

## Exploring the Impact of Cultural Values on Project Performance

- *The effects of cultural values, age and gender on the perceived importance of project success/failure factors.*

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## Abstract

*Purpose*– This study explores the impact of cultural values on the importance individuals assign to project success/failure factors.

*Design/methodology/approach*–Themes emerging from 40 interviews of project practitioners based in Brazil, China, Greece, Nigeria, Thailand, the United Arab Emirates, the United Kingdom and the United States are integrated with literature evidence to design a survey instrument. 1313 practitioner survey responses from the eight countries are analysed using multi-group, structural equation modelling.

*Findings*– Ten project success/failure indicators (*PSFIs*) are found to reduce to two main project success/failure factors (*PSFFs*): (1) *project control and extra-organisational goals*, and (2) *project team management/development and intra-organisational goals*. It is found that the levels of importance individuals assign to both factors are dependent, not only on age and gender, but also on cultural values measured as constructs based on Hofstede's individualism, masculinity, power distance and uncertainty avoidance dimensions.

*Research limitations* – The snowballing method used to gather survey data and analysis of relationships at individual level reduce generalisability.

*Practical implications* – The results reveal insights on how best to match the cultural values of project participants to project characteristics. They also increase knowledge on the likely perceptual differences among culturally-diverse individuals within projects.

*Originality/value* – This research contributes to the literature on culture in project environments by defining a factor structure of multiple-dependent project success/failure indicators and increases insight on how specific cultural values may impact on the perception of the so-defined project success/failure factors.

Keywords: project management, cultural values, Hofstede dimensions, project success, project failure.

## 1. Introduction: Culture in projects

In a project, for a finite period of time, human and other resources are pooled to conduct a diverse set of activities to achieve a one-off, unique set of objectives. Projects are important in organisations. Where products or services are bespoke or partially so, such as in management consulting and software development, project-production forms the core of the value-adding activities of the firm (Hobday, 2000, Scott-Young and Samson, 2008). In manufacturing, firms recurrently run projects to develop products (Pasche *et al.*, 2011). More generally, firms may engage in capital investment projects (Bryde, 2003). They must also occasionally conduct strategic initiatives, which can face very similar challenges to projects: both contexts can be unstructured and novel; 'scoping' issues can require careful consideration; and collective decision making processes may well give regard to multiple inter-dependent criteria. Within project teams, individual team members require skills such as formal planning (Scott-Young and Samson, 2008, Bendoly *et al.*, 2010); the ability to utilise matrix and dynamic team structures (Mendez, 2003) which facilitate flexible learning (Bresnen *et al.*, 2004). These skills, too, can help support the delivery of strategic initiatives. It has been argued, thus, that a firm's capability to manage projects successfully could be critical to the success of strategic initiatives (Pinto and Kharbanda, 1995).

Project environments are, however, characterised by levels of complexity and uncertainty that create difficulties in identifying project success/failure factors (*PSFFs*). In an ideal world, project success or failure could be measured by assessing how closely the project achieved intended outcomes once it had been decommissioned. In the real world,

decision makers have to define *PSFFs* up front to evaluate projects for selection and thereafter to monitor progress and evaluate performance. Obviously, the selection and, subsequently, the evaluation of *PSFFs* are critical. Where previously the view was that project success could be measured using easily quantifiable metrics based on cost, time and quality (Rubin and Seeling, 1967), it is now generally accepted that measures of success or failure should go beyond this triangle (Thomas and Fernández, 2008); should be dynamic and flexible (Shenhar *et al.*, 2001); and should incorporate the perspectives of different stakeholders (Fowler and Walsh, 1999). But perceptions of *PSFFs* are likely to vary subjectively between different stakeholders (Pereira *et al.*, 2008) and could, additionally, vary over the life-cycle of the project (Pinto and Prescott, 1988). Hence both individually- and culturally-primed perceptions are key in the identification and assessment of *PSFFs*.

Nisbett and Miyamoto (2005) have recently reported that, over and above age and gender, individual perceptions can vary strongly with cultural differences. Given that *PSFFs* are subject to perceptual differences, which are in turn subject to cultural differences, it follows that in modern projects, characterised by highly social configurations (Bendoly *et al.*, 2010), *PSFF* perceptions among project participants might vary for reasons that are researchable through the use of instruments that tap cultural differences. As organisations attempt to recruit from a wider talent pool and/or accrue cost savings, multi-cultural project teams become ever more likely. To succeed, it is necessary that the participants in multicultural projects understand cultural differences and what those differences imply. Many of the factors that have been identified as significant causes of project failure could be culture-dependent: use of inappropriate team structures (Hobday, 2000); inability to sustain stakeholder confidence and interest (Chen *et al.*, 2009); volatility in project team dynamics (Gelbard and Carmeli, 2009); poor team integration (Scott-Young and Samson,

2008); cultural readiness (Motwani *et al.*, 2002); and ineffective communication (Jugdev and Müller, 2005). In fact, the intercultural effectiveness of individual project team members can affect the overall performance of multicultural project teams (Symkhovych, 2009), which may explain the frequent demand by industry for project managers competent in multicultural interactions (Chipulu *et al.*, forthcoming) .

A review of the current literature suggests culture can affect projects in several ways. First, at a fundamental level, cultural differences can increase team heterogeneity. This can have benign consequences. If managed properly, heterogeneous project teams (e.g. by culture, gender, ethnicity) can perform substantially better than homogenous teams (Miller *et al.*, 2000). They are, for example, more likely to search for and find innovative, non-conventional solutions in novel or challenging situations. Conversely, homogeneity improves communication, particularly of the non-verbal kind. Hence if culturally-diverse teams are not properly managed, poor communication (Loosemore and Lee, 2002) can result. Second, given the one-off, unique nature of projects, success to a large extent depends on the effective learning and development of the project team members. There is plenty of evidence from pedagogical studies to suggest that people of different cultures tend to have different preferred learning styles (Ramburuth and McCormick, 2001). Hence, culturally dissimilar project team members may prefer to learn, scan their environments, or perhaps identify risk, in contrasting ways. Some authors go as far as to say that cross-cultural training fails to adequately address the organisational and environmental factors that impact significantly on the overall success of international projects (Kealey *et al.*, 2005). Moreover, it may well be that feedback, a critical learning mechanism in projects, ought to be given more often in a culturally-sensitive manner if it is to be effective (Chevrier, 2003). Similarly, culturally divergent team members may respond best not only to different work models

(Cagliano *et al.*, 2011), but also to differing styles of project leadership (Wiengarten *et al.*, 2011): some preferring directive leadership, others favouring a collaborative, participatory style (Harris, 2004). Culturally diverse project teams may, additionally, be affected as a result of having conflicting views of project planning (Zwikael and Ahn, 2011), the importance of the individual over the team (Varnum *et al.*, 2010), the importance of 'masculine' over 'feminine' qualities (Henderson and Stackman, 2010) and differences in perceptions of risky outcomes (Weber and Hsee, 1998).

Clearly, culture matters in projects, particularly, as it does, more generally, in operations management (Pagell *et al.*, 2005). Yet there are some limitations in the literature within these domains. First, though numerous studies have examined how organisational culture impacts on the performance of operations, there has not been parallel research focused on projects within operational environments despite, as we have argued above, the importance of projects in operations and organisations in general. Specifically, there has not been a full exploration of the impact of cultural values on the perception of project success/failure factors (*PSFFs*). Second, some scholars, such as Childe (2011), looking to set the agenda for operations management research, overlook culture, even though the operational environment is social in nature. Third, as the critiques of Prasad and Babbar (2000), and Pagell *et al.* (2005) both highlight; the majority of international operations studies do not analyse international differences from the cultural perspective. Instead, they rely on differences observed between countries or geographical regions. To help address these issues, we pose the following research question: *To what extent do cultural values impact on the importance attached to project success/failure factors?* The rationale is simple: The importance attached to project success/failure factors affects project performance. If key success/failure factors are, somehow, perceived unimportant and, consequently, are

overlooked; performance will suffer. Therefore, greater insight on the likely effects of cultural values on the perception of these factors could lead to improved project performance and subsequently organisational performance.

By definition, projects are temporary and relatively short-term in nature so that it may not be possible for project-team members and other stakeholders, coming from diverse organisations themselves, to develop a prevailing culture at the collective project level. Therefore, within project environments, if significant cultural value differences do exist, they are likely to persist for the duration of the project and their impact on performance may be much greater than within the wider organisation (of the project participants) where the effect of the extant organisational culture could be more significant. Thus, we argue that our research question could uncover further insights beyond extant research on the impact of culture on organisational behaviour and operations management such as, for instance, that put forward by Prajogo and Mcdermott (2011); and Burnes and James (1995).

The structure of the rest of this paper is as follows: Next, we describe the study, summarising the methods and data used. In section three, we report the results. In the final section, we discuss the implications of the results and suggestions for future research.

## **2. The study**

We used mixed research methods in the four stages described below.

### **2.1 'Culture' and Cultural Difference Measures**

'Culture' can be at once tangible and observable; latent and unobservable; or even an abstraction altogether. Unsurprisingly, then, there exist varying paradigms within which

culture may be explored. Within management and organisation studies, perhaps the most influential cultural perspective has been that of Hofstede (Søndergaard, 1994). Based on a very large sample of IBM employees, Hofstede (1980; 1983b) initially posited the existence of a 'national culture' which could be measured along four dimensions: power distance, individualism/collectivism, masculinity/femininity and uncertainty avoidance/preference. Later, Hofstede and Bond (1984; 1988) added a fifth dimension termed long-term/short-term orientation.

Hofstede's model has drawn criticisms. Notably, in a scathing critique, McSweeney (2002) questions Hofstede's framing of culture as 'national', the methodological assumptions which underpin the framework and the findings. Winch *et al.* (1997) tested and *rejected* hypotheses implied by Hofstede (1980) on the effect of cultural dimensions on differences in organisational structure between the French and British. Nevertheless, perhaps because it is clear and parsimonious, Hofstede's framework remains influential: A number of studies have found Hofstede dimensions to affect a wide variety of outcomes as main effects, moderators and mediators; as well as at different levels (Kirkman *et al.*, 2006). Applications range from the use of Hofstede's dimensions as a basis for cultural measurement (Newman and Nollen, 1996, Pagell *et al.*, 2005), comparators for alternative dimensions (Schwartz, 1994b) or part-basis for a new framework (House *et al.* 2004, p. 13). Thus, while mindful of the shortcomings of Hofstede's framework, we adopted it to explore how cultural values may impact on project success/failure factors. We excluded the fifth dimension from our study because, compared to the original four dimensions, it has earned much less acceptance and application (Fang, 2003) and as such remains (relatively) untested. This may be due to doubts that it *truly* represents a long-term orientation. Originally labelled 'Confucian Work Dynamism', Hofstede re-labelled the dimension following studies



that showed it significantly correlated with indicators of long-term orientation. However, not only do equally plausible alternative explanations exist for why those (supposed) indicators of long-term orientation co-vary with 'Confucian Work Dynamism' but it is also argued that some items on 'Confucian Work Dynamism' are incompatible with a 'long-term orientation' (House *et al.* 2004, pp. 286-289).

Hofstede's dimensions were derived from country-level data and he cautions against using them at other levels of analysis (Hofstede, 1980, Hofstede, 2001). Going against this caveat, in this paper we will study individual cultural values measured as psychometric constructs based on Hofstede's dimensions. Our approach represents a significant departure from Hofstede's original framework, which, as a reviewer pointed out, should be discussed fully. Our reasons for taking the individual-level approach were as follows:

First, though Hofstede's framework was not intended for individual level analysis, there are many precedents at this level of application in the literature. Kirkman *et al.* (2006), who reviewed 64 such studies, state that analysis at the individual level is valid. Further, authoritative, support for the individual level approach can be found in Taras *et al.* (2010). Second, alongside cultural values, we also wished to explore the effects of individual gender and age differences on *PSFFs*. Third, there are problems with country-level analysis. To use country as unit of analysis it is not only necessary to have a large sample of countries but also control for the effect of other cultures, namely organisational [e.g. Hofstede's (2001) use of a single organisation]; industrial [e.g. House *et al.* (2004) use of three industry sectors]; occupational [e.g. Schwartz (1994a) control of professions sampled]. Having only sampled project practitioners, we could claim to have controlled for the occupational but, as we explain below, our data were collected such that neither organisational nor industry

cultures could be controlled for. Further, and, arguably, more fundamentally: Can it be claimed that, following aggregation, the data measure 'national' cultures? There are those, e.g. Eckhardt (2002) and Mcsweeney (2002); who argue that nations are in themselves too ill-defined, too changeable to be considered unique, stable units of analysis. We find this argument compelling in the light of McSweeney's (2002) examples of post-Hofstede (1980) changes in country borders in Eastern Europe, the re-integration of Hong Kong into Mainland China and so on. There is evidence in some studies, including Hofstede (1980), of cultural heterogeneity within nations (Sivakumar and Nakata, 2001, Lenartowicz and Roth, 1999), some even suggest within-country differences (on some dimensions) could be larger than between-country (Au, 1999). The use of country-means could mask a lot of important within-country variation. Hofstede's dimensions were derived more than thirty years ago. His data are even older. The world has changed since then. One big change has been the scale and number of countries involved in migration, which is now considered an important factor of social (including cultural) transformation in all regions of the world (Castles, 2000). As we report below, a good proportion of project practitioners could be migrants, living and working abroad. In an effort to extract a 'pure' national culture, we could discard data presented by migrants (as Winch *et al*, 1997 did) but we believe such an approach epistemologically questionable: the migration of project practitioners or other highly skilled persons is unlikely to cease as nations search worldwide to fill skills gaps (Mahroum, 2000). We argue that a sample of project practitioners excluding migrants would be unrepresentative of the populations of practitioners in some countries.

In terms of paradigm, it may appear that studying cultural values at individual level deviates from Hofstede's original definition of culture as 'the collective level of mental programming... common to a group... but different... to other groups' (Hofstede 2001, p. 2),

which may be construed to imply that culture is observable only at the collective level. However, though cultures may be developed to meet societal needs (Hofstede, 2001, Lenartowicz and Roth, 1999, Schwartz, 1994b), the emergent cultures engender cultural values in individuals (Fernández *et al.*, 1997, Rokeach, 1973, Triandis, 1979). As such, as a result of membership of a collective, an individual may be ‘cultured’ in so definable a way that s/he has different values to an individual from another collective; and like other psychometric constructs, we can use summated rating scales (e.g. Edwards 1997) to measure his/her latent cultural values by observing the level of his/her beliefs that are indicative of the values of interest.

There are pros and cons to our approach. We cannot directly extrapolate our results to societal level. Doing so would be to commit what Hofstede (2001) refers to as the ‘reverse ecological fallacy’. This limits the extant literature that we can use to frame our results as the effects of the cultural values, specifically collectivism-individualism, may vary by level of analysis (Oyserman *et al.*, 2002). We are, on the other hand, able to study the cultural values of individuals *irrespective* of the causal collectives. We argue that, with respect to project practice, this approach is not just advantageous but unavoidable too because project practitioners may routinely enter (and leave) group after group in their work on different projects. It would be difficult to separate the effects of such group cultures from each other and from wider cultures, such as ‘national’. We contend further that a study of macro (country) level relationships would be less useful to project management practice because it is usually individuals that interact in projects, not countries.

## **[2.2. Establishing Project Success/Failure Indicators \(PSFIs\)](#)**

We collected data, principally, from Brazil, China, Greece, Nigeria, Thailand, the United Arab Emirates (UAE), the United Kingdom (UK) and the United States (US). We selected these eight countries based on two intertwined criteria: First, with the exception of China, all eight appeared in Hofstede's original country rankings; with Nigeria under 'West Africa' and the UAE under the 'Arab World'. China was sampled later in Hofstede and Bond's (1988) work on China. Judging from the original country scores on the four dimensions, we were able to infer that data collected from these eight countries would prove heterogeneous between nations. Second, Cavusgil and Das (1997) recommend that to conduct cross-cultural research effectively, the researcher must understand (i) the national culture, (ii) the phenomenon under study and (iii) how the phenomenon may be conceptualised against at least one other culture. Therefore, rather than compromise our research by having our researchers based remotely from each 'foreign' country under study, the eight countries were selected because there was a member of the research team living there who was either a national or long-term resident of the country and could therefore understand its national culture. Each country researcher was also a project management expert who had travelled extensively.

Above, we reported that there are no longer universally accepted measures of project success and or failure. Therefore, the next part of the study was to establish what, according to practitioners based in the selected countries, could be used as appropriate measures of project success or failure. This objective was achieved by interviewing practitioners based in the selected countries. The interviewees were identified and recruited to the study through project management professional networks. All interviews were conducted locally by the researcher based in that country. In total, 40 interviews took place between January and May 2010. Each interview lasted 45 to 60 minutes and was semi-

structured. Table I shows the framework for the interviews, which was derived from a review of literature on the cultural context of project management (Hofstede, 1983a, Keil *et al.*, 2000, Zwikael *et al.*, 2005). All interviews were conducted in English; except in Brazil, China and Thailand where each interview was conducted in the country's national language (then transcribed and translated into English by the interviewer).

**[Table I about here.]**

Following transcription, an independent researcher (i.e. not one of the interviewers) coded the interview transcripts for emergent themes in Nvivo 8. Four themes emerged: *determinants of success*, *assessing success*, *perception of success* and *stakeholders' perception*. The content of the interviews under each theme was then analysed in detail. From the content analysis of the 'assessing success' theme, we identified ten measures of project success or failure. These (measures) are classed in this paper as *project success/failure indicators (PSFIs)* from which the research will seek to identify more robust *project success/failure factors (PSFFs)*, as explained in section 2.4. The ten *PSFIs* (shown in table II) are similar to those identified in previous studies that have examined project success/failure measures. Of particular relevance are Hoegl and Gemuenden (2001) who focussed on team development as a success factor; Pinto and Slevin (1987) who extended measures of success (beyond the so-called golden triangle of time, cost and quality) to include 'client satisfaction', 'technical validity' and 'organisational effectiveness'; Shenhar *et al.* (2002) whose model included thirteen indicators, the most distinctive of which (compared to previous models such as Pinto and Slevin, 1987) was the addition of 'commercial success' and 'market share'; and most recently Muller and Turner (2007) and

Muller *et al.* ( 2012) whose eight measures are very similar to ours, though they combined time, cost and quality into one indicator.

**[Table II about here.]**

### 2.3 Survey Instrument for Cultural values and Project Success/Failure Indicators

To enable concurrent data collection of individuals' cultural values and perception of the importance of *PSFIs*, we designed a survey instrument comprising three sections:

In the first section, data were collected on independent individual characteristics, viz. age, gender and primary project role, i.e. the role with which each respondent had accumulated most experience within project environments. Stull and Von Till (1994) found that, beyond age and gender, individual levels on the four Hofstede dimensions may vary as a result of exposure to other cultures. Therefore, to get an appreciation of the amount of cross-cultural exposure within our sample of respondents, we also collected data on their country of birth, country of residence (i.e. where s/he was living at the time of the survey), the number of languages besides their native language that they could speak fluently, the number of countries other than their birth or residence (if different) they had visited for up to three weeks and also, as a separate item, for longer than three weeks.

In section two, each individual's cultural levels were captured. Instead of Hofstede's original scales, we used items *based on* Hofstede's (1980) original four dimensions developed by Stull and Von Till (1994). Stull and Von Till tested their items by comparing them with six other scales that measure aspects of culture (including Hofstede's 'HERMES' scale); and, as a result, appear much more reliable than Hofstede's original scales [see, for example, Fernández *et al.* (1997) for a critique of Hofstede's scales]. The Stull and Von Till scale was developed to measure cultural levels on the four dimensions at the *individual*

level. Levels of uncertainty avoidance, power distance, individualism and masculinity are each measured as summated values of 10 sub-items on a bipolar Likert scale. Apart from the reasons discussed in section 2.1, there are further advantages for adopting this summated rating scale instead of Hofstede's original scales. One is that we were able to analyse the impact of the four cultural value dimensions simultaneously using the same structural equation model (SEM). Such parametric analysis would not have been appropriate had we used Hofstede's original method of calculating power distance scores using categorical data (Winch *et al.*, 1997). Winch *et al.* (1997) also argue that Hofstede's uncertainty avoidance scale contain a behavioural variable measuring feelings at work rather than cultural values.

In the final section of the survey, respondents were asked to rate on a five-point bipolar Likert scale how important they thought each of the ten *PSFIs* (in table II) were. To increase the validity of responses, for each *PSFI*, an example of how 'success' and 'failure' for that *PSFI* could be determined was given (please see the third and fourth columns in table II).

Once completed, the initial survey was piloted with 47 MBA students at the University of Southampton who were, at the time, taking a module in project management. The pilot sample was selected firstly on the basis of their similarity to the target population: They were experienced managers; most with experience of projects as managers and their study of project management also meant they had a good understanding of project management, particularly factors that may influence success or be used to assess success. The group was also multi-cultural, representing many different nationalities. Secondly, two of the researchers had sufficient access to the pilot sample so that they were able to extensively debrief the pilot respondents about characteristics of the instrument that could

have led to inaccurate data collection [e.g. Dillman (2007)]. Feedback obtained was used to revise the clarity of the survey items in *the third section*<sup>1</sup>. The revised survey was re-distributed to the same group of MBA students and further fine-tuned as per their subsequent comments. The final survey was administered via two channels: (i) direct distribution by the researchers in each country to practitioners through his/her professional project management networks; and (ii) online through the PMI website. We used a 'snowballing' sampling strategy, whereby each practitioner contacted was asked to distribute the survey to his/her professional network. Though snowballing is a non-probability sampling technique, it is widely used in a situation such as this where a complete list (sampling frame) of appropriate responders (in this case experienced practitioners) does not exist, such as in Walker and Brammer (2009). The online survey was in English as were all directly distributed surveys, except those directly distributed in Brazil, China, Greece and Thailand: In these four countries, the surveys were first translated into the target languages and then back-translated by different bilingual translators, with identified differences resolved to ensure equivalence.

All survey data were collected between March and December 2011. In total, 1313 practitioners returned the survey. Of the 1313 returns, 58 were discarded because they were incomplete, with missing values in research-critical items (i.e. cultural value items, *PSFIs* or both), leaving 1255 usable responses. Of these, 64% were men; 36% women. Though the typical respondent was aged, on average, 36 years; the respondents' ages varied widely, ranging from 18 to 74.

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<sup>1</sup> No revisions were made to the first and second sections of the survey.



The 1255 practitioners lived in 31 different countries, covering all the major continents of the world. The majority of the data (96%) were collected from people living in the eight countries selected for the study (see table III). Comparison of the country of birth and country of residence at the time of the data collection suggests that, overall; just over 22% of the respondents were not living in their country of birth at the time of the data collection. Thus, the number of birth-countries of the respondents was much greater (62), leading to a wider spread globally. Closer examination of the percentage of people that were living in their country of birth at the time of the study reveals differences among the countries: almost all (at least 95%) of the respondents in Brazil, China, Greece, Nigeria and Thailand were nationals of those countries. In contrast, 28%, 24% and 69% of respondents in the UK, the US and UAE, respectively, were born elsewhere. About two in three (66%) respondents had made at least one short (up to three weeks) visit to another country besides their birth or current country of residence; 44% had made at least one longer visit of over three weeks. Additionally, most (79.4%) of the respondents were at least bilingual. It appears, then, that many respondents had either brief or long-term exposure (or both) to other national cultures beyond their own; some indirectly (e.g. by learning a foreign language) and others directly through foreign visits or residencies. It might therefore be untenable to suppose that, within our sample, there exists a 'pure' national culture within each country, especially in countries with a large expatriate community such as the UAE.

Acceptable Cronbach alpha values were found for all four culture value dimensions based on Hofstede (also shown in table III). So the ten sub-items under each dimension were summated into a single scale. In table III, the standardised values of each country's mean (vis-a-vis the sample mean and sample standard deviation) on the four dimensions are shown. It can be observed that none of the countries exhibit unusually high (or low) values

on all four dimensions. The UAE, the US and Brazil appear to have the strongest levels; whereas Thailand, Nigeria and the UK appear to have weak levels on all four dimensions. The remaining countries have mixed levels.

**[Table III about here.]**

As shown in table IV, there were altogether ten frequently occurring primary project roles. It can be seen that the majority of the respondents (87%) had gained at least some experience of project management environments; a fair proportion (52%) had hands-on experience as project managers, directors or consultants. We can conclude that most of the respondents are likely to have had experience of assessing some or all of the *PSFIs* under study; and should be able to not only understand what each *PSFI* entails but also assign it a meaningful level of importance. Overall, the majority (at least 80%) of practitioners considered all ten *PSFIs* either 'important' or 'very important'.

**[Table IV about here]**

#### **2.4 Structural Equation Modelling of Survey Data**

Finally, to answer the research question, the survey data were analysed using Structural Equation Modeling (*SEM*) in AMOS 19. We chose *SEM* because, taking an exploratory approach, it allowed us to examine how the *known* cultural values may impact on the hitherto *unknown* factorial structure (based on importance) of *PSFIs*. We tested three hypotheses *simultaneously* in the *SEM* model. The first was the main hypothesis which goes directly to answering the research question:

*H1: There exist variations in the importance individuals assign to PSFFs as a result of differences in levels in the four cultural values: individualism, uncertainty avoidance, masculinity and power distance;*

In order to account for the likely influence of both age and gender, we also tested:

*H2: There exist differences in the effect of cultural values on how individuals assign importance to PSFFs as a result of age; and*

*H3: There exist differences in the effect of cultural values on how individuals assign importance to PSFFs as a result of gender.*

Unlike the four Hofstede dimensions, there currently exists no research to support or suggest a particular factorial configuration for the *importance* of *PSFIs*. Therefore, to explore the factors, if any, which the importance individuals assign to *PSFIs* reduce to, an independent exploratory factor analysis (*EFA*) was conducted *a priori* on the ten *PSFIs*. The results of the *EFA* were then used to guide the development of the *SEM* model. *EFA* is often used in a situation such as this to investigate whether interrelationships exist among a large number of variables (the *PSFIs* in this case); since if interrelationships do exist, the number of variables can be reduced into a smaller number of more robust factors. Reducing the number of variables reduces complexity, which, it is hoped, helps reveal clearer insights. Similar applications in project management include Muller *et al.* (2012) who linearly combined project success indicators into one overall success factor; and Shenhar *et al.* (2002) who examined pre-defined dimensions of success using multivariate methods.

### **3. Results**

#### **3.1 Exploring the Factor Structure of Importance Assigned to PSFIs**

Figure 1 shows the scree plot obtained from the *EFA* of the ten *PSFIs*. Based on the widely used *Kaiser's rule* of retaining only factors with Eigenvalues greater than unity, the first two factors should be retained. The curvature of the scree plot supports this decision. There is a clear, sharp change in gradient (an 'elbow') at factor 2. In moving from factor 1 to 2, there is significant improvement in the amount of variance explained. After factor 2, the improvement due to each successive factor diminishes to less than 5%. This suggests the main commonalities in how individuals attach importance to *PSFIs* are captured by the first two factors, which together explain 53% of the variance. The other factors account for uniqueness.

**[Figure 1 about here]**

To facilitate factorial interpretation, the initial component matrix was rotated using the Varimax criterion. Subsequently, the loadings of the 10 *PSFIs* on factors 1 and 2 were as shown in table V below.

**[Table V about here.]**

We can observe in table V the high positive loadings of 'budget', 'risk/safety and communication' and 'time' on factor 1. Collectively, these high loadings suggest a common 'project control' focus. Simultaneously, the high positive loadings of 'client/sponsor brief', 'project scope' and 'wider society/economy' suggest the impact or effectiveness of a project externally, i.e. beyond the project team and their parent organisation. Hence, in brief summary, this factor appears to combine indicators of *project control and extra-organisational goals*. To begin to interpret this domain in ways that could hold implications for project management practice, we might say that by conceiving of project success as 'a

*job done to specification, on time and on budget'* factor 1 managers seem to emphasise a traditional, task-focussed managerial professionalism.

Turning to factor 2, we observe strong positive loadings for 'leadership and decision making', 'the project team' and 'business/organisational goals'. In brief summary, this factor appears to bring together indicators of *project team management/development and intra-organisational goals*. Tentatively, and mindful of the possibility that differences between factor 1 managers and factor 2 managers could have ramifications for project management practice, we chose to differentiate this from the first domain by conceiving of it as more *people-focussed*. Factor 2 managers may be more likely to value their social relations and experiences as project managers – e.g. their direct interactions with project partners and parent organisations – as proxies for project success. Hence whereas factor 1 managers may rely more on formal measures and indicators of project success, factor 2 managers may be more likely to derive insight from less tangible proxies such as perceived levels of social capital or amicable cooperation in project teams. On this interpretation, their greater concern for 'intra-organisational' as opposed to 'extra-organisational' goals may simply reflect their greater concern for how they interact with line management within their parent organisations, as opposed to how they perform on measures that tap into their projects' social and environmental impacts.

Our tentative differentiation, on which further development we defer to our conclusion, seems to be one that project planners, concerned to improve the fit between types of project and managerial skillsets, could find useful. Specifically, factor 2 managers could be better managers of project novelty and ambiguity in circumstances where traditional mechanisms of project control are ineffective. They may find that by scanning

their social environments for patterns of effective and ineffective co-working, they can outperform factor 1 managers through superior alertness and responsiveness to hard-to-anticipate and fast moving project issues.

Based on these results, the initial *SEM* model was developed with the *PSFIs* loading on factors 1 and 2, which were *project control and extra-organisational goals*; and *project team management/development and intra-organisational goals*, respectively. Of the ten *PSFIs*, 'quality' has the most ambiguous correlations with the two factors: The absolute difference of its loadings on the two factors (0.354 vs. 0.589) is not as great as those of the other nine *PSFIs*. We therefore decided to model 'quality' initially as cross-loading on both factors. We note in particular that this variable's stronger loading on factor 2 does not necessarily conflict with our view that factor 2 project managers may be less reliant on traditional measures of project success.

### **3.2 Structural Equation Modelling (SEM) Results**

Preliminary analysis showed significant non-normality within the dataset. As such, the *SEM* model was estimated under asymptotic distribution free (*ADF*) estimation, which is the appropriate technique when the assumption of multivariate normality is violated (Browne, 1984). To take into account gender effects, the model was run under multi-group analysis, setting gender as the grouping variable. The final *SEM* model was extracted with a goodness-of-fit index (*GFI*) of 0.958, adjusted goodness-of-fit index (*AGFI*) of 0.929 and root mean square error of approximation (*RMSEA*) of 0.035 (with a p-value of the *RMSEA* being close to 0.05 of 1). Given these fit statistics, it can be concluded that the final model fitted the data very well (Byrne, 2010).

The *SEM* results support all three hypotheses, i.e. cultural values of individualism, masculinity, power distance and uncertainty avoidance impact on the level of importance individuals assign to *PSFFs* (H1); and that the effects of the cultural values on *PSFFs* vary with age (H2) and gender (H3). The relationships between the four cultural values, age and *PSFFs* were as shown in figures 2 (females) and 3 (males). Except for the coefficient of factor 1 on quality for women, *all* the path coefficients shown in figures 2 and 3 are statistically significant at least at the 0.05 p-value level. We will now report the *SEM* results in greater detail.

#### H1: Impact of Cultural values on Importance assigned to *PSFFs*

As shown in the path diagrams (figures 2 and 3), both power distance and individualism appear to significantly affect the two *PSFFs*. This is not so for masculinity and uncertainty avoidance: masculinity only significantly affects factor 1, uncertainty avoidance only factor 2. As the levels of masculinity and power distance increase, the importance individuals attach to project control and extra-organisational goals is likely to increase. Similarly, it is likely that individuals with higher levels of collectivism<sup>2</sup> and uncertainty avoidance will assign higher levels of importance to project team/management and intra-organisational goals. In contrast, higher levels of individualism are likely to be associated with higher levels of importance being assigned to project control and extra-organisational goals; and higher levels of power distance are likely to be associated with lower levels of importance being assigned to project team management/development and intra-organisational goals. These results appear intuitively sensible.

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<sup>2</sup>In this paper, 'individualism' represents values on the individualism-collectivism continuum and were coded such that low scores represent strong individualism and high scores strong collectivism.

Turning to the size of the effects, of the four Hofstede dimensions, the largest differences in the importance individuals (of any gender) assign to project control and extra-organisational goals are likely to coincide with differences in levels of masculinity. In contrast, cultural values that are associated with the greatest differences in importance attached to project team management/development and intra-organisational goals are different for men and women: For women, the largest differences are likely to be observed as a result of variations in individualism, whereas for men it would be uncertainty avoidance.

### H2: Impact of Age on Importance assigned to *PSFFs*

Age appears to affect the perception of the importance of project control and extra-organisational goals both directly and indirectly. Directly, older individuals are likely to assign higher values to project control and extra-organisational goals. Indirectly, age moderates the relationships by strengthening the levels of power distance and masculinity, both of which are likely to be associated with the assignation of higher levels of importance to project control and extra-organisational goals. Age also appears to affect the level of individualism, which is associated with lower levels of importance assigned to project control and extra-organisational goals.

The relationship between age and the perceived importance of project team management/development and intra-organisational goals was found to be insignificant.

### H3: Impact of Gender on Importance assigned to *PSFFs*

Statistically significant differences were observed between men and women in the effects of *all the* cultural values on the *PSFFs*. The biggest differences between men and women occurred on the effects of masculinity and individualism. On project control and extra-organisational goals, the effects of both masculinity and individualism are larger for



men than women. On project team management/development and intra-organisational goals, individualism has a stronger effect for women than men.

Another notable difference between men and women is that the effect of age on project control and extra-organisational goals is substantially larger for women than men.

**[Figure 2 and Figure 3 about here]**

#### SEM Model Fit: Factorial Structure of Project Success/Failure Indicators (PSFIs)

The path coefficients of the two factors on the *PSFIs* were all positive, lending support to the initial factorial configuration suggested by the exploratory factor analysis. The exception was 'quality'. As reported above, the path coefficient of project control and extra-organisational goals on 'quality' for women did not reach statistical significance. This contrasts with the model for men, where the coefficients of both *PSFFs* were positive and significant. As such, the *SEM* model appears to indicate a different factorial configuration of the *PSFIs* for women and men such that while men may perceive 'quality' a constituent of both *PSFFs*, for women it could be mostly a constituent of project team development and intra-organisational goals (*factor 2*).

To see how much of the importance attached to each *PSFI* can be explained by the *SEM* model, we inspected the R-squared value for each *PSFI* as shown in table VI. The *SEM* model accounts for from around 7% to around 38% of the variance of the importance attached to the *PSFIs*. Generally, the percentage of variance accounted for is slightly higher for men than women, which suggests that beyond cultural values, gender and age, other factors such as project context may be marginally more influential for women than men.

**[Table VI about here.]**

## 4. Conclusions and Further Work

Based on content analysis of interview transcripts of 40 project practitioners, we found that practitioners may assess projects using ten project success/failure indicators (*PSFIs*). Using Exploratory Factor Analysis (*EFA*), we found that, rather than independent, the weights practitioners assign to the *PSFIs* are correlated so that the ten *PSFIs* can be reduced to two, more robust, project success/failure factors (*PSFFs*). Given its correlation with the *PSFIs* 'project scope', 'time', 'budget', 'client/sponsor brief', 'risk, safety and communication' and 'wider society/economy'; we interpreted factor 1 to be a representation of *project control and extra-organisational goals*; and factor 2 to be a representation of *project team management/development and intra-organisational goals* owing to its correlation with *PSFIs* 'business/organisational goals', 'the project team' and 'leadership and decision making'.

The *EFA* results imply that when practitioners weight *PSFIs*, rather than following a simple, one-dimensional view where all indicators can be unified into one factor à la Muller and Turner (2007) and Muller *et al.* (2012); the weighting of *PSFIs* is more consistent with the model of Shenhar *et al.* (2002) in that it is multi-dimensional. To begin to understand what this implies for project management practice, one may look at the two factors, in broad terms, as the two main orientations project practitioners may adopt when assessing projects. In this regard, factor one represents a task-focus and external outcomes orientation; an orientation which, it can be argued, is representative of the success factors used in earlier research by Pinto and Slevin (1987); factor two represents a people-focus, internal outcomes orientation, covering *PSFIs* very similar to those used by Hoegl and Gemuenden (2001). In itself, each orientation seems like a natural way to assess success/failure but put together the two orientations are not without contrast: It is likely

that the typical project practitioner will experience some uncertainty, even conflict, when attempting to weigh *project control and extra-organisational goals* (factor 1) alongside *project team management/development and intra-organisational goals* (factor 2). The weighting of quality could be particularly problematic. It appears to overlap the two factors.

Next, using structural equation modelling (*SEM*), we found support for our hypotheses that the levels individuals assign to the two factors are dependent on cultural values (H1) as well as age (H2) and gender (H3). We believe these observed effects have practical implications for project management practice on the matching of practitioner cultural values to projects. We can also postulate the effects of differences in cultural values on decision performance within project teams.

The *SEM* results suggest that the effect of cultural values resolve down into two alternative managerial styles which each seem to be more suited to different kinds of project. Our results for H1 allow us to elaborate beyond what we said initially about these two styles. They show, for one thing, that our 'factor 1' managers, irrespective of gender, are more likely to possess *masculine* cultural values. Hofstede (Hofstede, 1980) describes masculine individuals as tough-minded, egotistical, materialistic, and prepared to resolve conflict through force rather than consensus. They prefer to work within fixed role structures and are not, as we suggested our factor 2 managers are, 'relationship oriented'. All of this supports our earlier interpretation of factor 1 managers as task-focused traditional managers who rely heavily on those simpler and more traditional project measures that are used to greatest effect within structured and predictable project environments. These project managers can be viewed as experts who are very independent and autonomous when making the key decisions (Chasserio and Legault, 2010).

Earlier, we interpreted factor 2 managers as perhaps being better suited to dealing with project novelty and ambiguity because of their greater use of social intelligence as a project skillset. This is supported by two of our *SEM* findings for H1. Firstly, it emerged that factor 1 managers tend to be *individualists* whereas factor 2 managers are more likely to be collectivists. Secondly, factor 2 managers score highly on *uncertainty avoidance*. Given that uncertainty avoidant managers are well known to seek risk reduction opportunities by engaging proactively, dynamically and strategically with complex and shifting environments (Schneider and De Meyer, 1991, Geletkanycz, 1997) it does indeed seem plausible that they constitute the best choice of manager for projects characterised by novelty and ambiguity.

What emerges from our study, then, is a dual typology of managerial styles which project planners perhaps ought to consider when matching ways of thinking about project success or failure to levels of project novelty and ambiguity. *SEM* findings for H2 (age) show that our factor 1 managers tend to be older, which is consistent with what we have said concerning their more traditional approach. Findings for H3 (gender) show that the factor 1 managerial style is strongly associated with male gender in particular. Yet, it appears that age has a stronger effect on factor 1 for women than men, which could very well be a reflection of the more pervasive effect of project environments on women that Cartwright and Gale (1995) allude to. All of this knowledge can help project planners ensure the right skillset is in place for the right project. Project planners can also use this knowledge to *engender* the cultural values that are appropriate for their project program, feasible, particularly, in predictable situations where similar projects are repeatedly conducted.

One of the greatest challenges in group-decision making processes is the selection and weighting of decision criteria (e.g. Davey and Olson, 1998). Our *SEM* results suggest that

in heterogeneous environments, individuals are *likely* to assign weights to decision criteria (the *PSFFs* in broad terms or the *PSFs* in specific terms) differently as a result of gender, age and cultural values. Such differences, possible at any point in the project lifecycle, could harm decision performance diversely: In project investment appraisal situations, disparate, unresolved differences in the view of the importance of criteria may lead to poor project choice. In on-going projects, unresolved differences in the view of the importance of criteria may lead to misaligned priorities and commitments. In operational, complete or even decommissioned projects, differences in view of success criteria may lead to misunderstandings about the level of progress or fulfilment of project objectives, which may explain, at least in part, difficulties in sustaining stakeholder confidence that Chen *et al.* (2009) found. It is critical then that project practitioners at all levels understand that such differences are likely and attempt to resolve them, for example by using structured group decision making techniques such as AHP or Delphi (see for example, Lai *et al.*, 2002).

There is a potential upside: gender-, age- and culturally-variant weighting of criteria among individuals could create just the right level of debate (Elron, 1997), forcing project group decision makers to use multiple criteria. Conversely, homogeneous groups may be at risk of over-weighting some criteria while overlooking others, a scenario likely to cause use of non-compensatory and/or incomplete sets of decision criteria.

The foregoing discussion affirms what the literature (Hofstede, 1983a, Motwani *et al.*, 2002, Salk and Brannen, 2000, Symkhovych, 2009) has often asserted: It is critical that project practitioners, particularly those operating globally, are competent in multi-cultural interactions. Our specific contribution to this body of research is that we have specified how knowledge of the cultural values may be used to match practitioners to levels of project

novelty and ambiguity or what cultural values should be engendered in individuals to match these project characteristics. We have also suggested hypotheses on how differences in cultural values may impact on decision making performance in projects.

We see a number of ways this study can be extended. First: How important is expatriate status? On exploration of our sample of project practitioners, we found that a significant proportion of them were expatriates. Yet our primary research hypotheses do not directly examine the impact of expatriate status on perceptions of project success/failure. To begin to rectify this limitation, we tested a fourth, post-hoc hypothesis:

*H4: There exist differences in the levels of importance practitioners assign to PSFIs due to expatriate status.*

To examine if differences exist between expatriates and non-expatriates in the distribution of the levels of the importance they attach to each of the ten *PSFIs*, we conducted Wilcoxon-Mann-Whitney tests on each *PSFI*, setting expatriate status (= 0 if living in birth country, 1 otherwise) as the grouping variable. We used non-parametric tests because, as we reported earlier, the distributions of values on the *PSFIs* were significantly non-normal. The results, shown in table VII, partially support the hypothesis. There were statistically significant differences on four of the ten *PSFIs*; namely 'business/organisational goals', 'client/sponsor brief', 'leadership and decision making' and 'quality'. These results indicate that expatriate status may indeed be important in how practitioners perceive project success. A more thorough examination of its impact in project management would be valuable. It would be interesting, for example, to explore whether managers who have been working abroad for a significant amount of time do actually switch their cultural orientation (Friedman *et al.*, 2012). With increasing globalisation and the increased

potential for multicultural projects it would be interesting to measure a project manager's ability to adapt to the business environment and changing circumstances.

**[Table VII about here]**

Second, though, as we said earlier, they appear intuitive, our findings beg many separate questions concerning why either factor 1 or factor 2 managerial styles should arise within specific cultural contexts. We suggest that longstanding psychology literature on *task versus people focus* might well help shed further light on these different styles at the individual level. Sociological and cultural literatures dealing with the global inter-generational shift from *materialist* to *post-materialist value orientation* might also provide a viable framework for exploring our two managerial styles within the broader context of global cultural change.

Third, we have explored the *likely* effects on decision making performance as a result of the individual differences (gender, age, cultural values) in importance attached to *PSFFs*. The next step would be to test if these effects do indeed occur.

Finally, research shows that contexts such as in-group or out-group situations can moderate the effects of the cultural values on outcomes; and effects observable at individual level can be absent or contrary at group level (Kirkman *et al.*, 2006, Oyserman *et al.*, 2002). Similarly, project complexity has been shown to moderate the effect of leadership on project performance (Muller *et al.*, 2012). Thus, it would be of great benefit to project management practice to examine if group characteristics such as degree of cultural heterogeneity (cultural distance) and project complexity do moderate the effects of the cultural values we have reported.

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Table I Main Interview Framework

Question	Rationale
What are the determinants of success and failure and how are they ranked and related?	<i>For example, can high success in one factor compensate for failure in another factor so that the overall perception is project success? These factors would include the traditional measures, time, cost, quality, scope, safety, but can also include many more dynamic and flexible measures. They can also include reference to technical and business performance measures.</i>
Is project success and failure gradable?	<i>For example, are some projects extremely successful, while others are just slightly successful? In other words, is project success and failure a fuzzy concept?</i>
When are perceptions of success and failure formed and do they change with time? When can a final 'reliable' or 'stable' perception be formed?	<i>This question relates to stages in the project life cycle. This question can be followed up by with prompting for examples from the interviewees' experiences.</i>
Do different stakeholders form different perceptions? (sponsor CEO, CIO, CFO, programme director, project manager, contactor, end user, consultant, member of the public, etc.	<i>Perceptions may differ between different types of stakeholder. The interviewee should be encouraged to express their free (i.e. with little or no prompting) views on projects.</i>

Table II: Project Success/Failure Indicators Identified from Interviews

Short Description of Indicator	Longer Description of Indicator	Example of 'Success' under this Indicator	Example of 'Failure' under this Indicator
<b>Client/Sponsor Brief</b>	Achievement of intended outcomes as defined by the sponsor/owner/client.	The project achieved all its intended outcomes as defined by the sponsor/owner/client.	The project achieved none of its intended outcomes as defined by the sponsor/owner/client.
<b>Bus/Org Goals</b>	Contribution to business goals.	The project made a significant and valuable contribution to business goals.	The project made no contribution to business goals.
<b>Wider Society/Economy</b>	Contribution to society/community/economy.	The project made a significant and valuable contribution to society/community/economy.	The project made no contribution to society/community/economy.
<b>Project Scope</b>	Planned and approved project scope (including any approved changes).	The project was completed within scope.	The project was completed significantly under or over scope.
<b>Budget</b>	Planned and approved budget (including any approved changes)	The project was completed under or on budget.	The project was completed significantly over budget.
<b>Time</b>	Planned and approved project time (including any approved changes).	The project was completed within or on time.	The project was completed significantly late.
<b>Quality</b>	Planned and approved quality and performance criteria.	The project met or exceeded all quality and performance criteria.	Some or all of the project's quality or performance criteria were not met.
<b>Risk, Safety and Communication</b>	Communications, risk and safety management.	The communications, risk and safety were effectively managed.	Communications, risk and safety were poorly managed.
<b>Lead/ship &amp; Dec. Making</b>	Project leadership and decision making	Most stakeholders agree that project leadership and decision making were appropriate and effective.	Most stakeholders agree that project leadership and decision making were neither appropriate nor effective.
<b>The project team</b>	The project team	The project team worked effectively and lessons were learned for future projects.	The project team did not work effectively and lessons were not learned for future projects

Table III: Standardised Country means: Cultural Values Based on Hofstede Dimensions

Country	Number of Respondents	Individualism (alpha = 0.69)	Masculinity (alpha = 0.59)	Power Distance (alpha = 0.73)	Uncertainty Avoidance (alpha = 0.64)
Brazil	204	-0.5	0.3	0.72	0.69
China	201	-0.28	-0.33	-0.82	-0.24
Greece	273	-0.94	0.29	0.07	-0.66
Nigeria	124	0.23	-0.83	-0.69	-0.46
Other Countries	55	-1.01	0.49	0.94	1.07
Thailand	36	0.43	-0.69	-0.72	-0.48
United Arab Emirates	106	-1.15	1.01	1.26	1.31
United Kingdom	211	0.34	-0.48	-0.61	-0.42
United States	45	0.93	0.58	1.27	1.15

Table IV: Distribution of Primary Project Roles

Project Role	Frequency	Percent	Project Role	Frequency	Percent
Project Consultant	161	13	Little Or No Experience Of Project Management	145	12
Project Director	129	10	Project Assistant	2	< 1
Member Of The Public	82	7	Steering Committee Or Project Board Member	44	4
Project End User	91	7	Project Support	158	13
Project Sponsor, Client or Customer	44	4	Other (Role not specified)	17	1
Project Manager	362	29			

Table V: Factor loadings of *PSFIs* after Varimax rotation

Variable ( <i>PSFI</i> )	Description of <i>PSFI</i>	Factor 1 ( <i>PSFF 1</i> )	Factor 2 ( <i>PSFF 2</i> )
Budget	Planned and approved budget (including any approved changes)	<b>.740</b>	.233
Bus/Org Goals	Contribution to business goals.	.203	<b>.592</b>
Client/Sponsor Brief	Achievement of intended outcomes as defined by the sponsor/owner/client.	<b>.688</b>	.169
Risk, Safety and Communication	Communications, risk and safety management.	<b>.607</b>	.308
Lead/ship & Dec. Making	Project leadership and decision making	.147	<b>.791</b>
Quality	Planned and approved quality and performance criteria.	.354	<b>.589</b>
Project Scope	Planned and approved project scope (including any approved changes).	<b>.777</b>	.172
Wider Society/Economy	Contribution to society/community/economy.	<b>.525</b>	.194
Time	Planned and approved project time (including any approved changes).	<b>.774</b>	.160

Table VI: Amount of Variance of each *PSFIs* explained by the SEM

Project success and/or failure indicator ( <i>PSFI</i> )	R-square Values	
	Females	Males
Budget	0.116	0.18
Bus/Org Goals	0.168	0.226
Client/Sponsor Brief	0.385	0.136
Risk, Safety and Communication	0.079	0.26
Lead/ship & Dec. Making	0.129	0.086
Quality	0.11	0.127
Project Scope	0.156	0.26
Wider Society/Economy	0.199	0.127
Time	0.087	0.332
The project team	0.09	0.075

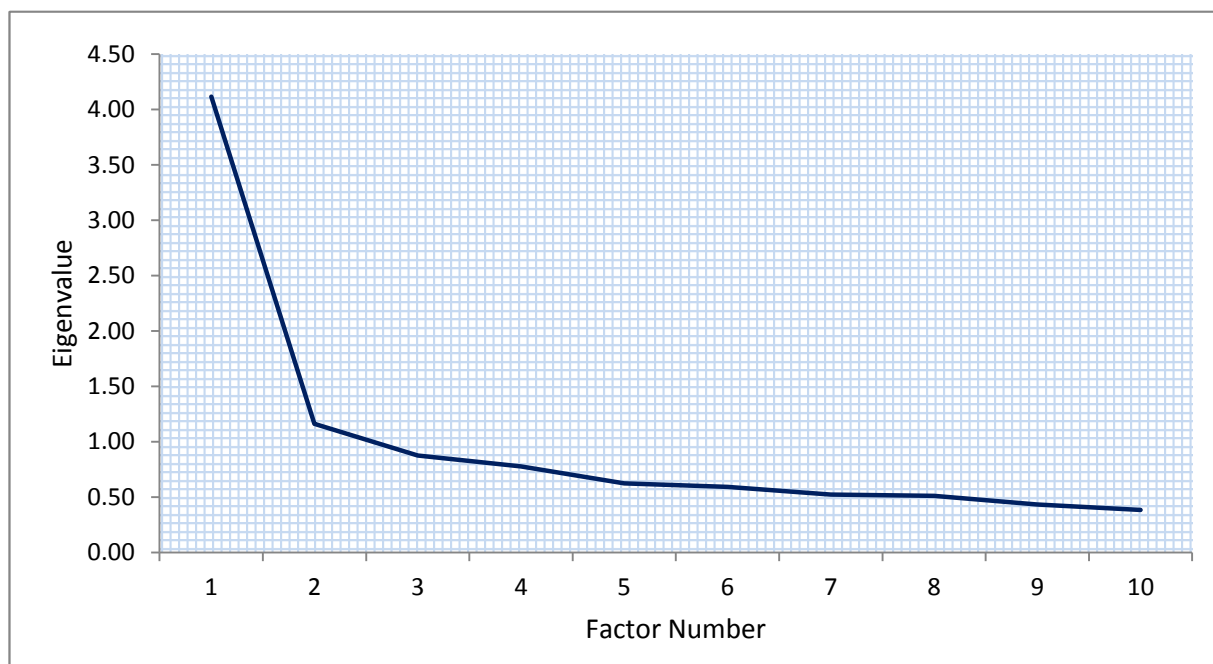
Figure 1 Scree Plot: Dimensionality of *PSFIs*



Figure 2: SEM Standardised Path Coefficients for Females

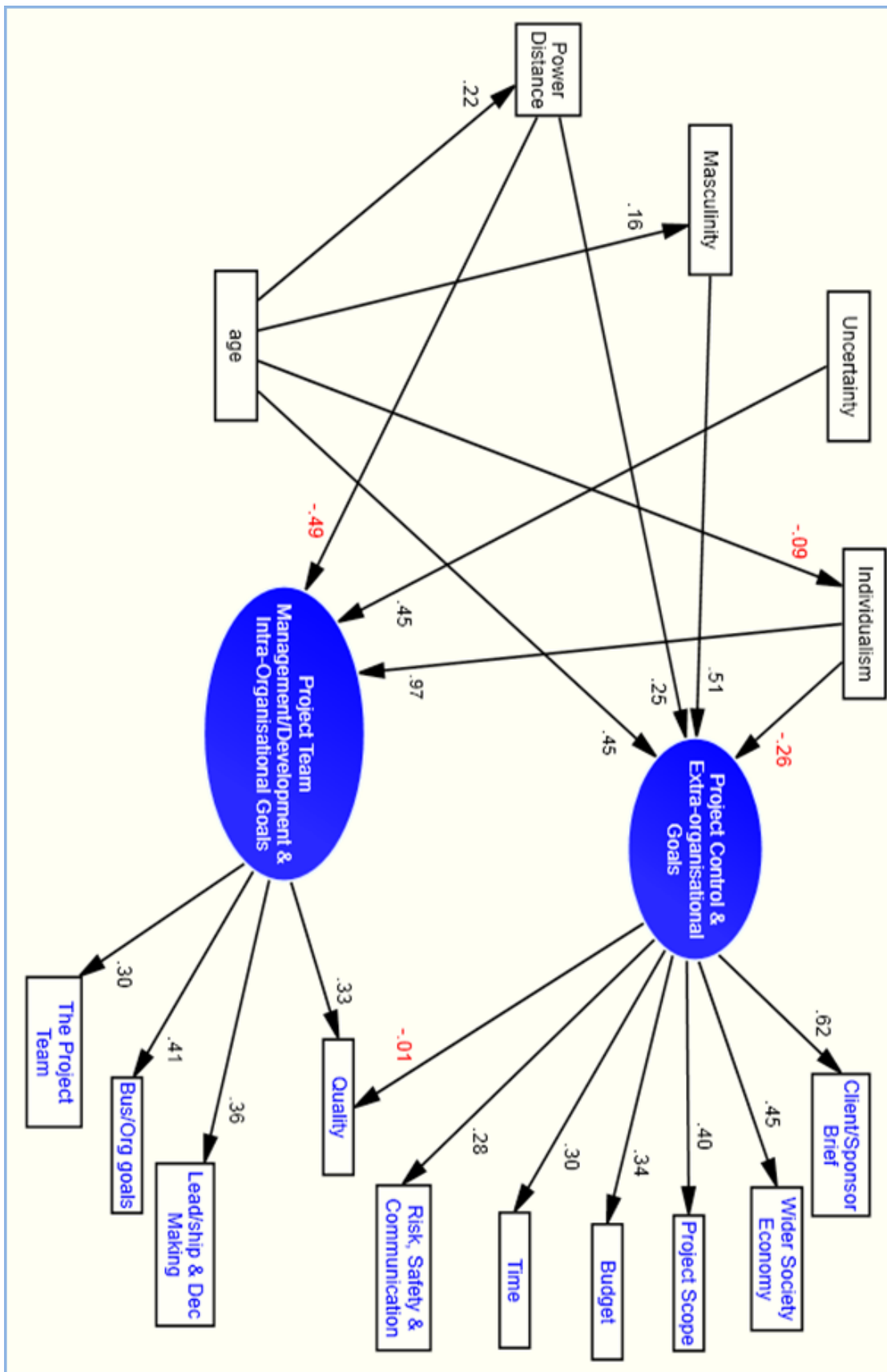


Figure 3: SEM Standardised Path Coefficients for Males

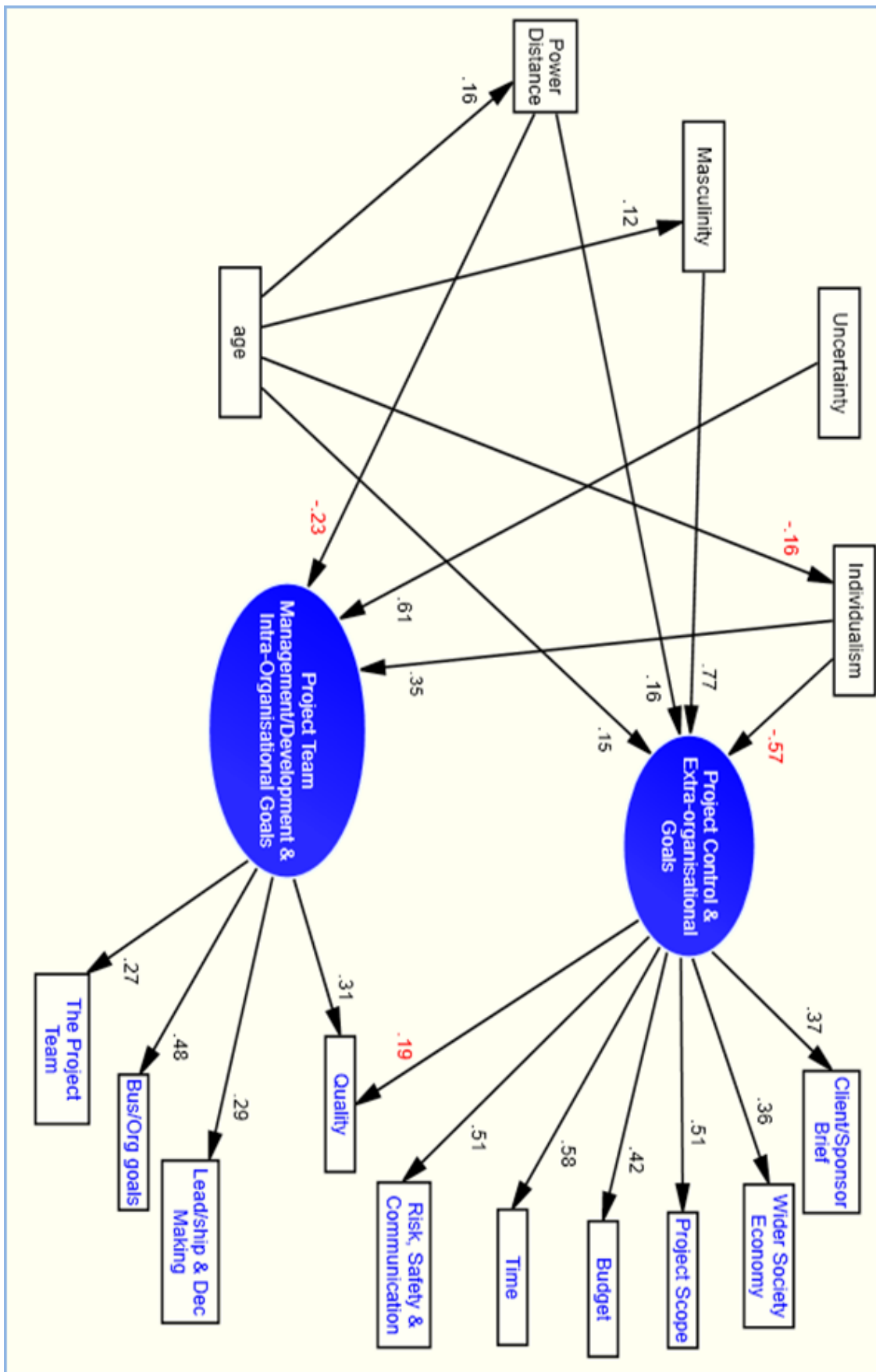


Table VII: Differences in Distributions of Importance Ratings of *PSFIs* by Expatriate Status

<b>Project success and/or failure indicator (<i>PSFI</i>)</b>	<b>Mann-Whitney U</b>	<b>Wilcoxon W</b>	<b>Z</b>	<b>P-value (2-tailed)</b>
Budget	127608.5	166668.5	-1.784	0.074
Bus/Org Goals	120406	597182	-3.264**	0.001
Client/Sponsor Brief	110291.5	149351.5	-5.44**	0.000
Risk, Safety and Communication	135401	174461	-0.16	0.873
Lead/ship & Dec. Making	120999	597775	-3.105**	0.002
Quality	123243.5	600019.5	-2.661**	0.008
Project Scope	120973	160033	-3.138**	0.002
Wider Society/Economy	131357	170417	-0.971	0.332
Time	129277.5	168337.5	-1.443	0.149
The project team	131894	608670	-0.855	0.392
Grouping Variable: 0 if living in birth country, 1 otherwise				
** Z is significant at the 0.01 p-value level				