PROJECT TEAM PERFORMANCE WITHIN THE SCOTTISH WATER MARKET BASED PRIVATE FINANCE INITIATIVE

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This aim of this study was a comprehensive review of teams, based on the Northumbrian Water Group (NWG) consortia, bidding for Scottish Water PFI projects. NWG formed 3 separate consortia to bid for 6 of the 10 available PFI projects. The research had a number of objectives : to understand the performance of the NWG teams, to see how the NWG teams could be improved, to review the published work on all aspects of teams, to understand the differences between the NWG teams and other studies and to compare the findings from the NWG teams with current industrial practice. The study methodology used Charles Handy's teamwork model as a framework : to collect case study data from the NWG teams using a postal questionnaire and to review literature related to teams in the round. Research study data triangulation was achieved using industry based external validation. The study culminated in a project and team management support tool, in the form of a significant issue's checklist. The checklist contains 12 Key Success Factors (KSF) and 12 Key Barriers to Success (KBS), which when compared with the critical success factors and barriers identified in other studies showed good correlation.

Keywords: success factor, key performance, private finance initiative, case study.

INTRODUCTION

Northumbrian Water Group (NWG) as part of their chosen corporate strategy began bidding for Private Finance Initiative (PFI) Projects, in the Scottish Water market. The approach NWG took was to form bid Joint Ventures (JV) with selected partners, and to bid for the projects as consortia. Then if a particular bid were successful, NWG would form a joint venture company, with their partners, for the life of the project. The principal reasons behind the decision to use project partners were : the use of financing with zero or limited security which is then off the NWG balance sheet, off balance sheet financing does not affect NWG financial gearing, the availability of consortia tax relief, having partners who already had relationships with the Scottish Water Authorities and who had common goals, cultures and complementary skills, to enhance the chances of project success.

The aim of this investigation is a comprehensive review of teams, which can be used to understand the NWG Scottish Water market PFI project consortia teams. The research had a number of objectives, which ultimately culminated in the output from the study. The objectives of the research study were to : understand the performance of the NWG PFI project consortia teams, understand how the NWG consortia teams could be improved, to review the published work on all aspects of teams, to understand the differences between the NWG teams and other studies, compare the

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findings from the NWG teams with current industrial practice, and to produce a project and team management support tool. The study sought to identify and understand the factors, which can be considered as the key success and failure criteria and which can affect the team's performance. This lead to the output objective of the study, which was:

"To produce a project and team management support tool, in the form of a significant issue's checklist. The checklist will identify the Key Success Factors (KSFs) and Key Barriers to Success (KBSs) for teams formed and working in alliance type project environments, e.g. Private Finance Initiative teams, Joint Ventures, Consortia and Partnering Environments."

METHODOLOGY

The methodology used in this research study contained three principal parts : the collection of quantitative data from the case study, the review of published literature to collect qualitative data and the triangulation of these two data sources by external validation.

The collection of data from the case study sample was carried out by postal questionnaire because of time, location, sample size and commercial. The questionnaire was designed and issued prior to the literature review, because of the time constraint. Charles Handy's (1993) teamwork model was used a framework for the questionnaire, which was piloted before being issued to the research sample. The collected data was collated and analysed for sampling error and to determine the central tendencies of the results.

The literature review of teams in the round had the purpose, as the secondary data source, of providing qualitative data from published literature. Handy's teamwork model was also used as the framework for the literature search and review. The categories and sub-categories of Handy's model were supplemented by additional search areas, to ensure the search was as open as possible; see Figure 1 - Research Scope Framework. The literature search filtered potential references by title and abstract down to 200 published articles. These articles were reviewed and graded according to the relevance of the subject matter (5-point scale) and the quality of the research (3-point scale), before being cited as references.

Triangulation of the two data sources, the case study and the literature review, with a third independent source gave the findings of the research study additional credibility. External validation was used because of the constraints of time, distance and sample size, which precluded the use of exit interviews, as the triangulation method. Charles Stewart of AMEC Process and Energy was asked, as the senior manager responsible for partnering arrangements, to carry out the validation of the study findings. The advantage of this method, for this study, is that it relates the study findings to industry practice, which also acts as a benchmark.

The limitations of the methodology for this study were time, commercial sensitivity and testing of the output support tool. The collection of the case study data was constrained by time, so the data collection questionnaire had to be issued by a certain date, or it may not have been possible to collect the data at all. This research study was started at a time when only 5 of the 10 Scottish Water PFI projects had been awarded. So the issue of commercial sensitivity constrained the case study sample size and make up. It was only possible to approach the members of the NWG consortia and therefore case study sample represented only 33% of the population, but it was made

up entirely of members of the NWG consortia. Testing of the support tool is not incorporated, therefore there is no feed back of any issues. The support tool need's testing, to confirm it's and therefore the research's validity.

Handy's Categories	Handy's Sub-Categories	Additional Research Categories
Givens	Group	Belbin, Hawthorne Experiments, Team and Group Factors, Group Performance
	Environment	Joint Ventures, Partnering, Consortia
	Task	PFI, Scottish Water Industry
Intervening Factors	Leader	Leadership
	Motivation	Motivation Theorists, Team Goal Focus
	Processes and Procedures	Decision Making, Group Idea Generation, Best Practices, Conflict Management Approaches
Outcomes	Member Satisfaction	Team working Approaches, Team / project Management
	Productivity	Joint Venture Outcomes, Team Performance v Project Success

Figure 1: Research Scope Framework

LITERATURE REVIEW

Charles Handy's (1993), teamwork model was used as a framework to prevent the literature search becoming too narrow. Handy proposes that there are three main categories of factors, which affect the workings of groups, these are: The Givens, The Intervening Factors and The Outcomes. Each of these categories is sub-divided, to give 8 sub-categories, which are: The Group, The Environment, The Task, The Leader, Motivation, Processes and Procedures, Member Satisfaction and Productivity. Handy proposes that all of these factors come together to determine how, a team will function.

The Givens

The group was studied using the team roles developed by Belbin (1981), by Henry and Stevens (1999), who concluded that the make up of groups, undertaking software development, did effect the overall performance of the group. They found that teams with a single clear leader, either a Chairman or a Shaper performed better, than those with either no clear leader or no clear single leader. Further Henry and Stevens stated that if teams are properly formed using Belbin's roles, then the team members are happier and more likely to remain with an employer, thus increasing the viability of the team. A significant part of any team member's make up is from their culture. This can come from: their up bringing, education, work place or nationality. Hofstede (1991), identifies 5 factors (Power Distance Index, Individualism / Collectivism, Masculinity / Femininity, Uncertainty Avoidance Index and Longtermism / Shortermism), which can affect national culture. Hofstede's caveat was that organisational cultures are different in many respects from national cultures, because people chose to join and remain with organisations. Hofstede's work highlights the fact that geographic location and physical distance are no guide as to the commonality or similarity of national cultures. An example of this is that for 4 of the 5 Hofstede factors Great Britain is culturally dissimilar to France, but is culturally similar to the USA, whilst being geographically closest to France.

The environment in which a project is undertaken describes such factors as: the type of project, the way in which the groups are linked to form the project team and the commercial arena. Williams, Han and Qualls (1998) compare the differences between the way American and Asian Pacific Rim companies form business relationships.

They used the work of Hofstede (1991) to identify the cultural differences between the two groups. Their work demonstrates that Individualism / Collectivism is the strongest of Hofstedes 5 factors, in explaining the differences between the two regions studied. They found that both structural and social bonding have a positive impact on the commitment of the team. However, they concluded that structural bonding had a much larger effect, on commitment, than social bonding.

The approach to the project Task as described by Parfitt and Sanvido (1993), in their work on building projects sought to define critical success factors. To establish what the critical success factors were, Parfitt and Sanvido first defined project success as the overall achievement of the project goals and expectations. They recognised that these factors would be different for the different parties involved in a particular project. They defined these factors as including: technical, financial, educational, social and professional issues. Parfitt and Sanvido compared their study to earlier research by Pinto and Slevin (1988) who had previously studied and validated a set of factors that they found to be critical to project success. Both sets of research determined that the, various factors identified as critical, are not equal nor does the priority order remain the same over the project life cycle. The Critical Success Factors, that Parfitt and Sanvido identified were: the Project Team, the Project Contracts, Contractual Obligations and Change Control Mechanisms, the Project Team's Experience and optimisation of the project technical, contractual and financial aspects.

THE INTERVENING FACTORS

Leadership research has been undertaken in many studies, Owens (1983) looked at the types of leadership: trait, style or contingency and how the type of leadership affects the project management role. Owens in discussing the relative merits of the three different approaches to leadership concludes that they all have situations when they are best used. However, he highlights the contingency approach as the most adaptable, because it emphasises that leaders should be placed in situations that are compatible with their natural leadership style. Owens identified a number of characteristics or traits that successful leader's posses, these are: initiative, self-confidence, high intelligence, social breadth and a willingness to accept responsibility. These traits are in general agreement with Goodwin's (1993) findings on the skills required by effective project managers. Dailey (1981) in his study of the leadership of R&D teams showed that leader's who had an external orientation, had team members who were happier with them as leaders.

Khan (1992) looked at increasing productivity by motivating the individual team members. Khan when looking at the personal motivators, in the production environment, references his work to the original Hawthorne Studies and a number of the general motivational theorists. Separate studies undertaken by Wilkinson, Orth and Benfari (1986) and Maloney (1986) considered motivation from different viewpoints and in different areas. However, the general views they reach with regard to the popular motivational theories concur with Khan's view that none of them are perfect. They also agree that the only way to arrive at a useable motivational theory, for a particular situation, is to develop it from the various general theories.

The Processes and Procedures of Joint Ventures (JV) type organisations were studied by Kumar and Seth (1998), in their investigations based on USA based manufacturing JV's. Their research identified two factors that influenced the design of the JV control

mechanisms. Firstly the strategic interdependence between the JV and each parent company, and secondly the environmental uncertainty faced by the JV. Nicholas (1994) in a study into the obstacles to teamwork used the Concurrent Engineering (CE) environment, because of its requirement for high levels of teamwork. Nicholas emphasises that a CE team needs to be a vital, highly interactive, multifunctional group of participants that forms a team. He identifies the obstacles to teamwork, how the team should be structured, what is required of the team leader and team behaviour. From his work Nicholas' advocates a small full time autonomous team that is co-located in a project office, led by a charismatic leader and staffed by a team of doers, who can be motivated by custom tailored rewards. Posner (1986), who surveyed 287 project managers, from various industries with responsibility for various sized projects, echo's the issues raised by Nicholas.

The Outcomes

Denton (1992) and, Beck and Yeager (1996) studied member satisfaction in separate studies on team building and how to prevent teams failing. These separate pieces of research essentially looked at the same issues, but from different perspectives. Denton's primary conclusion was that teams are more than just goals and objectives. Further he states that good teams are made up of people who have specific roles and responsibilities, but depend upon each other to achieve their goals. Denton highlights the factors he believes are vital to reach a position, where the team members are satisfied. These factors are: team bonding, roles and responsibilities, leadership and communication. The elements outlined by Beck and Yeager (1996) when they were looking at preventing teams from failing, are very similar to Denton's factors for team building.

Productivity as discussed by Donnelly and Kezsbom (1994) in their study of project team effectiveness, which looked at the factors that affected the productivity of teams. They cite leadership as being perhaps the most important factor in ensuring that teams are as productive as they can be, with the people and resources that form the team being next. In order to ensure maximum productivity the team make up most ensure: appropriate skills, ability and knowledge within the team, the correct team size, suitable technical and management training for the team members, an effective system for rewarding the team and team self accountability for success or failure.

Team Critical Success Factors

Thamain (1996) in his study on innovtive technical teams, found that the management of innovative engineering teams involves a complex set of variables related to the group, environment and task, which agrees with the model proposed by Handy (1993). The criteria for success Thamhain's studies identified were: Clear directions, A unified team working towards common goals, Clear communications both within the group and to the outside, A stimulating working environment, Professional growth potential, Mutual trust and good interpersonal relations together with Involved and supportive management. Thamhain's study looks at the totality of group performance, rather than focusing on a particular area. His research focused on 74 project teams consisting of 234 professionals and covered over 180 technical projects. Thamhain offers 4 barriers to effective team performance and 10 requirements for effective team management.

The work undertaken by Clarke (1999), looked at the implementation of the key success factors driving projects and found that "…although it is important to know and recognise individually each of the key success factors driving a project, they

should not be considered independently of each other…". It is not therefore possible to consider one or more factors in isolation and have the same impact on the project as if the factors were considered as part of the whole set of factors.

Conclusion
What has emerged from the literature review is that the key variables identified by Handy reoccur in some way in the majority of the published work reviewed. The completion of the literature review leaves a number of questions to be answered: what has this added to the research into the performance of project teams within the Scottish Water PFI market? and from the information gained where is the research going?. The review of published literature shows that the common issues for team formation, management and performance are essentially the same, with some minor variations depending upon the team and project environment.

RESULTS

The commercial issues surrounding the bidding of the Scottish Water PFI projects, meant that it was not possible to accurately determine the statistical population. However, with an assumption that the number of people per consortia was approximately the same as for the NWG consortia (an average of 15 people), and that there were the equivalent of 8 discretely different bidding consortia, this gave a total estimated population of 120 people. The size of the sample that completed and returned the questionnaire was 40 (or 75% of the 53 issued), which is 33% of the population. The results were checked for random sampling error using the Spearman Rank Correlation Coefficient, which gave a result of rho=0.871 which is above the critical value of 0.537 for a probability of $P<0.005$, when the number of questions compared was 24. The case study questionnaire was framed around Handy's (1993) team work model and hence so are the results.

The Team Givens (Group, Environment, Task)
The size of the project teams was in general between 11 and 15 people, with the team members being unclear as to whether this was right or wrong, whilst 50% of the team members thought that the right size was 6 to 10 members. The mix of the teams, both in terms of technical skills and Belbin's (1981) personality types, was thought be correct by at least 55% of the sample. Within the teams 45% of the sample felt that some of the team members were working to their own objectives.

The environment in which the projects were carried out was described by 77% of the team members as open, with everyone being allowed and able to speak freely. However, when asked about the whether the projects formed cohesive teams quickly, only 48% thought they did. The reasons cited for this not happening were mainly a lack of contact time and different company cultures, which accounted for 79% of the responses. If team members felt this led to people not feeling apart of the team, then corporate and national culture accounted for 38% of the sample replies.

The definition of the project tasks left the research sample equally divided over whether this had been carried well or not. It was the technical engineering type tasks that lacked definition and accounted for 64% of the responses. The project success criteria were on average clearly described and this accounted for 45% of responses against 31% who thought they were not clearly defined. Of the sample 68% thought that the project success criteria included winning. The significance of the individual

tasks to the projects was on balance clear to the team, as thought by 49% of the sample.

The Team Intervening Factors (Leader, Motivation, Processes and Procedures)
From the research sample 98% thought that strong leadership was important for project success. However, only 54% agreed that their projects had strong leadership. The qualities lacking in the leadership were: Decisiveness (33%), Initiative (15%) and Self Assurance (11%). The formation of the project teams was not viewed well, only 40% felt that the teams found a common culture and set of values. The problem felt by 54%, was both company and national differences. The team members agreed (73%) that a common project office, with one or two days a week spent together, would have the benefited the project. The motivation of the individual team members and the team as a whole, towards the project was seen as strong by 79% and 73% of the sample respectively. The individual's motivation was viewed as coming from, the type of work (32%) and commitment to other team members (28%). The team motivation was from wanting to win (73%) and fear of loosing (15%). The team decision making was viewed by only 49% of the team members as being positive, with the technical solution and the CAPEX versus OPEX decisions each accounting for 35% of the negative responses. The team idea generation was seen by 56% as being well managed, although 58% thought additional design development and value management meetings would have benefited the teams.

The Team and Project Outcomes (Member Satisfaction, Productivity)
Overall the individual team members (60%) and the team as a whole (55%) were satisfied with the outcome of the projects, even before they were advised whether they had won or lost. The areas with which people were not satisfied were: Design flexibility (32%), Meeting the client's requirements (25%) and Operational input (24%). The overall view was that 63% of the team members thought that the teams had worked well together. If, however, one party to the project was being uncooperative 43% thought it was the design and construction joint venture and 25% felt it was the client and their advisers.

DISCUSSION OF THE RESULTS

The results have shown that there are areas that can not be fully understood. These areas fall into three categories. Firstly there are those which are a product of the case study data collection questionnaire. Secondly there are those which have been raised as a direct consequence of the results from the questions posed, in the questionnaire. Third and finally, there are areas that were simply not considered when the questionnaire was designed or the research data analysed. It could be argued that the use of Handy's teamwork model might have been responsible for the second and third group of issues. However, the reverse argument is that without Handy's model there could have been further area's that were not covered by the research. The major issue that becomes apparent from the result's analysis is that the average (mean) and most common (mode) answers were often not the same. So whilst the results revealed the overall average answer for all the project teams, this average answer often varied from the most common answer. The conclusion is that there were a number of projects that the team members felt were different, although the individual projects were not distinguished by the case study research questionnaire.

CONCLUSIONS

Conclusions from the study can be drawn from both the methodology used to collect data and the results obtained from the data. The use of Handy's (1993) teamwork model whilst revealing some small negative aspects, was in general very effective as a framework for the research. One apparent area omitted from the study was risk allocation in the PFI projects, between the public and private sectors and how this effected team performance. However, at the time of the case study data collection the NWG consortia had yet to win a project, so this issue could not have been addressed in any depth.

From the collected case study data it is possible to draw clear conclusions regarding the performance of the NWG consortia teams. However, because of the commercially sensitive environment the interpretation of the data is limited by the fact that the individual groups forming the consortia and projects are not differentiated. The conclusions that can be drawn from the case study, about the NWG consortia PFI teams are:

There is an optimal team size, with a right balance of skills and personality types.

The project environment needs to be open, with the team spending time together, in a common project office, to promote and facilitate speedy team formation.

The project success criteria must be explicitly stated and communicated to all the team members. This is also true for the individual project tasks, which also require their significance defined within the project scope.

The leader of the project must be strong, decisive, and posses.

The motivation of the team members was they wanted to win.

The individual team members are motivated by the nature of the work and commitment to their fellow team members.

Team formation was hindered by corporate and national cultural difference's which can prevent or hinder the team finding a common goal and set of values.

Project optimisation and execution was generally good, but could be improved by an enhanced and improved design development / value management program.

Resource limitation, especially in key areas limited project development.

The whole life cost approach to project development was very reliant upon Operational and Maintenance input, which had to be proactively sought.

Lack of consortia co-operation can have an impact on the final project outcome. It was the Design and Construction Consortium (DCC) and the client that were viewed as being uncooperative.

The final design should incorporate as much flexibility as possible, to allow for late client changes which must be anticipated as far as is reasonably practicable.

OUTPUT OBJECTIVE

The objective of the study was to produce a project and team management support tool that could be used in PFI and other similar project environments. The case study research data collected from the NWG consortia teams and previously published studies enabled a support tool to be developed. There are 12 Key Success Factors (KSF) and 12 Key Barriers to Success (KBS), as can be seen in figure 2. These factors

are primarily from the case study data but they have also been compared with previous studies, with good correlation. The support tool, and the entire study, has been externally validated by Charles Stewart, who is the Senior Manager responsible for partnering at AMEC Process and Energy. The external validation confirms that the study findings and output objective support tool both show good alignment with current industry practice, albeit in a different but related industry.

Key Success Factors		
Item	Parameter	Target / Metric
1	Team Size	Ideally 6-10 members. Alter to suit project phases.
2	Skills balance	Ensure the correct balance to suit the project phases.
3	Belbin Team Roles	Use Psychometric testing to aid team selection. Teams work best with a mix of Belbin role types.
4	Open Working Environment	Declaration of openness. Consider the use of Group Decision Support Systems.
5	Belonging to the Team	Use team-building events to develop the team.
6	Strong Team Leadership	Develop leader selection criteria and training needs. Leader's need visible management support.
7	Team Culture and Common Values	Ensure team members are dedicated to only the project, which can help avoid role conflict.
8	Team Motivation	Focus the team on winning. Use appropriate and specific reward mechanisms.
9	Individual Motivation	Motivation is from the working environment, the type of work and fellow team members.
10	Design Development and Value Management	Set a timetable and allow as much time as possible so that Value Management is not constrained.
11	Team Productivity	Set and publicise clear objectives with a program.
12	Team and Project Output	Define and communicate the output requirements.
Key Barriers to Success		
1	Team Contact Time	Ensure a minimum contact time of 1 day per week optimum is 2 days during all phases of the project.
2	Project Success Criteria	Success criteria must be clearly stated. Issue a written statement to all team members.
3	Task Definition	Appoint task leaders. Clearly define each task. Issue a written task definition to all team members.
4	Task Significance	Ensure each task's significance is clearly defined.
5	Leader Decisiveness and Initiative	Train and develop leaders. Visible leader support mechanisms from the management.
6	Team Integration	Maximise team working and the common location.
7	Team Resourcing	Ensure appropriate levels and types of resourcing.
8	Design Development and Value Management	Bad management of this is detrimental. Train a team member to lead this. Avoid 'Group Think'.
9	O&M Input	Proactively promote and maximise O&M input into all phases of the project as early as possible.
10	Design Flexibility and Client Requirements	Define and clearly state client requirements, optimise design flexibility.
11	Project Group Non-co-operation	Team leader to proactively manage and appoint co-ordinators to reduce conflict.
12	Project Scoping & Changes	Amend and communicate scoping brief when changes occur. Proactively anticipate changes.

Figure 2: The Support Tool, Key Success Factors and Key Barriers to Success

REFERENCES

Beck, J.D.W. and Yeager, N.M. (1996) How to prevent teams from failing. *Quality Progress*, **29**(3): p27-31.

Belbin, R.M. (1981) *Management Teams*. Wiley: New York

Clarke, A. (1999) A practical use of key success factors to improve the effectiveness of project management. *International Journal of Project Management*, **17**(3): 139-145.

Dailey, R.C. (1981) Project leader's locus of control and task certainty as antecedents of members' satisfaction with leadership and R&D team performance. *Engineering Management International*, (1): 41-47.

Denton, D.K. (1992) Building a team. *Quality Progress*, **25**(10): 87-91.

Donnelly, R.G. and Kezsbom, D.S. (1994) Do project teams "walk their talk"? Survey research on project team effectiveness. *Transactions of the American Society of Cost Engineers*, 8.

Goodwin, R.S.C. (1993) Skills required by effective project managers. *Journal of Management in Engineering*, **9**(3): 217-226.

Handy, C. (1993) *Understanding Organisations*. 4th Ed London: Penguin Books.

Henry, S.M. and Stevens, K.T. (1999) Using Belbin's leadership role to improve team effectiveness: An empirical investigation. *The journal of Systems and Software*, **44**(3): 241-250.

Hofstede, G. (1991) *Culture and Organisations: Software of the mind*. London: McGraw-Hill.

Khan, M.S. (1993) Methods for Motivating for increased productivity. *Journal of Management in Engineering*, **9**(2): 148-155.

Kumar, S. and Seth, A. (1998) The design of co-ordination and control mechanisms for managing joint venture – parent relationships. *Strategic Management Journal*, **19**: 579-599.

Maloney, W.F. (1986) Understanding Motivation. *Journal of Management in Engineering*, **2**(4): 231-245.

Naoum, S.G. (1998) *Dissertation research and writing*. Oxford. Butterworth-Heinemann.

Nicholas, J.M. (1994) Concurrent Engineering: Overcoming obstacles to teamwork. *Production and Inventory Management Journal*, **35**(3): 18-22.

Owens, S.D. (1983) Leadership theory and the project environment: which approach is applicable. *Proceedings of the Project Management Institute Annual Seminar Symposium*: 111.

Parfitt, M.K. and Sanvido, V.E. (1993) Checklist of critical success factors for building projects. *Journal of Management in Engineering*, **9**(3): 243-249.

Pinto, M. and Slevin, D.P. (1988) Project success: Definition and measurement techniques. *Project Management*, **19**(1): 67-75.

Posner, B. Z. (1986) What's all the fighting about? Conflicts in project management. *IEEE Transactions on Engineering Mangement*, **33**(4): 207-211.

Sekaram, U. (1992) *Research methods for business: skill-building approach*. 2nd Ed New York: John Wiley & Sons, Inc.

Thamhain, H.J. (1996) Enhancing innovative performance of self directed engineering teams. *Engineering Management Journal*, **8**(3): 31-39.

Wilkinson, H.E., Orth, C.D.and Benfari R.C. (1986*)* Motivation Theories: An integrated operational model. *SAM Advanced Management Journal*, **51**(4): 24-31.

Williams, J.D., Han, S.L. and Qualls, W.J. (1998) A conceptual model and study of cross-cultural business relationships. *Journal of Business Research*, **42**(2): 135-142.