Explore Critical Factors for Partnering in the Taiwanese Construction Industry

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Abstract

The annual production yield of the Taiwanese construction industry has been roughly 16.5 billion USD, representing approximately 5% of total GDP, during the recent decade, indicating that it contributes significantly to overall economic development in Taiwan. It was recognized that by partnerships rather than having traditional adversarial relationships that the industry could lower costs, achieve success and increase its chances of survival. Since 1990, the key industry players have adopted alliance and partnering strategies. Although there are a number of successful projects, there have also been failures. This paper presents results from construction industry survey conducted in 2008. The purpose of the study was to gather the construction industry's opinions on critical success and failure factors of partnering agreements.

The data have been analyzed by use of means and ranking techniques. The study shows that"effective communication" is perceived as the most important critical success factor in the construction project partnering. Some of the other perceived important critical success factors are "technical expertise", "consistent with objectives", "questioning attitudes" and "commitment to quality". The study also suggests that in the construction industry, "issues being allowed to slide and escalate", "lack of continuous open and honest communication", "controlling body's lack of technical knowledge", "stakeholders who don't commit to the partnering arrangement" and "stakeholders who don't develop a win-win attitude" are viewed as the main factors which often cause failure of alliances and partnering.

Keywords: construction industry, critical success factors, critical failure factors, partnerships

Introduction

During the recent decade, the annual production yield of the Taiwanese construction industry has been roughly 16.5 billion USD, representing approximately 5% of total GDP (gross domestic product), indicating that the construction industry contributes significantly to overall economic development in Taiwan. However, constructions projects in Taiwan are generally of poor quality, and suffer problems of performance failures, cost wastage, schedule delays, and so on.

The main reasons for the unfavorable construction project outcomes mostly fall into several categories. Construction projects rely on integrated efforts of several hierarchically linked parties (including clients, architects, engineers, general contractors, suppliers and subcontractors using their differentiated technology, knowledge and skills. These parties

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are generally independent organizations with separate objectives and goals, operating procedures and management styles.

Due to the fragmented nature of construction, communication and coordination problems are common and affect project performance and productivity (Li et al., 2000). Because of differences in professional background, technology, knowledge and perspective among participants, problems in communications and cooperation are commonplace, often compromising project performance and results. The traditional DBB (Design-Bid-Build) contract goes to the lowest bidder generally, frequently creating conflict between project owners and professionals. Owing to its dismemberment attributes, the traditional DBB project is run with a win-lose mentality, causing conflict in communications and cooperation, and sometimes even disputes, compromising project productivity and performance.

A construction project must proceed through stages of concept, scheme design, bidding, contracting, construction, service and maintenance. The main participants differ among stages, as does the related professional know-how, technologies and experience. In practice, project management has focused on maximizing performance in terms of time, costs and quality. However, relatively little attention has been paid to the organizational structures of each participant.

Recently, the Taiwanese construction industry has faced major new challenges, including increased competition, more exacting quality standards, increased competition for available resources, globalization, and rapid development of new technologies and increased various risks. Additionally, construction projects in Taiwan are growing larger and more complicated. An adversarial situation, at least from the perspective of traditional contracts, thus has been created between project owners and contractors. The changes mentioned previously have caused crises for the industry. Construction firms are now searching increasingly actively for better management approaches for maintaining a competitive advantage and improving performance.

Partnering in Construction

Numerous studies have examined the definition and meaning of partnering. The fundamental principles of partnering, namely trust, commitment, respect, communication, and equality, include appropriate consideration of the interests of all parties at every level (Uher, 1999; Cowan et al., 1992; CII, 1991), and aim to build “trust” among the parties involved in a contract. Such trust helps avoid problems with the project that recently have tended to lead to litigation (Moore et al., 1992). Past studies have yielded numerous definitions of partnering, among which the definition developed by the Construction Industry Institute (CII) in the United States is the most widely cited. CII defined partnering in the following manner:

A long-term commitment between two or more organizations is important for achieving specific business objectives by maximizing the resources of each participant. Consequently, it is necessary to replace traditional relationships with a shared culture without regard to organizational boundaries. Such relationship is based on trust, dedication to common goals, and an understanding of individual expectations and values. The expected benefits include improved efficiency and cost-effectiveness, increased innovation opportunities, and the continuous improvement of quality products and services.

According to Bennett and Jayes (1998), partnering is a set of strategic actions that deliver marked improvements in construction performance. It is driven by a clear understanding of mutual objectives and co-operative decision- making by multiple firms all focused on using feedback to continuously improve their joint performance.

Now the question may be raised as to how the success and failure of partnering have been measured in construction industry of Taiwan? What are the factors that enable success or are barriers to success? To what extent have success or failure factors been present in construction industry of Taiwan?

Little academic research appears to have been carried out to answer these questions for the construction industry. A review of literature shows that many articles have been written on partnering. Most of those papers however are based on theory, and very few or no empirical data are available on perceived critical success and failure factors of partnering in the construction industry. Thus the aim of the research on which this paper is based was to identify criteria of success and failure of partnering in the construction industry of Taiwan.

Research Methodology

This work examines documents and theories regarding management and partnership in construction projects, and conducts questionnaires to professionals to further analyze the factors involved in success and failure construction partnering. The structured questionnaire was used to collect information from a selected sample from the construction industry. These questionnaires compare the roles of different professionals in construction projects, and the effects of their various project attributes provide a reference for industry partnerships. It was recognized that both quantitative and qualitative data were needed for a comprehensive study. Quantitative and qualitative techniques were used to complement each other. This work also ranked critical success factors (CSFs) and critical failure factors (CFFs) of construction partnering.

Questionnaire Development

This work applies a Likert-type scale to the questionnaire design, running from 1 (extremely unimportant) to 5 (extremely important). To determine the questionnaire structure, a second evaluation was conducted to ensure its credibility and effectiveness. The original questionnaire design included 22 questions success factors (SFs) and 15 questions failure factors (FFs) regarding partnerships. In this work, validity was used to ensure accurate measurement of the characteristics and factors. Generally the correction of the measurement results and forecasting characteristics is used to represent the degree of validity. Various studies (Black, 1999; Chen et al., 2000; Chen and Li, 2002; Chan et al., 2004; Haque et al., 2004; Ng et al., 2002; Boddy et al., 1998) were referred for the questionnaires in the scale regarding important factors of partnership, partner benefits, SFs, and FFs.

Pilot Test

The pilot test was performed to ensure the questionnaires were phrased appropriately. Forty-two construction professionals in Taiwan were provided with copies of the original questionnaire respectively. The subjects were asked to comment on the readability, comprehensiveness, and accuracy of the questionnaires. Thirty-four copies were retrieved for the pre-test.

The Cronbach's α coefficient was used to determine the questionnaire reliability. In case of α exceeding 0.9 indicates high reliability, α between 0.9 and 0.7 indicates acceptable reliability, and α below 0.35 indicates low reliability (Gay, 1996; Fowler, 1993). The questionnaire responses that did not meet the criterion ($p < 0.05$) were deleted, after which the remainder of the responses underwent reliability analysis. For the pilot test, Cronbach's α of 0.903 was achieved, the corrected scale contained 19 structural survey

questions representing 19 CSFs, and the corrected scale contained 14 structural survey questions representing 14 CFFs.

Questionnaire Distribution

The survey sampled construction professionals and experts in Taiwan. The research subjects comprised three categories, namely hi-tech large-scale projects (HTLSP), low-tech large-scale projects (LTLSP), and low-tech small-scale projects (LTSSP). Hi-tech projects were projects that require high interface integration, for example high speed rail projects. Meanwhile, low-tech civil projects were projects without high interface integration, for example roadway construction projects. The questionnaires were distributed via mail, e-mail, fax, telephone, and personal delivery to increase the rate of response and sample representation. Standbys were used to replace subjects who were unable to participate. Three-hundred and thirty questionnaires were distributed during December 2008 via mail, fax, e-mail, and personal delivery to construction industry subjects.

Table 1 shows that 221 copies were retrieved (67% return rate), among which 125 respondents (56.6%) were from LTLSP, 50 (22.6%) were from the HTLSP, and 46 (20.8%) were from LTSSP. Breaking the sample down according to profession, 39 respondents were government employees (17.6%), 32 worked for the client (Taiwan High Speed Rail Corporation; THSRC) of the largest BOT project in the world (14.5%), 63 worked for design firms (28.5%), and 87 worked for construction firms (39.4%). SPSS 10.0 was used to perform further statistical analysis.

Table 1. Sampling Projects Type, Profession, and Number of Subjects

Projects Type	Government Employee	Project Client	Design Firm	Construction Firm	Total
HTLSP	3	14	4	29	50 (56.6%)
LTLSP	22	16	39	48	125 (22.6%)
LTSSP	14	2	20	10	46 (20.8%)
Total	39 (17.6%)	32 (14.5%)	63 (28.5%)	87 (39.4%)	221 (100%)

Note: HTLSP stands for Hi-tech large-scale projects; LTLSP stands for Low-hi-tech large-scale projects; LTSSP stands for Low-hi-tech small-scale projects.

Analysis, Findings, and Discussion

Ranking of Critical Success Factors of Partnering

The SFs were ranked according to their means. If two or more SFs happened to share the same mean value, that with the lowest standard deviation was assigned the highest importance ranking. The SFs with means of 4 or more (after rounding) were recognized as CSFs based on respondent consensus. Nineteen SFs were identified as CSFs that significantly influenced the success of construction partnering. Table 2 ranks these CSFs based on mean value.

Overall Opinion on Critical Success Factors

The analysis of the data indicates that, in general, ”effective communication” is perceived to be the most important critical success factor for partnering in the construction industry (see Table 2). The second most popular critical success factor is ”technical

expertise" which are followed by "consistent with objectives", "questioning attitudes", "commitment to quality", "mutual trust", "financial security" and "commitment from senior management", all have similar ranking. The last two of the aforementioned ten critical success factors are "clear understanding" and "Total cost perspective". The results reflect the opinion of many social scientists who have suggested theories on success of partnering.

Table 2. Ranking of CSFs for Construction Partnering

Items	Profession								Project Type						Total	
	Government Employee		Project Client		Design Firm		Construction Firm		HTLSP		LTLSP		LTSSP			
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
CSF 1	4.15		4.34	**3**	4.30	**6**	4.40	**2**	4.30	**3**	4.40	**5**	4.13		4.32	**6**
CSF 2	4.56	**3**	4.62	**1**	4.63	**1**	4.67	**1**	4.64	**1**	4.69	**1**	4.48	**1**	4.63	**1**
CSF 3	4.13		4.34	**4**	4.27	**7**	4.26	**7**	4.22	**5**	4.34	**8**	4.02		4.25	**8**
CSF 4	4.15		4.28	**8**	4.26	**8**	4.25	**8**	4.20	**7**	4.26	**9**	4.24	**5**	4.24	**9**
CSF 5	4.44	**6**	4.47	**2**	4.32	**3**	4.32	**5**	4.31	**2**	4.45	**3**	4.22	**6**	4.37	**3**
CSF 6	4.18		3.94		4.05		4.07		3.84		4.14		3.89		4.03	**17**
CSF 7	4.18		3.91		4.05		4.07		3.84		4.09		4.21	**8**	4.06	**14**
CSF 8	4.64	**2**	4.28	**7**	4.32	**4**	4.23	**10**	4.16	**8**	4.38	**7**	4.41	**2**	4.33	**5**
CSF 9	4.46	**5**	4.09		4.14		4.06		3.82		4.27		4.22	**7**	4.16	**12**
CSF 10	3.97		3.78		4.02		3.89		3.60		4.04		3.96		3.92	**18**
CSF 11	4.19	**10**	4.16	**10**	4.19	**10**	4.24	**9**	4.06		4.26	**10**	4.20	**9**	4.20	**10**
CSF 12	4.23	**9**	3.72		4.05		4.08		3.78		4.16		4.02		4.05	**16**
CSF 13	3.87		3.59		3.86		3.79		3.50		3.88		3.89		3.80	**19**
CSF 14	4.15		4.06		3.89		4.20		3.90		4.18		4.00		4.08	**13**
CSF 15	4.67	**1**	4.29	**5**	4.35	**2**	4.33	**4**	4.24	**4**	4.50	**2**	4.26	**4**	4.39	**2**
CSF 16	4.38	**7**	4.25	**9**	4.24	**9**	4.30	**6**	4.12	**9**	4.40	**6**	4.17		4.29	**7**
CSF 17	4.46	**4**	4.29	**6**	4.30	**5**	4.37	**3**	4.20	**6**	4.41	**4**	4.39	**3**	4.35	**4**
CSF 18	4.05		4.06		4.02		4.10		3.92		4.10		4.11		4.06	**14**
CSF 19	4.23	**8**	4.06		4.16		4.22		4.08	**10**	4.22		4.20	**10**	4.18	**11**

Note: Mutual trust (CSF1), Effective communication (CSF2), Commitment from senior management (CSF3), Clear understand (CSF4), Consistent with objectives (CSF5), Dedicated team (CSF6), Flexibility to change (CSF7), Commitment to quality (CSF8), Commitment to continuous improvement (CSF9), Long-term perspective CSF10), Total cost perspective (CSF11), Partnership formation at design stage (CSF12), Good cultural fit (CSF13), Company wide acceptance CSF14), Technical expertise(CSF15), Financial security (CSF16), Questioning attitudes (CSF17), Availability of resources (CSF18), Equal power/empowerment (CSF19).

For example, Effective communication ranks first because partnering requires timely communication of information and the maintenance of open, direct lines of communication among all project team members (Larson, 1995). On site problems require immediate resolution once they occur. Partnering will fail if effective communication is used only for routine matters but not important issues (Moore et al.,1992). Effective communication skills can clearly help in facilitating the exchange of ideas, visions, and solutions (Chen et al., 2000). Such exchanges require the formation of effective communication channels, which can be used to motivate partners to jointly participate in planning and goal setting, and thus exert their cooperative efforts to create compatible expectations (Mohr and Spekman, 1994). On the other hand, trust is viewed as central to all collaborative

relationship and it is said that no alliance can survive without trust (Wolfe, 1994; Vangen and Huxham, 1998, Parkhi, 1998). However, mutual trust only ranks sixth.

Opinion of Different Professionals on Critical Success Factors

Responses were analyzed from the viewpoint of respondents' job categories. The following five factors are common to the top ten for project client, design firm and construction firm:"effective communication", "consistent with objectives", "technical expertise", "questioning attitudes" and "commitment to quality". "Effective communication" is the most highly rated factor by all three professional groups.

Government employees include the following success factors, "technical expertise", "commitment to quality", "effective communication", "questioning attitudes" and "commitment to continuous improvement". However "commitment to continuous improvement" is not highly rated by the other three professional groups. As government employees work for a public organization, there is an emphasis on professional ability of the expert, Commitment and guaranteeing to working quality, and requiring the commitment of continuous improvement to the project, so as to ensure the final quality of the public projects.

Opinion of Different Type of Projects on Critical Success Factors

Analysis from the standpoint of different type of projects shows respondents from HTLSP, LTLSP and LTSSP believe that "effective communication" is the most important critical success factor. However, respondents from LTSSP suggest that "commitment to quality" is the most important factor which is followed "effective communication", but is not highly rated by HTLSP, LTLSP both project types. The analysis also shows that, "consistent with objectives", "mutual trust", "technical expertise", and "questioning attitudes" are other preferred critical success factors for all project types. However, "technical expertise" is more preferred by LTLSP project type than by HTLSP project type. Again respondents from HTLSP project type believe that "mutual trust" and "consistent with objectives" are important critical success factors.

Factors Which Can Cause Failure of Partnering

Another purpose of the survey was to gather people's views on the factors which may cause failure of partnering in the construction industry. Therefore respondents were requested to rate factors according to their priority, which often cause failure. The data were analysed depending on their means by the respondents. Ranking of critical failure factors of partnering is used.

General Opinion on Critical Failure Factors

The analysis of the responses is shown in table 3. The top ten factors indicate their importance as criteria for failure of alliances and partnering. "Issues being allowed to slide and escalate" is the highest rated failure factor and "lack of continuous open and honest communication" is the second highest failure factor of alliances and partnering. These are followed by "controlling body's lack of technical knowledge" ,"stakeholders who don't commit to the partnering arrangement". "stakeholders who don't develop a win-win attitude" and "problems with drawings and specifications" are ranked fifth and sixth among the top ten failure factors. "some partners are unwilling to compromise", "lack of empowerment in the client's controlling", "lack of training and guidance in the project partnering arrangement" and "commercial pressures compromising the partnering attitude" complete the top ten failure factors.

Table 3. Ranking of CFFs for Construction Partnering

Items	Profession								Project Type						Total	
	Government Employee		Project Client		Design Firm		Construction Firm		HTLSP		LTLSP		LTSSP			
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
CFF1	4.21	**2**	4.25	**1**	4.21	**2**	4.40	**1**	4.22	**1**	4.42	**1**	4.02	**4**	4.29	**2**
CFF2	3.92		3.97		4.06	**5**	4.10		3.94	**5**	4.14	**4**	3.87		4.04	**5**
CFF3	4.10	**4**	4.22	**2**	4.11	**3**	4.15	**4**	4.14	**2**	4.18	**5**	4.02	**5**	4.14	**4**
CFF4	4.38	**1**	4.09	**4**	4.29	**1**	4.36	**2**	4.04	**4**	4.38	**2**	4.39	**1**	4.30	**1**
CFF5	3.97		4.00		4.05		3.98		3.82		4.07		4.00		4.00	**7**
CFF6	3.95		3.75		4.03		4.05		3.78		4.10		3.87		3.98	**8**
CFF7	3.56		3.59		3.81		3.95		3.74		3.80		3.83		3.79	**12**
CFF8	4.15	**3**	4.16	**3**	4.08	**4**	4.28	**3**	4.08	**3**	4.24	**3**	4.13	**2**	4.18	**3**
CFF9	3.72		3.72		3.84		3.91		3.66		3.87		3.89		3.83	**10**
CFF10	3.95		3.66		3.84		3.93		3.52		4.03		3.80		3.87	**9**
CFF11	3.54		3.47		3.94		3.87		3.56		3.81		3.91		3.77	**14**
CFF12	4.03	**5**	4.03	**5**	3.87		4.15	**5**	3.94		4.05		4.09	**3**	4.03	**6**
CFF13	3.77		3.81		3.71		3.82		3.70		3.74		3.96		3.78	**13**
CFF14	3.85		3.59		3.81		3.84		3.68		3.81		3.89		3.80	**11**

Note: Lack of continuous open and honest communication (CFF1), Stakeholders who don't develop a "win-win" attitude (CFF2), Stakeholders who don't commit to the partnering arrangement (CFF3),Issues being allowed to slide and escalate (CFF4), Some partners are unwilling to compromise (CFF5), Lack of empowerment in the client's controlling (CFF6), Dealing with large bureaucratic organizations (CFF7), Controlling body's being lack of technical knowledge (CFF8), Commercial pressures compromising the partnering attitude (CFF9), Lack of training and guidance in the project partnering arrangement (CFF10), Use of a competitive tendering arrangement inhibits flexibility (CFF11), Problems with drawings and specifications (CFF12), Key subcontractors not included in the partnering process (CFF13), Partnering is not suitable for a particular project (CFF14).

It is interesting to note that although "effective communication" is ranked the highest as critical success factors. "lack of continuous open and honest communication" has been placed in the second position as a failure factor. Again some critical failure factors such as "stakeholders who don't commit to the partnering arrangement", "some partners are unwilling to compromise", "lack of empowerment in the client's controlling", "lack of training and guidance in the project partnering arrangement" and "problems with drawings and specifications" are rated high, whereas the corresponding critical success factors have not been ranked highly by the respondents.

It should be mentioned that the literature often suggests success factors for alliances and partnering, but very little has been written on failure factors. It is possible that failure factors can be regarded as the absence or opposite of the corresponding success factors. However, the present study shows that it is not always the case. Some factors are ranked high as failure ones, but the corresponding success factors are either not mentioned or ranked low. In the respondents' perception there are some factors whose absence may cause failure of alliances and partnering. However, the present of those factors will not necessarily cause success.

Opinion of Different Professionals on Critical Failure Factors

Failure factors were analyzed from the standpoint of different working professionals. Although there are some differences of opinions among the people working in different job

categories. There are also many common views. Respondents from all professional groups perceive that ”lack of continuous open and honest communication”, ”stakeholders who don’t commit to the partnering arrangement”, ”issues being allowed to slide and escalate” and ”controlling body’s being lack of technical knowledge” are all important failure factors of alliances and partnering.

“Issues being allowed to slide and escalate” is ranked first and ”lack of continuous open and honest communication” is ranked second by both government employee and design firm. Project client and Construction firm consider ”lack of continuous open and honest communication” as the most important failure factor, project client consider ”stakeholders who don’t commit to the partnering arrangement” as the second important failure factor, whereas construction firm suggest “issues being allowed to slide and escalate” is second important failure factor. Only design firm perceive ”stakeholders who don’t develop a win-win attitude” as a failure factor in top five failure factors.

Opinion of Different Types of Projects on Critical Failure Factors

Analysis from the viewpoint of project types shows that HTLSP, LTLSP and LTSSP have more or less the same opinion on the critical failure factors of alliances and partnering. Their responses indicate that ”lack of continuous open and honest communication” is the most important critical failure factors by both HTLSP and LTLSP, HTLSP consider that ”stakeholders who don’t commit to the partnering arrangement” is the second most important critical failure factor. Whereas LTLSP suggest ”issues being allowed to slide and escalate” is the second most important critical failure factor. The other group (LTSSP) considers ”issues being allowed to slide and escalate” as the most important critical failure factors, ”controlling body’s being lack of technical knowledge” is ranked second. However, all three groups consider that ”lack of continuous open and honest communication”, ”stakeholders who don’t commit to the partnering arrangement”, ”issues being allowed to slide and escalate”, ”controlling body’s lack of technical knowledge” are the major critical failure factors of alliances and partnering in the construction industry.

Conclusions

This survey, conducted in the December 2008 with a representative sample of people from the construction industry in Taiwan, provides useful information on distinguishing features of success factors, and failure factors which cause failure of alliances and partnering in the construction industry of Taiwan. Structured questionnaire is used to gather data for the survey. The respondents put forward their own opinions without prompting from the questionnaire and this has made the study different from many previous studies. The study provides useful insights into the similarities and differences in perceptions of critical success and failure factors of alliances and partnering in different types of projects, and people in different job categories.

This survey suggests that people in Taiwanese construction industry generally perceive ”effective communication” as the most important critical success factor for alliances and partnering in the industry. Many authors have emphasized the importance of ”trust” as a success factor in collaborative relationships. However, ”mutual trust” only ranks the sixth by overall opinion on critical success factors. Some of the other perceived important success factors are ”technical expertise”, ”consistent with objectives”, ”questioning attitudes”, ”commitment to quality”, ”financial security”, ”commitment from senior management”, ”clear understanding” and ”total cost perspective”.

People at different job categories all consider ”effective communication”, ”consistent with objectives”, “commitment to quality”, ”technical expertise” and ”questioning attitudes” as important success factors, ”commitment to continuous improvement” are also important success factors for government employees. However the other three professional groups do not rank it highly as a critical success factor. Presumably government employees are in a public organization, which there for emphasizes the professional ability of the expert, commitment and guaranteeing to working quality, and requiring the commitment of continuous improvement to the project, so as to ensure the final quality of the public project.

All types of projects namely HTLSP, LTLSP and LTSSP perceive ”effective communication”, “technical expertise”, ”consistent with objectives”, ”commitment to quality”, ”questioning attitudes” and ”clear understanding” are critical to make partnering successful. Other than those factors, LTSSP believes that ”flexibility to change” and ”commitment to continuous improvement” some are important critical success factors. However, HTLSP and LTLSP emphasize”mutual trust”. HTLSP and LTLSP probably hold this view because they believe that by having mutual trust in large-scale projects they can have more influence on its success.

The study suggests that in the construction industry, ”issues being allowed to slide and escalate”, ”lack of continuous open and honest communication”, ”controlling body’s lack of technical knowledge”, ”stakeholders who don’t commit to the partnering arrangement”, ”stakeholders who don’t develop a win-win attitude”, “problems with drawings and specifications”, ”some partners are unwilling to compromise”, ”lack of empowerment in the client’s controlling”, ”lack of training and guidance in the project partnering arrangement” and ”commercial pressures compromising the partnering attitude ”are perceived as the main factors which often cause failure of alliances and partnering. It may be mentioned that although much has been written on critical success factors of alliances and partnering, very little has been written on failure factors. It is possible that the absence or opposite of the ‘success factors’ can be deemed as failure factors. However, the present study shows that it is not always the case. Some factors are ranked high as failure ones, whereas the corresponding success factors are either not mentioned or are ranked low. For example, although “issues being allowed to slide and escalate” is the most important failure factor,”issues of solve” has not been placed at the top position as a success factor. Again some failure factors have been identified, such as ”stakeholders who don’t commit to the partnering arrangement”, ”some partners are unwilling to compromise”, ”lack of empowerment in the client’s controlling”, ”lack of training and guidance in the project partnering arrangement” and ”problems with drawings and specifications”, whereas the corresponding critical success factors have not been ranked highly by the respondents. These indicate there are some factors absent of which may cause failure of collaborative relationships, however, presence of those factors will not necessarily bring success.

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