledge regarding this specific issue justifies the necessity of the study. Since the assumed current lack of familiarity and usage of e-portfolios in recruiting poses obvious limitations on empirically oriented work, the current paper aims at a theoretically oriented study. Given this, there is the possibility (and also difficulty) to choose from a set of several directly appropriate theoretical approaches of adoption (diffusion, or acceptance) research [see the overviews in Rattanasampan and Kim 2002; Jeyaraj et al. 2006; Bradley 2009; Mahfouz 2009; Williams et al. 2009]. So as to be appropriate, any theoretical foundation should meet the requirements of

- *domain fit* (allow for carving out major specifics of e-portfolios in recruiting),
- *confirmation* (well-established so as to allow for the derivation of valid propositions), and
- *parsimony* (allow for first central insights, rather than yielding a voluminous set of detailed propositions).

Though this still applies to several theories, as specific variety of the technology acceptance model in particular TAM 2 [Venkatesh and Davis 2000] should meet these requirements. Basically resting on the theory of planned behavior [Fishbein and Ajzen 1975], TAM initially explained the intention to use and the subsequent actual usage of information systems based on perceived usefulness and perceived ease of use [Davis 1989]. Perceived usefulness is understood as the extent to which a person believes that using a system will enhance his or her job performance. Perceived ease of use is understood as the degree to which a person believes that using a system will be free of effort. Besides, its influence on the intention to use, perceived ease of use is theorized to also influence on the perceived usefulness, since the easier a system is to use the more useful it can be [Davis 1989]. Given in the interim detected special importance of perceived usefulness, the refined TAM 2 unravels major antecedents, which are grouped into cognitive instrumental influences (besides, perceived ease of use additionally job relevance, output quality, and results demonstrability) and additionally also social influences (subjective norms, image, and voluntariness) [Venkatesh and Davis 2000]. Though constituting one of the most influential models in IS research it is not without criticism [e.g. Legris et al. 2003; Bagozzi 2007; Benbasat and Barki 2007], as for instance TAM fails to explain information systems success (beyond mere usage) or does not succeed to contribute to design and evaluation of IS artifacts.

However, with its focus on usefulness and its antecedents to predict actual usage, the approach allows to analyze e-portfolio usage from a professional (recruiting) perspective and hence, basically fits with the intended topic of the paper. In addition, TAM constitutes a meanwhile repeatedly confirmed model [cf. the meta-analyses of Quingxiong Ma and Liping 2004; King and He 2006], and hence, represents a well-established explanation of information systems usage in organizations. Finally, compared to more comprehensive approaches such as the unified theory of acceptance and use of technology [Venkatesh et al. 2003] or the refined TAM 3 [Venkatesh and Balla 2008] it stands for a robust and parsimonious model which allows to concentrate on major aspects. In summary, it can be stated that the approach meets basic requirements and hence, is used in the following analysis while this of course does not judge further approaches to be inappropriate.

By using TAM 2 it is discussed which and how specific characteristics of e-portfolios have influence on cognitive-instrumental and social antecedents of perceived usefulness. Based on this discussion consequences for e-portfolio usage are derived. TAM 2 hence is used as a means to generate knowledge in the domain of e-recruiting. While this also offers insights in the fruitfulness of TAM 2 in the focused domain, further theoretical contributions such as replicating, modifying, or expanding theory are not intended.

#### 3.2. Conditions of Usage

##### 3.2.1. Instrumental Conditions

The technology acceptance model firstly clarifies that cognitive-instrumental aspects are co-responsible for the perception of usefulness and the intention to use. In addition to perceived ease of use, which is also understood as a cognitive-instrumental factor, perceived job relevance, output quality, and results demonstrability determine perceived usefulness. The main argument justifying this is that individuals form perceived usefulness judgments by cognitive comparing what a certain system is capable of doing with what they need to get done in their jobs [Venkatesh and Davis 2000]. Transferred to e-portfolios in recruiting, recruiters hence will compare e-portfolio functionality with the requirements of recruiting employees.

As the first factor, *job relevance* is understood as an individual's perception of the importance of the set of tasks within one's job that a system is capable of supporting, while it is supposed that individuals possess distinct knowledge of what is necessary in their jobs [Venkatesh and Davis 2000]. Recruiters hence will compare their task requirements with the capabilities of e-portfolios and reject e-portfolios if a minimum relevance threshold is not met. Though the recruiting task is rather heterogeneously conceptualized in literature [e.g. Barber 1998; Breugh and Starke 2000; Ployhart 2006] the attraction and selection of qualified individuals offers a rough but resilient concept of major recruiting tasks. Given that e-portfolios constitute a new kind of application credentials it becomes obvious that its potentials refer mainly to the selection task. The overall objective of selection is commonly viewed as predicting the fit of an individual with a corresponding job, since such a fit ensures major desired recruiting outcomes such as initial job performance, retention, or job satisfaction of an individual [e.g. Breugh and Starke 2000; Lievens et al. 2002; Anderson et al. 2004]. It is getting more and more recognized that prediction should not only refer to fit with a certain job but also with the corresponding team as the entire organization ("multi-level fit"). Also, it is argued that the prediction task gets more complex since requirements increasingly become fluctuating due to dynamic environments. Hence, as major selection task the fit of an individual with changing multi-level requirements is to be predicted [e.g. Anderson et al. 2004], while this visibly requires both broad and deep information concerning the individual. Given this, in particular three characteristics of e-portfolios can be identified which directly relate to job relevance considerations. As a first characteristic, compared to conventional application credentials e-portfolios cover a markedly broader spectrum which not only focuses on professional qualifications but also uncovers so-called key qualifications (such as social competences, self competences, or learning competences), and relevant personality traits (such as motivation, ability to cope with ambiguity or stress). Such information is compulsory for the requested prediction of multi-level fit as the ability to cope with new requirements and completes the "picture" of an applying individual. This e-portfolio characteristic may be called *comprehensiveness of information* and visibly fits with the above task requirements in selection. Moreover, compared with conventional application credentials e-portfolios additionally offer markedly deeper information since not only aggregated, summary qualifications based on testimonials but profound, multifarious insights based on artifacts are offered. This characteristic can be called *profundity of information* and visibly again fits with the task requirements of selection. Finally, qualifications and personality traits are not just claimed, but directly proved based on insightful informative artifacts. This characteristic can be called *actuality of information* and again should meet a requirement of selection. All in all, taking into account the increasing information requirements in recruiting based on the characteristics of comprehensiveness, profundity and actuality of information e-portfolios should be perceived as directly job relevant by recruiters [see also the results of Mosely 2005; Brammer 2007; Stevens 2007], and should, in any case, exceed a minimum threshold of job relevance. Hence:

*P 1: Comprehensiveness, profundity, and actuality of offered information positively influence the perceived job relevance of e-portfolios in recruiting.*

As the second major factor, *output quality* exceeds mere job relevance since it refers to the question of how well a relevant task is supported [Venkatesh and Davies 2000]. Getting back to the above-mentioned argumentation, output quality of e-portfolios in recruiting thus refers to the degree to which e-portfolios are able to predict the fit of an individual with possibly volatile job, team and organizational requirements. Consequently, the validity (the degree to which e-portfolios inform about what they should inform) and reliability (the degree to which e-portfolios are accurate, i.e. free of measurement flaws) constitute valuable evaluation criteria for the output quality [see also Hermann and Winters 1994; Heller et al. 1998; Carney 2004, Katerattanakul and Siau 2008]. Keeping in mind the comprehensiveness, profundity and actuality of offered information, these e-portfolio characteristics could actually contribute to the prediction quality. However, there is a crucial point which has to be stressed as a further relevant characteristic of e-portfolios. As mentioned above, functions which automatically extract meaningful recruiting information are missing [Ravet 2007] and e-portfolios of current design are not able to predict the fit of an individual directly. Rather, e-portfolios offer valuable input information for the prediction task. This information, however, has to be "manually" retrieved, interpreted and used by the recruiter in order to predict potential fits. Given the extent of e-portfolios this "manual" retrieving and interpreting of offered information is a burdensome and laborious task for recruiters [see also the empirical results of Temple and Temple 2003, Ward and Moser 2007; Brady 2008]. Hence, though the overall recruitment quality should clearly profit from information offered by e-portfolios, the mere system-related support for the prediction task remains incomplete and crude. Consequently, the output quality of e-portfolios should be perceived as incomplete and crude by recruiters as well. The underlying e-portfolio characteristic therewith can be subsumed as "crudity" of offered information. In summary, though perceived as highly job relevant due to comprehensiveness, profundity and actuality of information, and even though the overall quality of predicting fit should clearly increase, the crudity of information burdens recruiters with voluminous "manual" retrieval and interpretation tasks, which consequently clearly negatively influence the

perceived output quality of the mere system. Hence:

*P 2: Crudity of information will negatively influence the perceived output quality of e-portfolios in recruiting.*

Beyond the mere output quality users also judge the tangibility of the yielded results (“*results demonstrability*”) and even information systems with high quality results may lack user acceptance if there are difficulties in attributing gains in job performance directly and specifically to the use of the system [Venkatesh and Davis 2000]. Referring to this, again the crudity of e-portfolio information may cause acceptance problems. Of course, any improvements in selection are finally owed to the usage of the e-portfolio and this basic association will also be recognized by recruiters. However, since usage entails extensive human activities of retrieving and interpreting information, recruiters will not perceive a close and direct connection between finally yielded selection results and the mere systems output. Hence:

*P 3: Crudity of information will negatively influence perceived results demonstrability of e-portfolios in recruiting.*

In the advanced model *perceived ease of use* is considered as the fourth cognitive-instrumental criterion which does not only have influence on perceived usefulness but additionally is directly linked to the intention to use [Venkatesh and Davis 2000]. As said above, perceived ease of use refers to the degree to which a person believes that using as system will be free of effort. Getting back to the actual degree of support, perceived ease of use limitedly refers to the phase of directly using the system to retrieve information (while the subsequent laborious “manual” phase of interpreting this information and predicting the fit of an individual without the help of the system is not covered). Given that e-portfolios very much resemble websites the offered navigation tools are very familiar. Besides free-text search, there are further familiar navigation tools (e.g. jump forward, jump back, or links). Since, at least mature e-portfolios are additionally supposed to be well-structured and may be also unfold their structure via a site-map this eases the use of e-portfolios. Suitability and familiarity of these tools may be subsumed under the characteristic of “*navigability*” of e-portfolios. Hence:

*P 4: Navigability of information will positively influence perceived ease of use of e-portfolios in recruiting.*

Summarizing the above analysis of cognitive-instrumental influences exposes a heterogeneous picture. On the one hand, comprehensiveness, profundity and actuality of offered applicant information, which are not available via conventional application credentials, make e-portfolios highly relevant to the recruiting job. In addition, existing familiar search and navigation features make e-portfolios easy navigable and therewith render ease of use. On the other hand, missing functions of automatically extracting meaningful recruiting information imply “*crude*” information which burdens recruiters with a laborious and lengthy analysis task, what – aggravated by the fact that commonly larger volumes of applications have to be reviewed [e.g. Breugh and Starke 2000] – distinctly detracts from perceived output quality of e-portfolios in recruiting. Moreover, crudity also manifestly hinders the attribution of gains in selection performance directly and specifically to the use of e-portfolios. Summarizing this argumentation, these contradictory perceptions of e-portfolio instrumentality in recruiting may be subsumed as “*instrumental ambivalence*”.

### 3.2.2.Social Conditions

In addition to cognitive-instrumental deliberations, actual usage of e-portfolios will be governed by social influence processes. Following the extended acceptance model, usage is impacted by two interrelated social forces: subjective norms and image [Venkatesh and Davies 2000].

*Subjective norms* are understood as the perception of an individual that people who are important to him or her think that he or she should use a certain system. Subjective norms exert a threefold impact on usage. Firstly, they directly impact the intention as they build up pressure to comply with the expectations of influential referents. Secondly, subjective norms impact on perceived usefulness of e-portfolios. This is explained via internalization processes where usefulness beliefs of influential reference persons are incorporated into one’s own belief structure. Thirdly, subjective norms will affect the image of using e-portfolios as a further social influence variable [Venkatesh and Davies 2000].

As the first category of social influences, hence recognized third parties, such as colleagues, external recruiting experts, superiors or senior management among others exert influence on individual usage. Hence, it becomes necessary to predict the basic judgment of e-portfolios by these stakeholders. Given that relevant influence groups mainly show a professional/managerial background, they should judge e-portfolios in recruiting from a professional perspective and therewith similar to recruiters. Therefore, also potential influence groups should perceive e-portfolios as instrumentally ambivalent. This will not directly add to the emergence of clearly negative subjective norms, however, it will also noticeably hinder the development of positive subjective norms. In consequence, recruiters will get the impression that relevant influence groups perceive e-portfolios as well as ambivalent and clear signals from the reference group to actually use e-portfolios in recruiting should not develop. Hence:

*P 5: Instrumental ambivalence will lead to ambivalent subjective norms concerning e-portfolios in recruiting.*

It has to be stressed that subjective norms are moderated by *voluntariness* and *experience* since positive subjective norms should have an impact on usage in mandatory settings only, and experience will weaken the influence of subjective norms [Venkatesh and Davis 2000]. However, given the proposed absence of clear, positive subjective norms these moderating effects are of minor importance.

Image constitutes the second social influence that is defined as the degree to which system usage is perceived to enhance the status of a user within his social system [Venkatesh and Davis 2000]. It hence becomes important to identify characteristics of e-portfolios which are image forming. Given the professional domain, again the instrumental ambivalence of e-portfolios should constitute a major image forming aspect. On the one hand, e-portfolios show the potential to picture their users as methodically meticulous and technologically innovative recruiters, on the other hand, however, also as ineffective and process deferring persons. Therefore, like with subjective norms, a consistently positive or consistently negative image of using e-portfolios cannot be hypothesized. Hence:

*P 6: Instrumental ambivalence will lead to an ambivalent image of e-portfolios in recruiting.*

Summarizing the analysis of social influences reveals that no plainly positive influences are to be expected.

Based on the opposing instrumental appreciations, i.e. the “instrumental ambivalence”, there is no clue for clear unidirectional subjective norms, in particular, within a mainly professionally oriented influence group. Likewise, also the image of using e-portfolios suffers from instrumental ambivalence. Summarizing these two points, instrumental ambivalence brings about what could be called “social ambivalence” of e-portfolios in recruiting as consequence.

### 3.2.3. Perceived usefulness

Summarizing the different influences on perceived usefulness, opposing cognitive-instrumental influences reveal the characteristic of instrumental ambivalence, which subsequently involves also social ambivalence. Instrumental and social ambivalence thereby indicate an unpleasant situation where recruiters have simultaneously both positive *and* negative usefulness perceptions relating to e-portfolios. As long as no clear, i.e. either positive *or* negative, usefulness perceptions can be stated, usefulness perceptions as well are best described as ambivalent. In brief:

*P 7: Instrumental and social ambivalence will lead to ambivalent usefulness perceptions of e-portfolios in recruiting.*

Evidently, this “double-edged” situation may explain quite well previous contradictory explorative findings that e-portfolios are considered as both particularly suitable [e.g. Brammer 2007] and obviously impractical [e.g. Brady 2008] by employers.

### 3.3. Consequences for usage

The above-mentioned discussion revealed opposing and ambivalent influences on intention to use and subsequent usage behavior as summarized in Figure 3. Ambivalence understood as a simultaneous combination of negative and positive usefulness perceptions should firstly clearly restrict intention to use and subsequent usage since ambivalence implies indecisiveness and undecidability. This will clearly restrict, however, not entirely prohibit the usage of e-portfolios in recruiting. Generally, usage should occur in specific situations which favor positive and tolerate or relieve the negative aspects of e-portfolios in recruiting, i.e. usage of e-portfolios should be contingent on specific situational settings which fit to their characteristics.

On the individual level, personal settings of recruiters should constitute a usage contingency as recruiters who highly value selection quality should be more likely to use e-portfolios than recruiters who mainly value selection efficiency. On the organizational level, organizations with a high demand on adequate selection should be correspondingly more likely to use e-portfolios. Also, a highly selective usage of e-portfolios appears to be likely, where central key positions are staffed based on e-portfolios, while ordinary jobs are not. Likewise, the number of applications seems to be of influence, since in contexts with smaller application volumes – for instance due to labor market shortages – the burden of analysis may remain manageable. A workable scope of e-portfolios yet can be also realized by using e-portfolios exclusively in later recruiting phases for final selection of a smaller number of applicants, who were pre-selected based on conventional application credentials. In such situational settings, e-portfolios can be perceived as less ambivalent and reduced instrumental ambivalence will also reduce social ambivalence, what in effect justifies the proposition of a restricted and contingent usage of e-portfolios in recruiting:

*P 8: Ambivalent usefulness perceptions will lead to restricted and contingent usage intentions and usage of e-portfolios in recruiting.*

This argumentation clearly dampens the high expectations in educational literature and demonstrates that e-portfolios of current state cannot keep the general promise of being an “effective and efficient means for employers” [Powell and Jankovich 1998, 81], but are restricted to and contingent upon specific situational settings which actually match with its ambivalent characteristics.



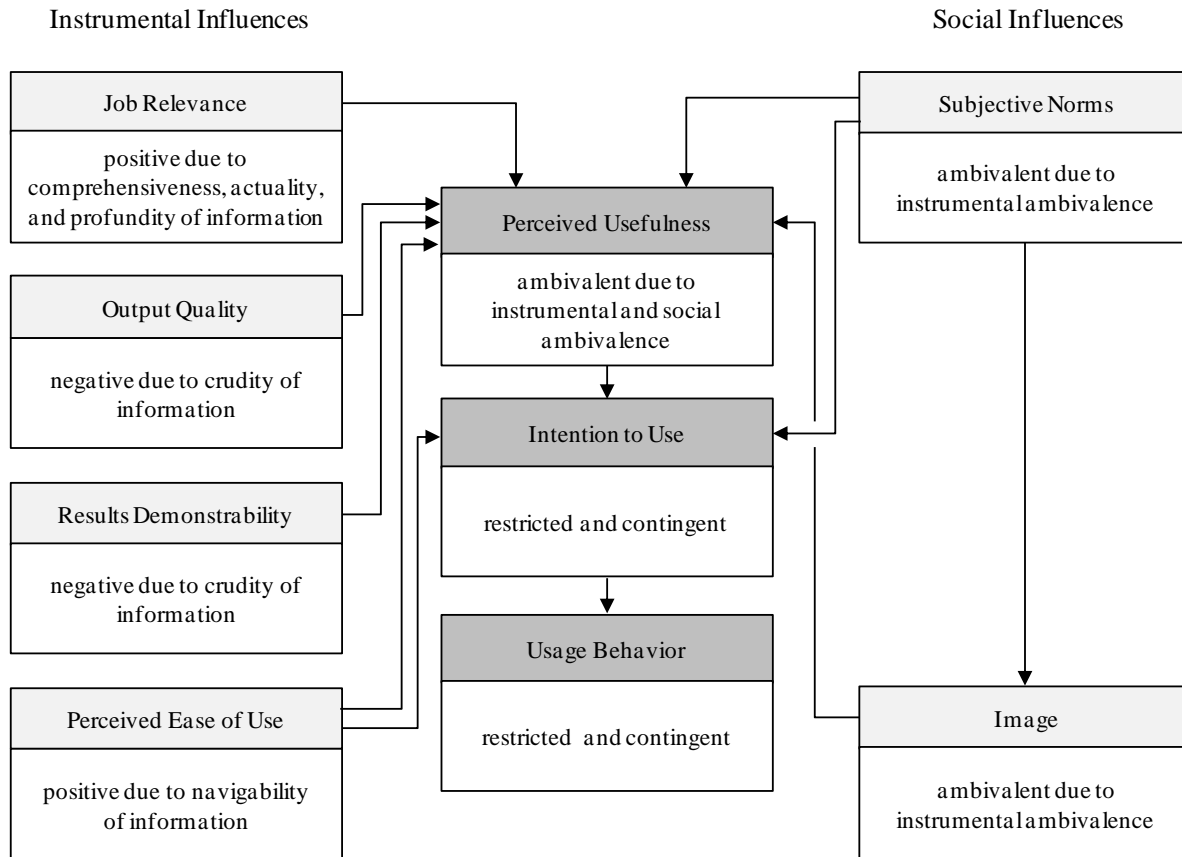


Figure 3: Usage of e-portfolios in recruiting

#### 4. Implications

The above-mentioned argumentation reveals diverse *implications for research*, which mainly result from the limitations of the current paper. As the first and major limitation, the current paper *lacks empirical evidence*. Hence, the propositions require an empirical test. The striving for a parsimonious argumentation based on a few characteristics should ease such an empirical endeavor. However, the supposed lack of actual usage of e-portfolios in recruiting poses clear methodical limitations and so empirical designs which are not reliant on a larger group of factual users, such as experiments, seem to constitute the most promising future empirical approach. As the second imaginable limitation, the current paper *focuses on one specific theory* and the related usage conditions. This procedure may have blinded out further relevant usage conditions such as trust or privacy among others. Hence, the potential usage of e-portfolios in recruiting can be additionally analyzed based on further theories [as summarized e.g. in Bradley 2009; Mahfouz 2009; Williams et al. 2009] what can yield supplementary usage conditions (as these of course again have to be empirically validated). However, using TAM 2 allowed a parsimonious discussion of the research question and the uncovering of the latent ambivalence of e-portfolios in recruiting and therewith kept the promise of being a basically appropriate approach. The pluralistic or eclectic adding of further approaches hence can contribute to the comprehensiveness whereas it will at the same time detract from the parsimony of the explanation given. Whether the focus on a single appropriate theory constitutes a limitation thus depends on basic methodological judgments concerning parsimony and comprehensiveness. As the third limitation, the current paper exclusively *focuses on the recruiter perspective* and pays no attention to the job-seeker side. Given the ongoing labor market shift toward a “seller’s market”, the needs and wants of job-seekers are of ever increasing importance in recruiting. Given that the creation of an e-portfolio is challenging, laborious, and longwinded, future work should hence also amply refer to the acceptance and usage of e-portfolios by job-seekers. As the final and important limitation, the paper exclusively *refers to the current (rudimentary) technical state* of organizational e-portfolio functions respectively systems [Ravet 2007; Sweat-Guy & Buzzetto-More 2007; Himpsl & Baumgartner 2009] and does not elaborate on possible technical improvements. Hence, future design oriented research [e.g. Hevner et al. 2004] should strive for technical improvements which are able to overcome the current ambivalence of e-portfolios by reducing the depicted “crudity” of information. This particularly entails the development of adequate analysis

functionalities (such as automatic searching, filtering and ranking of applicants as well as automatic matching of applicants and jobs) based on adequate technologies (such as text mining and recruiting ontologies [e.g. Lougheed et al. 2005]). However, in order to keep the central advantage of e-portfolios, i.e. “the better feel for who the person is” [Brammer 2007], such functions should not be used for fully automated selection, but reliably recommend promising e-portfolios which are to be “manually” analyzed by recruiters [see also Ward and Moser 2007]. Of course, any improvements in organizational recruiting functions (systems) will make a re-evaluation of e-portfolios in recruiting compulsory. It hence will have to be carefully evaluated whether the improvements are actually able to increase perceived output quality and results demonstrability and therewith overcome ambivalent usefulness perceptions.

Additionally, there are some *practical implications* of the above-mentioned analysis. Initially, organizations which consider the usage of e-portfolios should carefully analyze their specific recruiting requirements and context in order to evaluate whether and to which extent it matches with the above outlined characteristics of e-portfolios. If usage is basically decided as worthwhile, organizations could consider measures which can be of further usage. The first measure is adjusting job advertisements to e-portfolio-based recruiting by clarifying and detailing the information they require from application e-portfolios. This can also entail the prescription of using certain standardizations [e.g. Mosely 2005; Brady 2008], such as the European Qualification Framework [European Union 2008]. In addition, in order to improve effectiveness and efficiency of e-portfolio analysis recruiters can be trained in e-portfolio evaluation. Besides, a mental shift towards a “holistic” evaluation, also concrete procedures of evaluation as for instance the usage of checklists and other aids, could be trained. Also, taking into account the influences of subjective norms in mandatory settings, senior (HR) management could actively demand and support e-portfolios in order to reinforce usage via social influencing. Finally, the presumably most favorable practical measure is the further technical development and subsequent incorporation of e-portfolio related functions into recruitment-systems [e.g. Lee 2007; Maier et al. 2009] as already suggested for design oriented research. Beyond the development of the diverse analysis functions that are mentioned above, further functions such as loading and storing e-portfolio based on existing exchange standards [e.g. IMS 2005], an automated verification of item authenticity [e.g. Chen-Wilson et al. 2009] and an automated checking for item plagiarism [Love and Cooper 2004] constitute promising features.

## 5. Conclusions

Using a parsimonious model of technology acceptance allowed the identification and discussion of major usage conditions and the uncovering of the latent ambivalence of e-portfolios in recruiting. The offering of comprehensive, profound and actual qualification information simultaneously constitutes the main advantage as well as the main disadvantage of the concept. Hence, contrary to the common approval of e-portfolios as suitable recruiting tools in educational literature, actual usage will be restricted and contingent upon certain situational settings which match with e-portfolio characteristics; certain organizational and in particular technical measures can be considered for further usage of e-portfolios in recruiting. Following this argumentation, e-portfolios clearly constitute a remarkable, yet by no means undemanding concept in recruiting that is worth to be developed and accompanied by future research endeavors.

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