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Does Personality Matter in the Evaluation of ERP Systems? Findings from a Conjoint Study

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DOES PERSONALITY MATTER IN THE EVALUATION OF ERP SYSTEMS? FINDINGS FROM A CONJOINT STUDY

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Abstract

Most leading organizations, in all sectors of industry, commerce and government are dependent upon ERP for their organizational survival. Yet despite the importance of the decision to adopt ERP, IS research has so far neglected to comprehensively study the evaluation of ERP systems in general, and the impact of individual characteristics of IS managers on the ERP acquisition decision in particular. This study is the first of its kind to examine the impact of personality traits of IS managers on the relative importance they ascribe to evaluation criteria in ERP selection. We present the results which provide interesting insights into what evaluation criteria are more or less important for IS managers with different personality styles. In line with findings at the intersection of personality and IS research, we found that the personality dimensions of the five-factor model do considerably matter in ERP evaluation in the sense that the relative importance ascribed to evaluation criteria are affected by individual personality traits. Theoretical and practical implications are derived from our findings to advance insights for ERP adopters and vendors into the ERP evaluation process and to enhance the precision of IS theory.

Keywords: Personality, big five, software selection, ERP systems, evaluation criteria, conjoint study

1 INTRODUCTION

ERP investments are generally considered to be a high cost and high risk investment for most firms. Over the past decade, companies have spent over US\$300 billion dollars on ERP investments (Shepherd & Klein, 2006), and the failure rate outweighs the success rate (Hong & Kim, 2002). According to a review of published ERP research between 2001-2005, 47 percent of the existing research has focused on the implementation phase (Esteves & Bohorquez, 2007). The critical acquisition phase (or adoption phase) was the second lowest investigated. Esteves and Bohorquez logically argue that the limited number of studies attempting to investigate how adoption decisions are made in an ERP context is a real problem that needs to be addressed. They agree that the adoption stage is critical because as the stage preceding the implementation phase, it presents the opportunity for both researchers and practitioners to examine the relevant evaluation criteria and implications of buying and implementing ERP software, prior to the commitment of formidable amounts of money, time and resources. Existing studies in the field of ERP adoption decisions have primarily focused on the identification of critical evaluation criteria that should be weighed prior to an adoption decision (e.g., Jadhav & Sonar, 2009). Although some research papers have already examined how the political environment or power issues (Howcroft & Light, 2006) and organizational factors such as organizational history and culture (Jamieson & Hyland, 2006) affect the acquisition decision, studies have been virtually silent on the impact of IS managers' individual characteristics.

One domain of individual differences that has received limited attention in IS literature is personality. However, recent advances in personality psychology suggest that a fruitful way to integrate individual traits into models and theories would be to adopt the five-factor model (FFM), a parsimonious and comprehensive framework of personality. A renewed focus on traits in the management literature has demonstrated that the big five personality traits comprising the FFM are associated with a number of organizational processes, behaviors, and outcomes (e.g., Barrick & Mount, 1991). We believe that several streams of research may benefit by incorporating the big five factors into existing theoretical models. A primary aim of our research study is to present the integration of FFM into enterprise application software (EAS) evaluation research. We examine in more depth the relationship of personality – through the FFM – to EAS evaluation research. More specifically, we address the following research questions:

1. How is the relative importance of critical evaluation criteria in ERP system adoption related to personality traits of IS managers?
2. Which evaluation criteria are crucial for the final acquisition decision in dependence of IS managers' personality traits?

By addressing these research questions, we will be able to derive implications on the relative importance IS managers ascribe to evaluation criteria in ERP selection based on different personality traits of IS managers. In so doing, ERP vendors may have a deeper understanding how they can approach IS managers by addressing different preference sets. The remainder of the paper is organized as follows. In the next section, we discuss the relevant literature on EAS selection. In section 3, we hypothesize on the role of personality traits in EAS selection by introducing the FFM. In section 4, we describe our research methodology used in this study by presenting an conjoint study involving 232 IS managers. In section 5, we present the results of our empirical analysis. Finally, we conclude with a discussion of theoretical and practical implications of our findings, as well as limitations and future research opportunities in section 6.

2 PRIOR RESEARCH IN THE EVALUATION OF ERP SYSTEMS

The acquisition of packaged EAS such as ERP or CRM systems by companies often involves making trade-offs between a variety of attributes like cost, functionality, and ease of customization. Several practitioner-oriented and academic studies in IS research have investigated the relative importance of these evaluation attributes for different EAS types. Jadhav & Sonar (2009) provide a comprehensive literature review on the evaluation and selection of EAS packages. In particular, a substantial body of knowledge has accumulated over the last decades on the selection of ERP systems. Keil and Tiwana (2006) found that functionality, reliability, cost, and ease of use have a significant effect on the likelihood of acquiring ERP software packages. In contrast to these package attributes, implementation attributes like ease of implementation and vendor reputation had little or no effect on EAS adoption. A study by Wei et al. (2005) revealed that functionality and vendor support were the most important factors affecting ERP adoption, whereas ease of customization and ease of implementation were the least important factors. In the same vein, Baki and Cakar (2005) found in their empirical study on determining ERP package-selecting criteria that package attributes such as functionality, reliability, and cost were superior to implementation attributes such as ease of implementation and customization (Baki & Cakar, 2005). Based on a comprehensive literature analysis on EAS evaluation factors, Keil & Tiwana (2006) come to the conclusion that seven evaluation criteria – namely *cost*, *functionality*, *reliability*, and *ease of use* (so-called package attributes) as well as *ease of customisation*, *ease of implementation*, and *support* (so-called implementation attributes) – are the most used and most salient factors that have been analyzed so far. These seven factors not only provide a practical and manageable list of evaluation criteria, but also allow researchers to have a parsimonious model on EAS evaluation which is an important ingredient for good theory-development (Whetten, 1989).

With respect to the evaluation of ERP systems, *cost* is a common factor influencing the purchaser to choose the software. It is simply the expenditure associated with ERP systems and includes product/license, training, maintenance and software subscription costs (Chou, 2008). *Functionality* refers to those features that the ERP system performs and, generally, to how well the software can meet the user's needs and requirements. Thus, functionality is usually one of the most important selection criteria considered when selecting software packages, such as shown in (Wei et al., 2005). Brown & Stephenson (1981) suggest that one of the advantages of buying packaged software is that it represents a superior product relative to what might be developed in house. Thus, what drives many packaged software purchases is the desire to have a higher-quality, more robust and *reliable* piece of software (Brown & Stephenson, 1981). Chau (1995) stresses the importance of *ease of use* as one of four technical factors that should be considered in selecting packaged software (Chau, 1995). Montazemi et al. (1996) stress that the software package should be easy and straightforward to use, since the product shouldn't be too complex or sophisticated for an average user, as the efficiency of end users directly affects the efficiency of the organization (Montazemi et al., 1996). Borenstein & Betencourt (2005) note that flexibility is an important consideration in selecting packaged software. By this, they mean whether the package can be '*easily adapted and customized*' (Borenstein & Betencourt, 2005). Pivnicny & Carmody (1989) list '*ease of implementation*' as a crucial factor for evaluating packaged software. This criterion is usually highly ranked because of the extensive changes in organizational policies (e.g., staff trainings) and technical procedures (e.g., system interoperability) required to implement new applications (Pivnicny & Carmody, 1989). Finally, the quality of *support* provided is of major importance in software selection. It is particularly critical for the successful installation and maintenance of the software. Keller (1994) even emphasizes the importance of vendor stability over functionality, stating that "it is not so important that a company can meet a functional specification as it is that it has a viable plan to be in business in 5 years" (Keller, 1994).

Although there is a considerable amount of research on what kind of evaluation criteria are key in the acquisition of ERP systems and how these criteria are related with organizational factors such as politics, power or culture (e.g., Howcroft & Light, 2006; Jamieson & Hyland, 2006), existing research studies have so far neglected to investigate how the relative importance of these evaluation criteria

change with individual characteristics of IS managers. Do all IS managers have similar preference sets when it comes to ERP evaluation or do they differ based on different personality traits?

3 THE ROLE OF PERSONALITY IN EAS EVALUATION

3.1 Personality and the Five-Factor Model (FFM)

People's attitudes, beliefs, cognitions, and behaviors are in part determined by their personality. Another way of stating this is that psychological predispositions have main effects upon a number of individual level variables. Personality reflects the unique facets of each human being and it is reflected in all of our thoughts and actions (Barrick & Mount, 1991). Because traits play a ubiquitous role in human cognition and behavior, it is reasonable to expect that personality will play a role in an array of IS-related processes and outcomes. Researchers interested in incorporating personality into IS theories are confronted with an overwhelming number of potential personality variables. Fortunately, recent advances in personality theory have illuminated these choices. There is considerable agreement among personality psychologists that the domain of personality can be described by five superordinate constructs. This theoretical approach to personality classification has come to be known as the FFM, and the dimensions are often referred to as the big five. The FFM is considered to be a comprehensive and parsimonious model of personality (Costa & McCrae, 1992) and the most useful taxonomy in personality research (Barrick et al., 2001). It has been described as "[...] the model of choice for the researcher wanting to represent the domain of personality variables broadly and systematically" (Briggs, 1992, p. 254). The FFM clusters all personality traits into five broad factors and, as such, presents a concise yet comprehensive framework for studying personality. Although researchers have used different labels to describe these five factors, representative labels are (a) conscientiousness, or the degree of organization, persistence, and motivation in goal-directed behavior; (b) extraversion, described by being sociable, gregarious, and ambitious; (c) neuroticism, or emotional instability, characterized by insecurity, anxiousness, and hostility; (d) openness to experience, represented by flexibility of thought and tolerance of new ideas; and (e) agreeableness, represented by a compassionate interpersonal orientation (Costa & McCrae, 1992). Next, we develop, through both theoretical arguments and empirical support, hypotheses concerning the influence of the big five personality factors on EAS evaluation. The research model incorporating these hypotheses is shown in Figure 1.

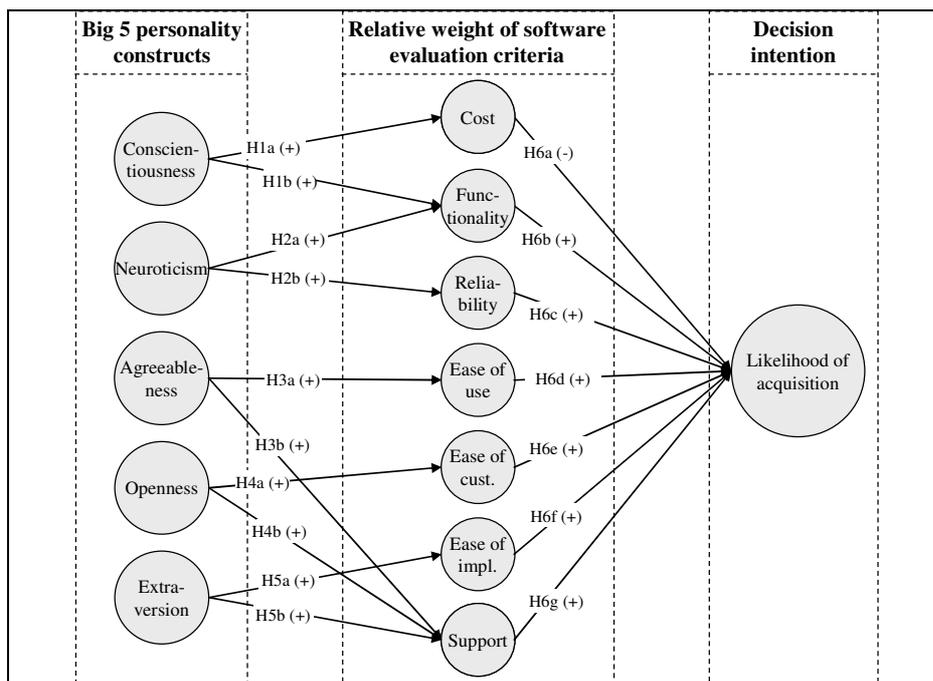


Figure 1. Research model

3.2 Personality and EAS Evaluation

Personality psychologists generally agree that personality is linked to actual behavior through cognitive processes that determine one's motivation to engage in a particular act (Costa & McCrae, 1980). Software evaluation procedures are one such cognition, representing a person's perceptions of the weighting of different evaluation criteria in the process of EAS selection. People will generally perform a behavior which is in line with the personal predisposition they bring along with them into the decision process. In this respect and under the assumption that IS managers are a company's key persons responsible for EAS evaluation decisions, we hypothesize that personality traits will be associated with the cognition about the weighting of different evaluation criteria in EAS selection.

3.2.1 Conscientiousness

Conscientious personalities are intrinsically motivated to achieve, perform at a high level, and take actions to improve their job performance. The hallmark of the conscientious personality is self-control reflected in a need for achievement, order, and persistence (Costa et al., 1991); these traits are fundamental components of intrinsic motivation at work and high levels of job performance (Barrick & Mount, 2000). Thus, because conscientiousness reflects an intrinsic motivation to improve job performance by adhering to an orderly process, we expect conscientious people to be more likely to carefully consider cost and functionality of an ERP system. Conscientious people are rather risk-averse by sticking to established rules and procedures and will thus try to ensure that possible future budget overruns will be prevented. Likewise, people with a highly conscientious personality will also be more likely to carefully consider the completeness of functionality of the different ERP systems under evaluation. Since missing functionality will entail further add-on programming or even the replacement of the system, IS managers that are more conscientious will be more likely to put more emphasis on functionality in the first place. Conversely, if a person concludes that an ERP system does not cover all functional features as required, conscientiousness will also increase those beliefs and decrease behavioral intentions to acquire the ERP system. Those who are lower on the

conscientiousness dimension are not as inclined to carefully consider cost and functionality, so the relative importance of these two evaluation criteria will be lessened.

Hypothesis 1a: Conscientiousness will be positively associated with the relative importance IS managers ascribe to cost in ERP evaluation.

Hypothesis 2b: Conscientiousness will be positively associated with the relative importance IS managers ascribe to functionality in ERP evaluation.

3.2.2 Neuroticism

People low in neuroticism are emotionally stable and well-adjusted; in contrast, those high in neuroticism are anxious, self-conscious, paranoid, and prone to negative emotions and negative reactions to work-related stimuli (Barrick & Mount, 1991). Empirical research suggests that neuroticism is negatively associated with several constructive elements of work behavior, including job performance (Barrick & Mount, 2000), and perceived career success (Seibert & Kraimer, 2001). Neuroticism is reflected in a negative reaction to both life and work situations, and this will generalize to beliefs about the functionality and reliability of technology. Neurotic personalities are likely to view IT in general – and ERP systems for its complexity in particular – as unstable and functionally insufficient. They will thus be highly likely to be skeptical about the performance, stability and efficiency of the ERP systems in the first place when evaluating ERP systems. Since people high in neuroticism can be expected to be anxious about making an informed acquisition decision, they will thus particularly emphasize reliability and functionality in ERP evaluation.

Hypothesis 2a: Neuroticism will be positively associated with the relative importance IS managers ascribe to functionality in ERP evaluation.

Hypothesis 2b: Neuroticism will be positively associated with the relative importance IS managers ascribe to reliability in ERP evaluation.

3.2.3 Agreeableness

The agreeable personality is described as being kind, considerate, likable, helpful, and cooperative (Graziano & Eisenberg, 1997). Meta-analytic results suggest that agreeableness has significant predictive validity in jobs involving considerable interpersonal interaction and teamwork, especially when the interaction involves helping and cooperating with others (Barrick et al., 2001). Thus, agreeableness will be most strongly related to evaluation criteria that involve collaboration and cooperation with other people. In particular, IS managers high in agreeableness will be more likely to empathize with end-users that will have to apply ERP systems in day-to-day operations and put much more weight to ease of use when evaluating ERP systems. Likewise, since they will be more likely to appreciate a cooperative (support) relationship with the vendor, they will be more inclined to make sure that different vendors are carefully evaluated prior to the acquisition decision.

Hypothesis 3a: Agreeableness will be positively associated with the relative importance IS managers ascribe to ease of use in ERP evaluation.

Hypothesis 3b: Agreeableness will be positively associated with the relative importance IS managers ascribe to vendor support in ERP evaluation.

3.2.4 Openness

Individuals described as high on the openness dimension of personality are willing to try new and different things. They actively seek out new and varied experiences, and value change (McCrae & Costa, 1997). Because rapid change and diversity are now the norm in business organizations, openness to experience will be increasingly important in explaining work-related behavior (Hough & Furnham, 2002). Those low on this dimension prefer stability and the status quo, and inherently feel

very uncomfortable with change. Conversely, those individuals high in openness are more likely to hold positive attitudes and cognitions toward change in general, and toward flexibility in the technology they are using in particular. Open IS managers will therefore be more likely to seek and weight more heavily a high level of ease of customization and extensibility when evaluating ERP systems, since they will have more degrees of freedom to adjust the ERP systems to future organizational requirements after the acquisition. Furthermore, IS managers high in openness can be expected to strongly weight the support provided by the ERP provider, since they will appreciate the recommendations and support of the ERP provider during the implementation phase. Altogether, in order to account for the relevance of both ease of customization and vendor support, they will thus be more likely to put comparatively more emphasis on these two evaluation factors during the ERP selection process.

Hypothesis 4a: Openness will be positively associated with the relative importance IS managers ascribe to ease of customization in ERP evaluation.

Hypothesis 4b: Openness will be positively associated with the relative importance IS managers ascribe to vendor support in ERP evaluation.

3.2.5 Extraversion

Those high in extraversion are social, active, and outgoing, and place a high value on close and warm interpersonal relationships (Barrick & Mount, 1991). A meta-analysis found that more extraverted personalities are particularly high performers in jobs with a social component, such as management and sales (Barrick & Mount, 1991). In this regard, IS managers that are high in extraversion will naturally be more inclined to seek the support and recommendations of the ERP vendor throughout the implementation and operation of the ERP system. Likewise, they will attempt to give more weight to ERP systems that can be more easily integrated into existing organizational structures to avoid straining the close and warm interpersonal relationships with business units.

Hypothesis 5a: Extraversion will be positively associated with the relative importance IS managers ascribe to ease of implementation in ERP evaluation.

Hypothesis 5b: Extraversion will be positively associated with the relative importance IS managers ascribe to vendor support in ERP evaluation.

3.3 ERP System Acquisition and Evaluation Criteria

According to Keil and Tiwana (2006), the evaluation criteria and their relative importance in ERP system selection can be conceived as predictors of the probability to acquire an ERP system that fulfills these evaluation criteria. Since they reflect the preferences of IS managers on what to consider more or less in the selection of ERP systems, these relative weights will be highly likely to predict the final acquisition decision. We therefore formulate the following hypotheses:

Hypotheses 6a-g: The relative importance IS managers ascribe to a) cost, b) functionality, c) reliability, d) ease of use, e) ease of customization, f) ease of implementation, g) support in ERP systems evaluation will be for a) negatively and for b)-g) positively associated with the likelihood to acquire an ERP system fulfilling these evaluation criteria.

4 RESEARCH METHODS

4.1 Adaptive conjoint analysis and data collection procedures

In order to elicit the relative importance of evaluation criteria of ERP systems from the perspective of IS managers and their personality traits along the FFM, we conducted an online-based survey comprising a conjoint analysis during June 2009. Conjoint analysis (CA) is a decompositional method to determine respondents' relative preferences for different product attributes by statistically calculating part-worth utilities. In comparison with compositional methods, the advantage of decompositional methods is that, during the process of data collection, respondents can evaluate complete product configurations rather than just individual attributes. Adaptive conjoint analysis (ACA) is an advancement on the classical full-profile CA, as it incorporates the advantages of letting respondents evaluate complete product configurations, but does not require every possible combination to be presented (Johnson, 1987). In the context of our study, an IS manager's total utility from a software package configuration is equal to the sum of the utilities he or she receives from each attribute comprised therein: $u_{ic} = u_i(co_c) + u_i(f_c) + u_i(r_c) + u_i(eou_c) + u_i(eoc_c) + u_i(eoi_c) + u_i(s_c)$

Let u_{ic} denote an IS manager i 's *total utility* from a software package configuration c . We assume attributes to be compensatory in nature, thus justifying a simple addition approach. The total utility is a function of $u_i(k_i)$, representing IS manager i 's *part-worth utility* (or part-worths) from the specification of the criterion $k \in \{\text{cost } co \mid \text{functionality } f \mid \text{reliability } r \mid \text{ease of use } eou \mid \text{ease of customization } eoc \mid \text{ease of implementation } eoi \mid \text{support } s\}$ in product configuration c (Johnson, 1987). In this model, the *total utility* of a product configuration is the sum of its *part-worths*. The relative weights of the different criteria part-worths provide insights into the relative importance IS managers ascribe to these factors. They are determined by the ratio between a factor's utility range and the utility ranges of all factors. The typical ACA procedure consists of three steps (Johnson, 1987), which are depicted in the Appendix (see Tables 5-8).

In the first part of the survey, participants were provided introductory instructions including the study context and definitions of the seven evaluation criteria. In the second part, participants had to conduct the adaptive conjoint analysis on ERP systems. In the final part of the online survey, participants were asked to answer questions regarding their personality type (i.e., FFM), industry affiliation, firm size, prior experience in MIS and with package software purchasing decisions. All German companies in manufacturing, wholesale/retail trade, TIME industries, financial services, construction and real estate, public and healthcare sector, logistics and electricity/gas/water supply were chosen as population of this study, since the concentration of ERP system use is relatively high in these industries. A random sample of IS managers in 1,500 German companies was drawn from Hoppenstedt's firm database (www.hoppenstedt-adressen.de) and invited by mail and e-mail to participate. In our cover letters, we explicitly addressed those IS managers that had the qualification and mandate in an organization to purchase EAS, as they were the most adequate respondents for our study. The survey underwent both a pretest and pilot phase. Content and face validity of our survey instrument was ensured by asking 10 IT/IS practitioners and 3 academic experts to fill out the survey and then provide feedback on usability, comprehension, and expected completion time. To reduce self-reporting bias, each participant was given the opportunity to receive a report regarding how his/her firm position compares to firms of similar size and industry along the key evaluation criteria in this study.

4.2 Survey sample and respondent demographics

We received 232 completed sets of responses, resulting in a response rate of 15.4%. This provided us 2,784 trade-off pair comparisons between ERP systems (12 pair comparisons \times 232 responding organizations) and 1,160 purchase evaluations of ERP systems (5 purchase evaluations \times 232 responding organizations) for our statistical analyses. Non-response bias was assessed by verifying

that (1) respondents' demographics (see Table 1) were similar to those of previous studies and (2) by ensuring that early and late respondents were not significantly different. All t-tests between the means of the early and late respondents showed no significant differences, and the demographics of our sample were similar to the demographics reported by other ERP evaluation studies (e.g., Keil & Tiwana, 2006). The random sample included firms with the following industry split: manufacturing (26%), wholesale and retail trade (20%), financial intermediation (17%), TIME industries (14%), construction and real estate (9%), logistics (7%), public and healthcare sector (4%), and electricity/gas/water supply (3%). Almost three fourth of the respondents were IS managers that indicated that they were the main responsible for purchasing EAS in their company, one fourth were either CIOs or general managers in IS/IT. On average, they had 11.8 years of experience in the management of information systems, and had previously been involved in making EAS selection decisions for around 27 EAS packages on average.

| <i>Number of Employees</i> | <i>Percent</i> | <i>Degree to which EAS adoption decisions are made ... (1-5 Likert scale, mean value)</i> | |
|----------------------------------|----------------|---|----------------|
| < 50 | 28.4 | | |
| 51 – 249 | 36.1 | ... individually | 4.4 |
| > 250 | 36.5 | ... independent of others | 4.1 |
| <i>Experience in MIS (years)</i> | <i>Percent</i> | <i>Respondent title</i> | <i>Percent</i> |
| < 5 | 19.2 | CIO | 14.3 |
| 5 – 10 | 28.4 | IS manager (“purchasing”) | 73.3 |
| 10 – 15 | 37.6 | IT/IS general manager | 10.1 |
| > 15 | 14.8 | Other managers and n/a | 2.3 |

Table 1. Sample characteristics (n=232)

4.3 Assessment of scale properties

Content validity was established through the adoption of well-established constructs. We measured personality with Costa and McCrae's (1992) NEO-FFI Personality Inventory. This widely used instrument is a 60-item questionnaire that describes the respondent's personality according to the Big Five factors. Its validity and reliability are well documented (Costa & McCrae, 1992).

| <i>Latent Constructs</i> | <i>Number of indicators</i> | <i>Range of Standardized Factor Loadings*</i> | <i>Composite Reliability (ρ_c)</i> | <i>Average variance extracted (AVE)</i> | <i>Cronbach's Alpha</i> |
|--------------------------|-----------------------------|---|--|---|-------------------------|
| Conscientiousness | 12 | 0.808 – 0.939 | 0.974 | 0.761 | 0.965 |
| Neuroticism | 12 | 0.788 – 0.952 | 0.976 | 0.775 | 0.973 |
| Agreeableness | 12 | 0.862 – 0.936 | 0.977 | 0.777 | 0.954 |
| Openness | 12 | 0.834 – 0.933 | 0.977 | 0.780 | 0.971 |
| Extraversion | 12 | 0.782 – 0.937 | 0.976 | 0.774 | 0.981 |

* All factor loadings are significant at least at the $p < 0.05$ level

Table 2. Assessment of Measurement Models: Factor Loadings and Reliability

The relative importance of evaluation criteria was measured with single-item part-worth utilities stemming from the ACA. The likelihood of acquisition was measured using the aggregated percentage values of step 3 of the ACA (see Table 7 in the Appendix). Our own examination of the psychometric properties of the five-factor scales through a confirmatory factor analysis revealed that all standardized factor loadings are all significant, thus suggesting convergent validity (see Table 2). To evaluate construct reliability, we calculated composite reliability and Cronbach's alpha for each construct. All constructs had a composite reliability significantly above the cut-off value of 0.707 (Hair et al., 1998), while Cronbach's alpha values were greater than 0.7. All personality constructs also met the threshold

value for the average variance extracted (AVE>0.50). For discriminant validity of latent variables, the square roots of AVEs exceeded the inter-construct correlations between the independent constructs (see Table 3). Thus, the scales employed demonstrate sufficient discriminant validity.

| Variables | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-------------------------------|------|------|-------------|-------------|-------------|-------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|
| 1. Conscientiousness | 4.15 | 0.67 | 0.87 | | | | | | | | | | | | |
| 2. Neuroticism | 2.56 | 0.79 | -0.19 | 0.88 | | | | | | | | | | | |
| 3. Agreeableness | 3.32 | 0.56 | 0.04 | -0.11 | 0.88 | | | | | | | | | | |
| 4. Openness | 3.45 | 0.87 | 0.06 | -0.13 | 0.24 | 0.88 | | | | | | | | | |
| 5. Extraversion | 3.92 | 0.88 | 0.28 | -0.21 | 0.23 | 0.21 | 0.88 | | | | | | | | |
| 6. Cost | 0.14 | 0.01 | 0.44 | 0.31 | -0.05 | 0.10 | 0.09 | 1 | | | | | | | |
| 7. Functionality | 0.18 | 0.02 | 0.21 | 0.42 | 0.08 | 0.08 | 0.08 | 0.05 | 1 | | | | | | |
| 8. Reliability | 0.20 | 0.01 | 0.09 | 0.49 | -0.07 | -0.07 | -0.10 | 0.11 | 0.36 | 1 | | | | | |
| 9. Ease of use | 0.13 | 0.01 | 0.15 | -0.03 | 0.29 | 0.09 | 0.15 | 0.08 | 0.02 | 0.01 | 1 | | | | |
| 10. Ease of customization | 0.13 | 0.01 | 0.27 | 0.14 | 0.03 | 0.34 | 0.11 | -0.15 | -0.12 | -0.09 | -0.03 | 1 | | | |
| 11. Ease of implementation | 0.10 | 0.02 | 0.10 | 0.23 | 0.10 | 0.13 | 0.27 | -0.29 | -0.48 | -0.43 | 0.12 | -0.02 | 1 | | |
| 12. Support | 0.12 | 0.02 | 0.24 | -0.06 | 0.41 | 0.14 | 0.39 | -0.17 | -0.26 | -0.17 | 0.01 | -0.27 | 0.08 | 1 | |
| 13. Likelihood of acquisition | 42.1 | 33.1 | 0.14 | -0.17 | 0.21 | 0.25 | 0.15 | 0.31 | 0.42 | 0.44 | 0.28 | 0.20 | 0.05 | 0.20 | 1 |

Notes: The diagonal elements (in bold) represent the square roots of AVE by latent constructs. For convergent and discriminant validity, diagonal elements should be at least 0.70 (i.e., AVE>0.50) and should be larger than off-diagonal elements in the same row and column

Table 3. Correlation Matrix and Average Variance Extracted from Principal Constructs

5 STATISTICAL ANALYSES AND RESULTS

We used partial least square (PLS) for testing the structural model (Chin, 1998), since PLS employs a component-based approach for estimation, and it places minimal restrictions on sample size and residual distributions. In addition, we chose PLS to accommodate the presence of a large number of latent variables and relationships.

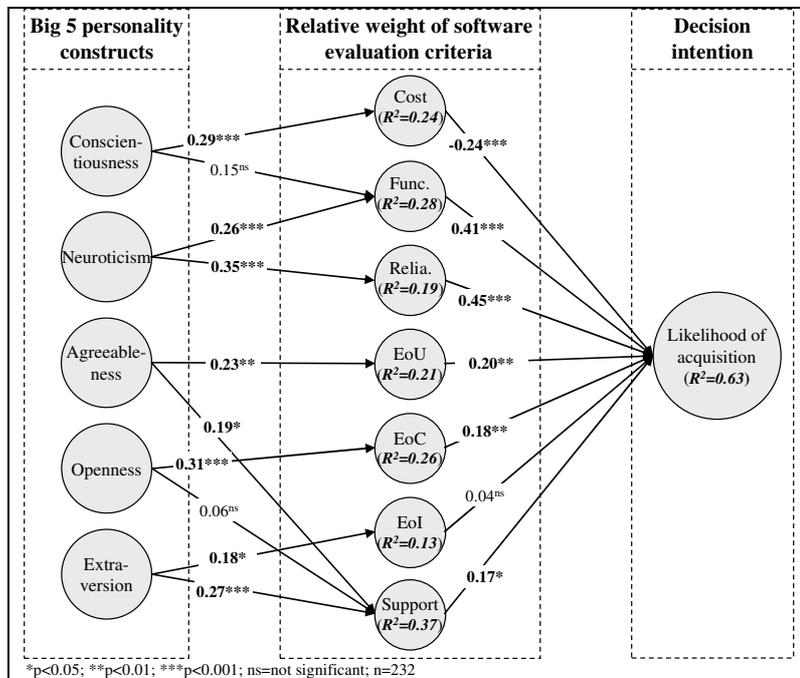


Figure 2. PLS Results for the Proposed Conceptual Model

The results in Figure 2 indicate that the R^2 of the dependent variables range from 13% to 63%. Recommendations for an acceptable level of R^2 range from 33% to 67% and above [29]. Considering that a vast array of other factors for which our model does not account could explain variance in the relative importance of evaluation criteria, the results reported here are very promising. The results also show that except for the relationships between conscientiousness and functionality (H1b), openness and support (H4b) as well as ease of implementation and likelihood of acquisition (H6f), all other path coefficients are statistically significant. Further valuable insights into the explanatory power of individual predictors are revealed when the effect magnitude is analyzed. Cohen's effect magnitude f^2 is an indicator for the change in R^2 when one latent exogenous variable at a time is excluded from the analysis (Cohen, 1988). f^2 -values of 0.02, 0.15, and 0.35 indicate whether an exogenous variable has a weak, moderate, or substantial effect, respectively, on the endogenous variable with which it is associated (Chin, 1998).

| f^2 (R^2 delta) related to the likelihood of acquiring an ERP system | | | | | | |
|---|----------------------|--------------------|------------|------------|------------|----------------|
| <i>Cost</i> | <i>Functionality</i> | <i>Reliability</i> | <i>EoU</i> | <i>EoC</i> | <i>EoI</i> | <i>Support</i> |
| 0.18** | 0.26*** | 0.28*** | 0.15** | 0.06* | 0.01 | 0.04* |

*weak effect strength, **moderate effect strength, ***substantial effect strength

Table 4. Effect Magnitudes of Evaluation criteria

Table 4 provides an overview of the effect magnitudes of evaluation criteria investigated in this study. The results underscore the significance of *functionality*, *reliability*, and *cost* as main predictors of the likelihood of ERP acquisition.

6 DISCUSSION

6.1 Summary of results and theoretical and practical implications

The primary objective of this paper was to examine the effect of the big five personality characteristics on the relative importance of evaluation criteria in ERP selection. Consistent with current trends in personality research (e.g., Barrick et al., 2001) and in line with findings at the intersection of personality and IS research (e.g., McElroy et al., 2007), we have found that the big five personality dimensions play an important role in explaining the relative importance of evaluation criteria in ERP selection. We hypothesized that the five personality factors would be associated with the weighting of different evaluation criteria in the process of EAS selection. With the exception of the relationships between conscientiousness and functionality and openness and support, we found evidence that generally supports these hypotheses. More specifically, we found that neurotic IS managers tend to put an emphasis on functional aspects and reliability, while conscientious IS managers are more likely to consider cost as crucial evaluation factor in ERP selection. Furthermore, agreeable IS managers are more likely to emphasize ease of use and vendor support, while IS managers high in openness tend to focus more on the ease of customization when screening ERP systems for adoption. Finally, extravert IS managers are more likely to attach importance to vendor support and ease of implementation during the ERP evaluation process. In line with existing findings in ERP selection research, we could also largely validate previous results (e.g., Keil & Tiwana, 2006). Except for ease of implementation, all relative weights were significant predictors of the likelihood to acquire an ERP system. Reliability, functionality, and cost were the top three evaluation criteria that most strongly affected the likelihood of acquiring an ERP system. Contrary to previous results, we found that support also plays a significant role in ERP evaluation.

The findings of this study have several theoretical and practical implications. On the theoretical front, they highlight the role of individual differences and personality in EAS evaluation. We hope that this

spurs research examining the role of personality in other established models in IS research, such as IT outsourcing or user satisfaction. The predictive power of other IS models may be enhanced by incorporating personality variables, and the FFM appears to be a useful framework for identifying the relevant domains of personality. One practical implication of this study is that it unveils that IS managers responsible for ERP acquisition emphasize different evaluation criteria dependent on individual personality characteristics. The management and/or human relations managers of ERP-adopting firms could consider these traits when staffing the position of IS purchasing managers, probing for the traits we identified along with other job-related qualifications in an interview or using established big five selection tests. In this way, they could hire people with personality traits that better match the overall strategy of the company. ERP vendors can learn from these results that a “one size fits all” approach in terms of marketing and promotion activities will not convince IS managers to acquire an ERP system. On the contrary, ERP vendors should rather try to find out what personality traits are characteristic for potential ERP clients’ IS managers who are responsible for ERP acquisition. In this regard, the likelihood of addressing the most important evaluation criteria of each IS manager, and thus of pulling the right triggers to convince them, will be higher.

6.2 Limitations and Future Research

This research study has some limitations that must be acknowledged. First, we examined the effects of personality traits on the relative importance IS managers ascribe to evaluation criteria during the selection of *ERP* systems. Since ERP systems are highly integrated, enterprise-wide software packages that usually require high levels of customization during their implementation, we must be careful not to generalize the results to EAS beyond ERP systems. Future studies have to show, whether personality traits also matter in the evaluation of EAS that require lower levels of customization (e.g., Office suites). A further limitation is that the relationships specified and tested in the study are meant to represent only associations between constructs and not causal relationships. Future research in this area can examine both attitudes and behavior in a longitudinal setting to address the question of causality. Moreover, we have not systematically assessed the relationships between the big five factors and a complete nomological network of potential predictors of the relative importance of evaluation criteria. Another limitation of this study is the assumption that the evaluation and acquisition of an ERP system can be reduced to the personal inclinations of a single person. While this might be true for smaller and mid-sized companies, the evaluation and selection of EAS is most often a social and collective process that integrates many perspectives into an organizational decision. Last but not least, as we used self-reported data, common method bias was assessed with a correlational marker technique (Malhotra et al., 2006). The test suggested a lack of common method bias. Nonetheless, future research should include behavioral measures to cross-validate the empirical results.

Recent personality research has emphasized the relationship of personality variables to established, well-understood models. At the same time, IS research scholars have proposed that future research move beyond classical models such as the technology acceptance model. This study can be viewed as responding to both of these mandates by finding that the body of literature on personality might have significant ramifications on EAS evaluation and selection.

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Appendix

| Attributes | Cost | Functionality | Reliability | Ease of Use | Ease of Cust. | Ease of Impl. | Support |
|------------|----------|---------------|-------------|-------------|---------------|---------------|----------|
| Levels | High/Low | High/Low | High/Low | High/Low | High/Low | High/Low | High/Low |

Table 5. Attributes and levels used in Adaptive Conjoint Analysis (ACA)

(As a first step, preliminary information on individual perceptions of attribute importance is gathered. To this end, 7 questions were asked, with responses defined in terms of a 5-point Likert-type scale.)

| All other things being equal, how important is the following criteria for you instead of the other when evaluating the adoption of ERP software? | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| High support instead of Low support | Not important at | | | Very important | |
| | <input type="radio"/> |

Table 6. ACA Step 1: Rating of Attribute Significance

(In the second step, participants were presented with 12 trade-off pair comparisons. The product configurations were each described with three attributes. They were asked to use a 5-point bipolar scale to indicate their preferred product choice.)

| Which of the following two ERP systems would you prefer if they would only differ in the given product specifications? | | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|---|
| Low functionality Low ease of use High reliability | <input type="radio"/> | High functionality High ease of use Low reliability |

Table 7. ACA Step 2: Pair Comparisons

(In the last step, the calibration phase, five randomly selected profile product configurations consisting of four attributes were presented to the respondents. Participants were asked to estimate the probability that they would acquire this particular ERP package and enter the probability as a percentage value.)

| If the following ERP system was offered to you: How likely would it be that you acquired it? | |
|---|---------|
| (Please estimate your personal adoption probability for this particular software package in values between 0 (definitely would not acquire) and 100 (definitely would acquire). | |
| High cost High functionality Low reliability High ease of customization | _____ % |

Table 8. ACA Step 3: Calibration