

How do Cost-Benefit Evaluations Determine Committed Use of IT Project Management Methodologies –Enriching Our Understanding through Psychology

Research-in-Progress

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Abstract

Despite the overwhelming advantages of using an IT project management methodology, organizations are rarely able to motivate their staff to use them in a dedicated manner. While empirical research states that the usefulness of a methodology is the single most important determinant of its acceptance and use by actual users, studies have not examined which methodology use outcomes are more important for which type of people in which situations. Our study is a step toward filling the gap in methodology evaluation, development, and adoption literature, which to date has not developed a theoretically and practically complete as well as relevant typology of the costs and benefits of using a methodology and has also not studied the effect of personal traits such as needs. We develop and test a conceptual model, using a pre-test sample of 65 participants, that holds that individual needs determine costs-benefits have a bigger effect on individuals' committed use of a methodology.

Keywords: Project management, committed Use, Behavioral science

Introduction

Despite the advantages of using an IT Project Management Methodology (ITPMM) (e.g. reduced project complexity, increased transparency and control, reduced risk, tested guidelines (Fitzgerald 1998)) only 50% of organisations are actually able to make their staff use such methodologies (Glass 1999). In the context of software development, a project survey conducted by Russo et al. (1996) showed that only 6% of organisations claim that their methodologies are always used as specified. Fitzgerald (1996) in a survey also found that the majority (58%) of those respondents who reportedly used methodologies did not follow them rigorously. Because ITPMMs are not used in the appropriate manner or extent by individuals, their practical usefulness remains a controversial issue (Winter et al. 2006). The roots of this problem, which our research addresses, are – among other factors – in the failure to understand actual methodology users' attitudes. This lack of understanding ultimately leads to the development and implementation of an ITPMM which might not fulfill user needs. Consequently, such an ITPMM is rejected (de Bony 2010; Kerzner 2003; Munns and Bjeirmi 1996; Winter et al. 2006). While empirical research states that a methodology's usefulness is the single most important determinant of methodology acceptance and use (Hardgrave and Johnson 2003; Hardgrave et al. 2003; Riemenschneider et al. 2002), studies have generally neglected explicitly integrating the *costs* dimension leading to an incomplete understanding of how behavioral outcomes influence use of methodologies. Integrating the cost dimension is important to develop a more complete understanding because while benefits have a positive impact on usage, we expect costs to have a negative impact.

Furthermore, researchers have also not examined which aspects of usefulness (e.g., higher productivity, promotion, social acceptance, respect, power, fun etc.) are more important in satisfying which type of human need in which situations. Neglecting the impact of such complex relationships might lead to results which are not always valid (Henseler and Fassott 2010).

Fundamental questions regarding the impact of a methodology's benefits and costs on an individual's usage behavior are therefore: a) What aspects of an ITPMM's usefulness affect an individual's decision to use it?; and b) How do individuals' basic needs influence the predictive power of these different aspects of an IT PMM's usefulness?

Our study is a step toward filling the gap in the ITPMM use literature, which has not as yet developed a theoretically and practically complete and relevant typology of a methodology's usefulness. Nor has this literature studied the effect of personal traits such as needs. We have identified needs and economical theories to provide a substantive theoretical basis for analyzing the above research questions. The needs theories – for example, Murray's theory of psychogenic needs (Murray 1938) is one of the most fundamental and influential needs theories.– help us understand how, when, and which needs are more important to people.

The remainder of the paper is organized as follows: Section 2 explains the basic theoretical concepts that provide the framework for our conceptual model. In Section 3, we present our research model and hypotheses. In section 4, we outline the research methodology and present the preliminary pre-test results. In section 5 we discuss the implications and outline the next steps in our research in section 6.

Theoretical Background

Over the past few decades, various categories of motivational theories have been developed to understand and predict human behavior. Among these, *content theories* (Alderfer 1972) such as needs theories – for example, Murray's theory of psychogenic needs (Murray 1938) – have become widely accepted in research studies, as they are considered the best way of understanding an individual's motivation to act in a particular way (Arnolds and Boshoff 2000). According to needs theories, individuals are motivated to use a particular methodology by their individual desire to satisfy certain needs. Ryan and Deci (2000) indicate that "... a basic need, whether it be a physiological need or a psychological need, is an energizing state that, if satisfied, conduces toward health and well-being but, if not satisfied, contributes to pathology and ill-being" (Ryan and Deci 2000). This implies that if an ITPMM fails to satisfy an individual's basic needs, this might result in serious discomfort. This dissatisfaction might be visible in the individual's rejection of the particular methodology. Needs theories emphasize deep-rooted basic human needs as motivators of behavior and suggest that individual behavior is motivated by a behavior's outcome; that is,

the belief that performing a specific behavior will result in a desirable reward or outcome that will fulfill their wants (Vroom 1964). Based upon this view individuals are expected to use a methodology if they can a) realize certain benefits and/or b) avoid costs.

Regarding *benefits*, a behavior's expected favorable outcome or usefulness has emerged as a core construct in the field of MIS. This suggestion has been largely driven by the use of the theory of planned behavior (attitude) (Ajzen 1991), the technology acceptance model (TAM) (perceived usefulness) (Davis 1989), and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al. 2003), which examine an individual's beliefs regarding a behavior. A plethora of empirical research in various fields has confirmed that a behavior's favorable outcome or usefulness is the most important aspect in predicting it. Hardgrave et al. (2003) state that "...usefulness generally has a beta (path coefficient) of around 0.60 in TAM studies." In the context of methodology adoption, Khalifa and Verner (2000) find that better process and product quality have a substantial effect on a software developer's decision to use waterfall and prototyping methodologies. Riemenschneider et al. (2002) apply five theoretical models and conclude that "...if a methodology is not regarded as useful by developers, its prospects of successful deployment may be seriously undermined."

While potential benefits related to the use of a methodology motivate individuals to use it, *costs* on the other hand can have the reverse effect. When conceptualizing cost we find the consumer perspective set forth by Zeithaml (1988), which includes both monetary and nonmonetary components, to be more appropriate in the context of our study. According to him costs can be defined as "what is given up or sacrificed" (Zeithaml 1988) to adopt a methodology. Research in economics, and marketing supports the proposition that costs — time, effort, search, psychic etc. — are salient to consumers and have a negative effect on their adoption decision (for an overview see (Zeithaml 1988)). Transaction cost theory's (TCT) (Coase 1937; Williamson 1981) behavioral approach, based upon the work of Herbert Simon in 1950's (1955, 1959; 1957), in particular has attracted considerable attention from researchers when analyzing decision making in situations of uncertainty. According to this behavioral approach it is argued that "people possess limited cognitive ability and so can exercise only 'bounded rationality' when making decisions in complex, uncertain situations." (Cyert and March 1963). Individuals in such situations tend to '*satisfice*' — i.e. attempt to attain realistic goals, rather than maximize a benefit, utility or profit function. As such costs of achieving said benefits influence the decision making process. Perceived cost have also been discussed as possible antecedents to behavioral intents in general in some conceptual articles - e.g., (Menon and Varadarajan 1992), and have received some empirical support. For example Tung et al. (2009) find that perceived financial cost had a negative effect ($\beta = -0.20$) on behavioral intention to use customer relationship management system. In their study Burnham et al. (2003) find that switching costs significantly influence consumers' intentions to stay with their current service provider, explaining more variance than does satisfaction. Considering the significant impact that a methodology's outcome have on individuals' decision to use it, it is crucial to understand a) what type of costs and benefits, b) under which circumstances, and c) with which effects contribute to predicting peoples decision to use a methodology.

Conceptual Framework

Based upon our discussion above we hypothesize that individuals will use an ITPMM if they perceive that using the methodology will lead to a) certain benefits, b) lower costs and c) that these outcomes will lead to the fulfillment of their specific needs. An individual's needs are thus expected to play a *moderating* role (see Figure 1) and influence the different outcomes' explanatory power regarding the individual's usage behavior.

Use: Traditionally, use behavior in MIS has been studied in terms of time duration and frequency (DeLone and McLean 2003). However, these quantitative dimensions of use behavior fail to capture the qualitative differences in end-user behavior (i.e. how IS is used) such as superficial resistant use or deeply ingrained committed use, intentional use versus habitual use, or voluntary use versus mandatory use (Jain and Kanungo 2005). As such, "... simply saying that more use will yield more benefits, without considering the nature of this use, is clearly insufficient. Researchers must also consider the nature, quality, and appropriateness of the system use" (DeLone and McLean 2003). We therefore attempt to capture the qualitative difference in the nature of ITPMM usage behavior by determining whether the methodology is actually used for the intended purposes in a dedicated manner. This is done via our

committed use (CU) construct, which reflects the intrinsic motivation of the user. Committed use occurs when a user agrees internally to use the methodology, is enthusiastic about it, and is likely to exercise initiative and demonstrate unusual effort and persistence in order to carry out the request successfully.

Benefits: An ITPMM's favorable expected outcome is reflected in the usefulness of the methodology, which originates in an individual's mind through cognitive mechanisms related to goal attainment (Venkatesh et al. 2003). Past research has focused primarily on the task-related *utilitarian outcome* (Andersen and Vaagaasar 2009), which seeks to provide the user with instrumental value, such as increasing task performance, encouraging efficiency, and increasing productivity (van der Heijden 2004). However, research in the field of consumer behavior suggests that there are other sources of usefulness. These sources are not only related to one's individual goals (*hedonic outcome*) (Babin et al. 1994), which are more subjective and personal than utilitarian outcomes (van der Heijden 2004), but also to materialistic outcomes (Belk 1985), which focuses on the acquisition of worldly, tangible and intangible possessions. A hedonic outcome is generated by pleasurable experiences produced by sensations generated in multiple sensory channels when an individual uses a specific methodology (van der Heijden 2004). Consequently, a hedonic outcome may be defined as the extent to which the activity of using a methodology is perceived as enjoyable in its own right, besides any performance consequences that may be anticipated (Davis et al. 1992). On the other hand, a materialistic outcome is based on an orientation that views material goods and money as important for personal happiness and social progress. According to Belk (1985), "...at the highest levels of materialism, such possessions assume a central place in a person's life and are believed to provide the greatest sources of satisfaction and dissatisfaction." In the context of our study, materialism not only refers to monetary advantages (*extrinsic materialistic outcomes*), but also involves intrinsic rewards (*intrinsic materialistic outcomes*) such as respect, and praise from and acceptance by peers and seniors (Arnolds and Boshoff 2000).

Costs: In microeconomics, strategic management, and marketing literature changing behavior (Rogers 2003) leads to *Learning costs*. These costs are considered to be onetime costs which users associate with the process of changing behavior and might incur even *long after* the change has been made (Burnham et al. 2003). In the context of methodology acceptance costs associated with learning a methodology, in particular, might inhibit a person's desire to use a methodology (Burnham et al. 2003). *Learning costs* are the time and effort costs of acquiring new skills or know-how in order to use a methodology effectively. Bandura (1986) suggests that individuals evaluate their experiences and thoughts, and determine what they will do with their knowledge and skills, i.e. their competence. Judgment of one's personal competence reflected in one's self-beliefs therefore not only determine what a person decides to do but also "...how much effort people will expend on an activity, how long they will persevere when confronting obstacles, and how resilient they will prove in the face of adverse situations" (Pajares 1997). Consequently, individuals who believe that they would need to invest substantial time and effort in learning a new methodology might not be motivated to use it.

In order to fully understand the effect of costs, in addition to learning costs which lie in the future, we also examine *sunk costs* (i.e. past costs that have already been incurred and cannot be recovered). In traditional microeconomic theory and normative economic decision theory, only future costs are relevant to one's decision and sunk costs should be ignored (Arkes and Ayton 1999; Brealey and Myers 1996) because sunk costs cannot be affected by the decision to accept or reject the proposition at hand (Brealey and Myers 1996). However, evidence from behavioral economics suggests this theory fails to predict real-world behavior (Arkes and Blumer 1985). Sunk costs greatly affect actors' decisions. Numerous empirical studies (for an overview consult (Brockner et al. 1986; Singer and Singer 1986; Singer 1990; Weber and Zuchel 2005)), have shown that sunk costs cause a decision-making bias known as "*sunk-cost fallacy*" because humans are inherently loss-averse (i.e. have strong misgivings about "wasting" resources) and thus normally act irrationally when making economic decisions. It reflects the tendency in individuals to invest more future resources in a situation in which a prior investment has been made, as compared with a similar situation in which a prior investment has not been made (Strough et al. 2008). In psychological literature this bias to commit resources to justify previous actions, whether or not the rationale for those initial commitments is still valid, is also known as the "*escalation of commitment*" effect (Garland 1990; Heath 1995). Based on this research stream sunk costs might drive individuals to use a methodology in a dedicated manner since these people have already invested considerable time and effort in learning the methodology (some might even have costly certifications PRINCE2, PMI etc). They might therefore feel obliged to do things the way they are used to, because doing otherwise would be wasting resources they

have already invested in the methodology (they feel they passed the point of no return). Summarizing, while learning costs are expected to *negatively* affect a person’s decision to use a methodology, sunk costs on the other had have a *positive* effect. Outcome oriented hypotheses are summarized in table 1.

Table 1: Research hypotheses regarding the outcome oriented constructs
H1: <i>Utilitarian outcome</i> (UO) is positively associated with <i>committed use</i> (CU) of an ITPMM.
H2: <i>Extrinsic materialistic outcome</i> (EMO) will be positively associated with CU.
H3: <i>Intrinsic materialistic outcome</i> (IMO) will be positively associated with CU.
H4: <i>Hedonic outcome</i> (HO) will be positively associated with CU.
H5: <i>Learning costs</i> (LC) will be negatively associated with CU.
H6: <i>Sunk costs</i> (SC) will be positively associated with CU.

Needs: We employ Murray’s theory of psychogenic needs (Murray 1938), embedded in the research stream of psychoanalysis, as it is considered the most fundamental and comprehensive list of underlying psychological human needs and has been empirically tested in a number of studies.

Need for Achievement (nAch) refers to an individual’s desire to do things better, accomplish difficult tasks, overcome obstacles, become an expert and achieve high performance standards, or a need for significant task related accomplishment (Murray 1938). People high in nAch aspire to accomplish difficult tasks where success depends primarily on their efforts. The more complex and difficult a task is (reflected in learning costs), the more gratification/satisfaction people with high nAch are expected to feel, since being successful at tasks in which others have failed symbolizes and communicates personal competence. Individuals with high nAch are expected to expend more effort, persevere longer when confronted with obstacles and show resilience in the face of adverse situations (Pajares 1997). Such individuals are more focused on internal motivation and personal achievement rather than external rewards and recognition. As such, employees with a high nAch will use a methodology in a committed manner if they can be convinced that the methodology will enable them to achieve high performance, productivity and become good at their job. Their obsession with productivity drives such individuals to be highly rational in their evaluations and therefore sunk costs might not influence their decision making. We therefore propose that nAch will have a moderating effect on UO → CU, LC → CU, and SC → CU.

Need for Affiliation (nAffi) is the desire to achieve acceptance from one’s social surroundings (Murray 1938). Individuals with a high need for affiliation tend to enjoy being with other people, making friends, and maintaining personal relationships. Affiliation-oriented employees tend to gravitate towards behaviors that allow them to develop warm and caring relationships with other employees. In a work environment, materialistic endowments such as rewards, promotion, gifts and praise from peers have been found, in a number of studies, to be conveyors of, and adequate substitute for, positive interpersonal relationships and feelings of acceptance (Belk 1985). Based on this reasoning, nAffi is expected to have a moderating effect on the strength of the effect of EMO → CU, and IMO → CU.

Empirical research has shown that the above-mentioned needs are largely uncorrelated (Reiss 2004; Sun 2009). Although the list of needs in the literature is extensive, we consider these two needs as representative of the most fundamental high-level primary needs in the context of methodology use. Other secondary needs can be derived from these high-level primary needs. For example, Murray’s *need for contrarience* and the *need for acquisition* may be derived from the *nAch*. The *need for family* (Reiss 2004) and the *need for social recognition* may be attributed to the *nAffi*, while the *need to compete or win* can also be derived from the *nAch* (Sun 2009). Another reason for studying fewer needs (rather than more) is related to a parsimonious approach. Needs oriented hypotheses are summarized in table 2.

Table 2: Research hypotheses regarding the moderation effect of the needs constructs
H7: The influence of UO on CU will be moderated by <i>nAch</i> so that the effect will be stronger for individuals with the specific needs.
H8: The influence of EMO on CU will be moderated by <i>nAffi</i> so that the effect will be stronger for individuals with specific need.
H9: The influence of IMO on CU will be moderated by <i>nAffi</i> so that the effect will be stronger for individuals with specific need.
H10: The influence of LC on CU will be moderated by <i>nAch</i> so that the effect will be weaker for individuals with specific need.
H11: The influence of SC on CU will be moderated by <i>nAch</i> so that the effect will be weaker for individuals with the specific need.

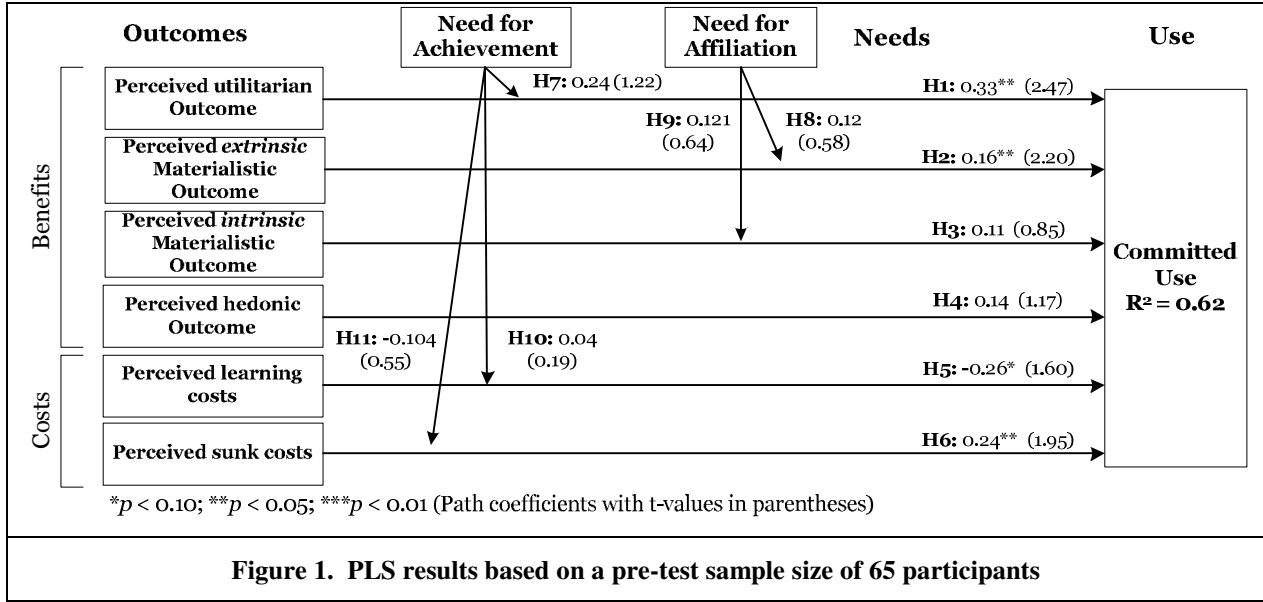
Research Methodology

In the current stage of our research we have developed a survey instrument and conducted a pre-test. Following we outline our data collection and analysis in this context.

Data collection: The entire development process, leading to the final survey instrument, was conducted according to Straub's (1989) recommendations. An initial pool of reflective measures was selected, based on their empirical validation in prior research. Instrument refinement was conducted based on interviews with 2 subject matter experts, Q-sorting exercise in 2 rounds (Moore and Benbasat 1991) with 7 and 8 participants respectively, and a web-based pre-test with 65 participants. Finally, all items were embedded in survey questions using a 7-point Likert-type scale anchored at *strongly disagree* (1) and *strongly agree* (7). Throughout the entire instrument development process, three researchers different disciplines, nationalities, and institutions were always involved, discussing every issue and formulating improvements. This triangulation of researcher and methods provides stronger substantiation of a valid and reliable instrument. Data was collected via an online survey for a period of three weeks. Participants for the study were randomly chosen utilising databases of professionals (e.g., XING, Viadeo, CompetenceSite), with keyword search such as project manager etc. This approach was chosen so as to elicit a wide representation by industry and company size. We then sent a personalised URL of the online survey to every individual identified in such a manner. Personalised survey URLs were administered to a total of 982 individuals, of which 65 participants completed the survey, representing a 6.9 % response rate. Reminders have not been sent.

Data analysis and results: The research model was tested and the psychometric properties of the scales were assessed with the software SmartPLS (version 2.0 M3), based on partial least squares (PLS). We used PLS because, compared to covariance-based approaches, it is advantageous when the research model is relatively complex and has a large numbers of indicators and a small sample size (Chin et al. 1996, 2003; Fornell and Bookstein 1982). We followed Chin et al.'s (2003) as well as Carte and Russell's (2003) guidelines and recommendations to test and analyse interaction effects with PLS. The process includes three steps (Chin et al. 2003): 1) standardising indicators for the main and moderating constructs, 2) creating all pair-wise product indicators (i.e. each indicator from the main construct is multiplied with each indicator from the moderating construct), and 3) using the new product indicators to reflect the interaction construct. The statistical significance of the parameter estimates was assessed using a bootstrapping procedure with 1,000 resamples. In order to provide an overview of the survey instrument and detailed statistical analysis results, which as a result of limited space cannot be reported here, we have compiled a document that is available at <http://tinyurl.com/ICIS2011-3>

Validation of the measurement model: The adequacy of the measurement model was assessed by the reliability of individual items, internal consistency between items, and the model's convergent and discriminant validity (Straub et al. 2004). Cronbach's alpha (CA) (1951) reliability estimates were used to measure the internal consistency reliability. In this study, the CA of each construct is greater than 0.83, which indicates a strong reliability for all constructs in our model (Nunnally and Bernstein 1994). We also followed the Chin's (1998) suggestion and calculated composite reliability (CR) as an alternative to CA. The CR values for all constructs are higher than 0.90, above the recommended minimum of 0.70 (Nunnally and Bernstein 1994). Convergent validity is demonstrated as a) the AVE (average variance extracted) values for all constructs were higher than the suggested threshold value of 0.50 (Fornell and Larcker 1981), and b) all item-loadings were higher than the 0.70 guideline and statistically significant at the 0.001 level (Hair et al. 2009). Evidence of discriminant validity could be found, since a) the square root of all AVEs were larger than interconstruct correlations, and b) all construct indicators loaded on their corresponding construct more strongly than on other constructs (Chin 1998), and the cross-loading differences were much higher than the suggested threshold of 0.1 (Gefen and Straub 2005). For a variable to be a moderator, it is desirable that the variable has low correlation with the predictor (independent) variable, because multicollinearity can lead researchers to falsely conclude that moderation effect exists, when there is in fact a nonlinear effect in disguise (Baron & Kenny 1986). In our study, the inter-correlations are relatively low, ranging from 0.14 to -0.06 with an average of 0.08. This suggests that this error is unlikely. Although the primary aim of the pre-test was to test the validity and reliability of the scales, next we also examine the structural model results to get a feeling of how our model performs. However, we must keep in mind that the small sample size and high model complexity make model testing results unreliable.



Structural model results: After the validation of the measurement model, the structural model was independently analysed and the proposed relationships between the constructs were tested. Finally, we calculated the goodness of fit (GoF) of our model, as suggested by Wetzels et al.(2009), who define GoF as the square root of the product of AVE and R². The application of this formula leads to a GoF of 0.69, which exceeds the cut-off value of 0.36 for large effect size of squared multiple correlations (R²), as proposed by Cohen (1988) and allows us to conclude that our model performs well (Wetzels et al. 2009). In assessing the PLS model, we examined the R² for each endogenous latent variable. The structural paths were evaluated for their significance. Proposed relationships were considered supported if the corresponding path coefficients had the proposed sign and were significant. Figure 1 shows the PLS structural model results. Five of the eleven proposed hypotheses had a significant influence on committed use of ITPPMs: H1 (β =.33, p <.05), H2 (β =.16, p <.05), H4 (β =0.14, p <.10), H5 (β =-.26, p <.10), and H6 (β =.24, p <.05); together, the variables explain 62% of the variance in the dependent variable CU. The fact that some of the hypotheses were found to be not significant was expected, since due to the small sample size the power of our model is very low and therefore not able to detect small effect sizes (Chin 1998). However, this does not imply that these effects do not exist. It only means that we need to have a larger sample size to be able to test such a complex model with multiple three way moderating effects. Besides the analysis of *statistical significance*, the criterion of *practical significance* suggested by Kerlinger and Pedhazur (1973) (i.e. considering path coefficients betas with values of .10 or higher to be important), which is repeatedly emphasized by researchers (e.g., (Chin 1998; Meehl 1990)) suggests that H7 (β =.24), H8 (β =.12), H9 (β =.12), and H11 (β =-.10) can also contribute to understanding the phenomenon under study.

Conclusion

Our work seeks to further the research on individual acceptance and use of IT project management methodologies by unifying the theoretical perspectives on the *needs of individuals* and *outcome expectations* within a single model. Based on validated theories, we develop a conceptual model that holds that individuals' personal traits determine which aspect of a methodology outcomes have a greater effect on the individual's committed usage behavior. The proposed multidimensionality of the *usefulness* construct represents a departure from traditional operationalization (which is solely based on task-oriented advantages) and reveals more complex and to date unknown interaction effects on human behavior, especially with regard to the use of new methodologies. Our findings might not only have major implications for the MIS research community, but also for related fields. They might be able to explain a) how men and women's needs change over time, and b) how these changes determine which aspects of a behavior's outcome becomes more important over time. Human needs have always played a key role in organizational development, and the proposed study is an attempt to "humanize" organizational

methodologies (Alderfer 1977); that is, to enable organizations to be more responsive to human concerns when developing and implementing new methodologies. Our research also has significant implications for practitioners. Each of the proposed constructs reveals a different aspect of human behavior and personality, and each can serve as a point of influence for organizations in their attempts to steer them in the desired direction (Ajzen 1991). Our findings could help organizations manage the selection, development, introduction, adoption, and use of new methodologies.

In general, the empirical results are encouraging and provide support for the study's primary objective i.e. ensuring that a valid and reliable survey instrument is developed. Inclusion of psychoanalysis based needs constructs increased variance explained in the dependent variable by 14% from $R^2 = 0.48$ to $R^2 = 0.62$. However, at this point we would like to point out that since the structural model results discussed are based upon a small pre-test sample size, caution is called for during interpretation. In the planned future research, discussed in the next section, we will collect a large sample size for appropriate model testing.

Future Research

The final web-based survey instrument will be administered to a diverse population of ITPMM users to collect the quantitative data needed to test the model and hypotheses. We will consequently utilize various databases of professionals (e.g., LinkedIn, XING, CompetenceSite) via a keyword search. The keywords will be compared to entries in the members' profiles, for example, fields labeled "interests" or "competencies I offer". After the identification of possible study participants, we will then send a personalized URL of the online survey to every identified individual. Participants, who do not complete the survey four weeks after the original invitation, will receive a reminder email. We will address the issue of *non-response bias* by following Rogelberg and Stanton's (2007). The use of Internet resources in data collections is gaining widespread interest among IS researchers (Allen et al. 2006). Whereas some researchers are interested in general and background information (Bolton et al. 2004), others intend to analyze data collected from sites (Snir and Hitt 2003). However, such access often has inherent legal issues, such as trespass or copyright violation (Allen et al. 2006). Manual access to Web communities to collect information about participants minimizes such legal issues, as the members can control how much information (e.g., email addresses) can be accessed. In addition, members in the communities have the possibility to deactivate the function to receive messages sent from the Web community.

In order to understand the cultural influences, data will be collected from the USA, Germany, Austria, Switzerland, and India. We will attempt to include more countries, especially developing and Asian nations such as Japan, China, and African nations. Research based on Hofstede's cultural dimensions (Hofstede 2003) has shown that individuals from these nations are governed by different attitudes, preferences, and norms than those in Western nations. After collecting the final sample, the scales will be assessed regarding their construct validity (including discriminant, convergent, nomological) and reliability, using commonly accepted techniques such as factor analysis and Cronbach's alpha. Common method bias will be evaluated by Harman's one-factor test exploratory method (Podsakoff and Organ 1986) and Podsakoff et al.'s proposed confirmatory method (Podsakoff et al. 2003) as explained by Huigang Liang et al. (2007). A significance test and power analysis will be conducted, while effect size (Cohen 1988) will be determined to evaluate the proposed hypotheses' theoretical and practical significance. We will calculate the effect size of the variables using the T-test. The difference between the squared multiple correlations is used to assess the overall effect size f^2 for the interaction, where it has been suggested that $f^2 < .02$ = practically no effect, $.02 \leq f^2 < .15$ = small effect, $.15 \leq f^2 < .35$ = moderate effect, and $f^2 \geq .35$ = large effect (Cohen 1988). In conclusion, use of ITPMMs remains a complex and elusive, yet extremely important, phenomenon. Past research has made progress in unraveling some of its mysteries. The development and testing of our model seeks to advance theory and research on this crucial matter.

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