Research Article

Empirical Investigation of Success Factors for Establishing Software Outsourcing Partnership from Vendor's Perspective

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Abstract: Software outsourcing partnership (SOP) is a trustful relationship between client and vendor organisations for shared goals. A SOP is different than ordinary software development outsourcing relationship. Usually a successful outsourcing relationship may lead to SOP. Software companies currently use a wide variety of mechanisms to outsource software development work. Besides all, SOP is an emerging strategy. The overarching target of this research paper is to find and analyse those factors that are considered significant for vendors in conversion of their existing outsourcing contractual relationship to partnership. In this paper an empirical study has been conducted and the results are distributed and analysed based on 'expert job location' and 'company size'. We have executed a questionnaire based survey with 35 experts from different software companies. The participants were questioned to rank prominence of critical success factors (CSFs) on a seven point likert scale. We have find out 26 success factors including the CSFs like, 'organisational proximity' 'mutual trust', 'effective and timely communication', 'flexible service level agreements (FSLA)', 'bidirectional transfer of knowledge (BTK)', 'mutual interdependence and shared values', 'quality production' and '3C (coordination, cooperation and collaboration)' that generally impact in conversion of the existing contract based outsourcing relationship to a partnership based relationship. Vendors should address all of the identified success factors, specifically the CSFs in order to attain partner position with their clients in software development outsourcing business.

Keywords: Software outsourcing partnership, empirical study, success factors, vendors

1. INTRODUCTION

Software outsourcing partnership (SOP) is a global software development outsourcing (SDO) paradigm for developing high quality software product at reduced cost. SOP is different to software outsourcing. This is because software outsourcing is a contract-based relationship between client-vendor organisations whereas SOP is a collaborative relationship beyond organisational boundaries. Client vendor relation in this fashion often crossing the traditional contractual limits agreed at the initial level of the collaboration. Here risks and benefits, investments and work load of joint labours are equally divided among the collaborative members. Companies achieve competitive advantages through inter and intra-organisational collaboration. In SOP, long term working relationships are developed based on bidirectional trust, mutual interdependence and win-win mind-set between partners. Companies usually develop collaboration to decrease the costs of obtaining appropriate information/ understanding and capabilities or competencies needed for well-organized professional processes. Collaborative relationships usually are in the form of joint ventures, alliances, association or partnerships [1].

However, developing a fruitful long term cooperative relationship based on collaboration between two diverse businesses are more challenging and complex than commonly estimated. In view of Kelly et al [2] disappointment proportion for collaborative relationships (like associations, alliances, joint ventures or partnerships) varied from 50% to 60%. Bamford et al [1] reported in his research article that success rate was only 53%. When collaboration like partnership is in developing stage, the focus might very often be in financial

and legal aspects. Beside all the complexities, collaboration still happens amongst organisations. Focusing on social aspects beside legal and financial, might lead to better-quality and long-lasting results when developing partnership [3].

Building a successful inter-organisational partnership is a multi-dimensional and iterative process in which legal, psychosocial, economical sub processes are concurrently taking place [4]. Shared goals and ownership, mutual interdependence, mutual trust, long term commitment, effective and timely communication, quality production and partner's proximity are constituent parts of a successful partnership [3].

Software companies currently use a wide variety of mechanisms to source software development; they outsource development work, develop insource, expand insource capability through acquisitions, build partnerships and joint ventures with counterpart organisations [7]. Four of the strategies are highlighted by Moe et al [7] including insource, outsource, separate profit centre and strategic partnership. Similarly Roy et al [8] present four internal outsourcing strategies including internal governance, recuperation, outsourcing and partnership.

According to Kishore [9] outsourcing relationship can be categorised into four categories. These are support (provision type), alignment (arrangement types), reliance (dependence type) and alliance (coalition type). Alliance is a relation with high trust and low control. SOP is a type of an coalition relationship [10].

1.1 Outsourcing Partnership – What it is?

Outsourcing partnership is a widely used terminology in the literature but still no precise definition exists for it. It is a relationship composed of two words outsourcing and partnership and therefore thoughtful understanding of individual terms is desirable for its definition. Outsourcing is the contracting of various system's sub-functions, programming, data entry, facilities management, maintenance operation, system integration, disaster recovery, data centre management, and telecommunication by client firm to external vendor [11].

Oxford English dictionary [12] define outsourcing as "the procurement of services, components or goods from an outdoor or overseas provider, particularly in place of an inside one". In view of Kinnula et al [10] "outsourcing is the transferring of duty for a particular corporate task from a servant group to a non- servant group".

The main reasons for outsourcing are cost savings, increased flexibility in bidirectional decision making, access to specialist expertise, improved quality of service, free management time when there is lack of resources, improved financial control [13]. According to Brinkerhoff and Jennifer [14] the reasons for outsourcing, includes marked pressure on organisation to reduce costs, increase core competencies, and to provide specialized expertise more effectively.

In the management literature the partnership type correlation between companies has been studied extensively [4]. For example inter-firm cooperation has examined in the marketing discipline, partnering between manufacturers and distributors, manufacturers and sales agents, buyers and sellers as well as auditors and clients [4]. While in computer literature empirical literature survey on the partnership relationship between outsourcer and outsourcee started to grow after 2000 in the Europe, US and Asia. La Londe et al [15] define it as "an association amongst two organisations that involves the sharing of workloads, benefits and risks over some pre-defined vanishing point". Lambert et al [16] have the view "it is a business associations between two or more organisations founded upon, openness, mutual trust, shared rewards and risks that produce a competitive benefits, resulting from performing in this association more than that might be attained by the either organisation individualistically".

In nut shell 'an outsourcing partnership' is a commonly used word with no clear-cut definition. It is used quite charitably by the academics, without proper definition. However, obliquely it is conceivable to develop a universally acceptable understanding of the combine word. It is a relationship based on partnership, brings about from the contract out process, unlike to other categories of relationship that can be engendered from the outsourcing process. It is a long term SDO relationship.

In this research paper, we consider software outsourcing partnership as "a strategic partnering relationship for software development between client and vendor organisation(s) with mutual adjustment and renegotiations of tasks and

commitment that exceeds mere contractual obligations stated in the initial phase of the collaboration. SOP is a mutually beneficial, continuous and long term relationship, in which future plans, visions and confidential information is shared with partner organisations proactively and willingly, with the aim to help each other, in concentrating their skills and resources towards the right track.

1.2 Difference between Ordinary Outsourcing and Partnership Outsourcing

Ordinary software development outsourcing (SDO) relationship is different to SDO partnership. This is because, in ordinary outsourcing relation a client tendered software development effort to a an external vendor(s), who provides development facilities for payment while outsourcing partnership is the superior form of ordinary outsourcing relationship [17-19]. SOP is a relation for long time based on the renegotiations of mutually adjusted task and commitment that supersede the initially agreed contractual terms and conditions that are mentioned at the start of the association [19]. It is flexible, long term relationship established based on sharing of benefits, risks, future goals and visions. In practice only a fruitful outsourcing relationship is eligible to promote to outsourcing partnership [9]. It cannot be instantly developed, but rather, it shapes with the passage of time [6]. A key difference is in the level of depth; SOP is deeper relationship in which many traditional border line between companies are wrecked [10]. A relationship is said to be SOP, where the parties share confidential information about future plans, work together, combine resources, share ownership, risks and benefits [5] and take joint decisions to undertake mutually beneficial business [20]. Outsourcing partnership is a good tool to overcome technological uncertainty, because outsourcing partnership is the unique type of outsourcing relationship where partners share information of unexpected events [10]. Here both the parties share tacit information, human resources, and work load, to achieve mutual goals [20]. The main difference between partnership and contractual relationship is that, in partnership relationship the stress is given on trust and achievement of general business goals while in contractual relationship the stress is given on the obligation of formally written contract and on achieving specific business

goals. In summary partnerships are about relationships, not contracts [4, 10]. To understand SOP from the perspectives of the vendor, the following research questions are verbalized.

RQ 1.What are the critical success factors, as identified in the real practice, to be developed by software outsourcing vendor organisations which assist in promoting the exiting outsourcing relationship into partnership with client organisation

RQ 2. How are these factors related to the respondent job location?

RQ 3. Do the identified factors vary based on company size?

The reaming paper is structured as background and associated work is presented in section 2. Section 3 is the methodology. Section 4 describes study results. Section 5 is limitations while Section 6 demonstrates the conclusion and future work of this research project.

2. BACKGROUND AND ASSOCIATED WORK

A number of approaches exist for collaboration, such as sub-contracting, partnership, alliance, reliance and joint venture, etc. Kinnula [10] has presented a summary of the research areas of partnership in the context of SDO. These include (1) motivation towards partnership (2) performance evaluation of partnership (3) scope of partnership (4) success of partnership and (5) decision making frameworks for partnership.

Numeral researchers have enraged to statement certain matters of the SOP, e.g (Ellram and Edis [21], Bowersox et al [20], Sehic et al [22], Kinnula [6], Dominguez [23], Lane et al [4], Mohr et al [24], Sehic et al [22], Oza et al [25], Ellram and Edis [21] Virolainen and Veli-Matti [26] etc). Summary of some of these research works are presented below:

Bowersox et al [20] state that, partnership is formed in order to achieve shared benefits greater than the firms would achieve individually. It is a long term process in which partners with mutual goals makes joint decisions, work closely together, share information, ownership, benefits, risks, resources and achieve mutually beneficial results.

A research study was carried out in USA on factors affecting partnership formation [25], the

main results of the investigation were mutual trust and cultural differences. A comparable study was carried out by Kinnula [6] to investigate the formation of outsourcing partnership and has proposed outsourcing partnership life cycle model. Sehic et al [22] proposed a strategic partnership model (SPM) and have identified various external factors (such as social, political, competitive and technology) and internal factors (such as organisational perspective, cost, resource, history and competitiveness).

Ellram and Edis [21] explain how traditional outsourcing relationship is moved towards partnering relationship. Previously alliance has been highlighted with opportunism, doubt and distrust, contracts for single projects, strictly watched over communication between client and vendor, limited objectivity, restraint access of organisational resources, retribution for slip-ups, blame and distance and connection for specific project only. This type of out-dated mind-set is not fruitful to an outsourcing partnership relationship. To bring the relationship on right way, a key change in the approach is required. In partnership type relationships shared aims and objectives, mutual trust, openness and honesty in dealings, effective and in time communication, objective critique, long-term commitment, innovative and supportive work place, organisational access to new technology, complementary skills and market, knowledge and resources sharing, teamwork, complete company engrossment at every levels of contacts and organisational proximity provide foundation for the partnership relationship formation.

Dominguez [23] argues the partnership as a demonstration of trust. The need for partnering relationships arises in case where countless and faster co-operation is demanded. One of the constituent's elements of partner type relationship is the provision of trustful atmosphere between the outsourcing client and vendor(s). Open communication, information sharing and mutual goals are all tools for getting partner position.

Mohr et al [24] have identified various critical factors such as coordination, communication quality, commitment, trust, information sharing, active participation, honesty and openness, and joint problem solving in partnership formation [24]. Similarly other identified factors include bidirectional information sharing, shared goals, trust, early communication with client, distinct

value addition by vendor, top management support, mutual commitment and mutual understanding [26].

This paper is one component of our proposed Software Outsourcing Partnership Model (SOPM) [27]. The overarching target of this research paper is to find out and analyses those factors that are considered significant for vendors in conversion of their existing outsourcing contractual relationship to partnership. Initially we have conducted systematic literature review (SLR) for the identification of success factors for SDO partnership and the results have been published [19]. SLR is more comprehensive to conventional literature review [11, 19] . For validation of the SLR findings, we have executed a questionnaire based survey with 35 experts from different software companies. The participants were questioned to rank prominence of critical success factors (CSFs) on a seven point likert scale. This survey validated and confirms the findings of SLR.

3. STUDY DESIGN

We have executed a questionnaire based survey, in the form of online survey by using the online tool Google drive, in software outsourcing industry. Our intent was to confirm results of our previously published SLR through industrial practitioners and to discover any new factors other than the identified ones. Survey research is considered particularly a suitable method of collecting tacit quantitative and qualitative data [28]. In this section, we describe the data collection, the approach taken for the selection of participants, the questionnaire procedures and the data analysis strategy. The details of the research methodology are given in the following sub-sections.

3.1 Empirical Study

A survey is a method of empirical investigation for obtaining a numeric (quantitative) description on the sample. It is the most widely used research methodology used for data collection, in order to obtain tacit information on a particular phenomenon or problem of interest [28]. A similar method has been undertaken by other investigators [11]. We have used Google drive, a free online Google application for the design and distribution of online survey questionnaire. The detailed process of executing the empirical survey is presented in the succeeding sub-sections:

3.2 Designing an Online Questionnaire Survey

Questionnaire survey comprises of two main steps, design and sampling. The process of finding, approaching and selecting the appropriate fields experts to participate in the questionnaire survey is termed as sampling [28]. After sampling design of questionnaire occur. Here a set of questions is presented for participant to be answered. Both are elaborated in the subsequent subcategories.

3.2.1 Sampling

For sampling we have two choices: 1) systematic approach; and 2) non-systematic approach [28]. In the 1st approach, samples are drawn from list of the available entire population, using some statistic, while 2nd approach is used for small survey where the entire population is not available [28]. We have used the 2nd non-systematic approach because our investigation was on minor scale. Further it was also impossible for us to collect contacts of each and every software house and to list and categorise all the employees and selecting professionals from that. Other researchers like Cox et al [29], Khan et al [11] and Kinnula [10] used a similar approach.

3.2.2 Design of Questionnaire

The questionnaire was designed at the department of CS & IT UOM, in order to validate the results of our previously published SLR through industry practitioners and to discover any new factors other than the identified ones. For the design of questionnaire, the SLR findings were used as the key contributions to the questionnaire design. The questionnaire questions are distributed into four diverse sections. Demographic information is the first section. Section-2 presents a list of 26 success factors which are evaluated on a seven argument likert scale and section-3 contains the submission information. We have provided a combination of close and open ended questions in our survey. We have queried the respondent to give their answer on a seven argument likert scale (1-Extremely Agree (EA), 2-Moderately Agree (MA), 3-Slightly Agree (SA), 4-Not Sure (NS), 5-Extremely Disagree (EDA), 6-Moderately Disagree (MDA) and 7-Slightly Disagree (SDA). We have also provided some open ended questions to the participants. "Give some additional factors other than the listed ones" is an example of open ended question. The survey questionnaire was tested through five members of SERG_UOM@ yahoogroups.com at the university.

3.3 Data Gathering

The objective of the research study is to reconnoitre the experiences and opinions of the practitioners, working in the software industry, in the context of SOP. It can be considered primarily as being qualitative in nature. Qualitative research focuses on investigating and understanding social and cultural phenomena in context and is appropriate where the purpose is to explore a topic and to obtain an overview of a complex area [28, 29]. Questionnaire survey is particularly suitable for collecting qualitative data because, it provides the opportunity for discussion or exploration of new topics that arise during data collection. A questionnaire provides a considerable autonomy to researcher in arrangement of questions and in the quantity of time and consideration given to each theme. Questions can be open-ended, allowing for a variety of responses. This approach of data collection helps to reduce the risk of bias relating to the researchers preconceptions and it allows for the use of elaboration probes to encourage the participant to give his/her own opinion about a particular subject [28, 29].

3.3.1 Pilot Questionnaire

The questionnaire procedures were tested with the help of five associates of SERG_UOM@ yahoogroups.com, at the campus, who had undertaken several questionnaire surveys. This experience confirmed our expectation that the questionnaire would take approximately 30 minutes and also led to some changes in the delivery and sequencing of the questions.

3.3.2 Selection of Participants

Before the distribution of the questionnaire we wrote a letter of invitation having some briefing of the research study and were mailed to the below mentioned websites.

- Yahoo (https://groups.yahoo.com/neo)
- LinkedIn (www.linkedin.com)
- Facebook (www.facebook.com) and
- Software Companies at Pakistan.

We also requested to the authors of the industrial papers through email, for participation in the survey. These industrial papers were selected through our previously published SLR. In

comeback to these emails, 101 industry professional's experts consented for contribution. Upon receiving their willingness the questionnaire web link was sent to these experts. In the predefined time limit, we received 42 filled questionnaires. Applying the quality criteria 07 questionnaires were dropped/ excluded. A final of 35 responses remains for further analysis. Among the 35 participants 8 experts are foreigners while the remaining 27 experts are Pakistani nationals.

3.3.3 Questionnaire Procedures

Questionnaires were carried out between April and May 2015. Prior to questionnaire, each participant was sent questionnaire invitation letter. This letter outlined the main themes to be covered during the questionnaire, the expected duration, and measures which would be taken to ensure privacy and confidentiality. All questionnaires were conducted online, using the Google drive free online survey tool.

3.3.4 Executing Online Surveys

A total of 101 professionals were invited for participation in the questionnaire survey through emails. Fig. 1 shows the number of received responses /day. Fig. 1 indicates that we had received rapid response to our survey request from some participants. To increase the response rate, we also sent an email reminder to the participants. This reminder helped significantly.

3.3.5 Data Analysis Strategy

Upon receiving willingness of the experts, the questionnaire web link was sent to these experts. In the predefined time limit, we received 42 filled questionnaires. Applying the quality criteria 07 questionnaires were dropped/ excluded. A final of

35 responses remains for further analysis. Thus, we caught 34.65% response rate for our survey. These 35 filled questionnaires were further analysed based on different variables.

3.3.6 Nonresponse Bias Measurement

It was clear from the previous heading that numerous participants had not answered to our questionnaire survey. We have conducted t-tests for checking non-response biasness cause and effects. We did not find any important dissimilarity ($p<0.05$) amongst non-respondents and respondents [30].

4. RESULTS

In results section the findings related to research questions are discussed. In the sub sections 4.1, 4.2, and 4.3 we have answered RQ1, RQ2, and RQ3 respectively. For the analysis purpose we have find significant difference of success factors using different variables. For significant differences chi-square (linear by linear association) test is used. For analysis of the significant difference amongst nominal and ordinal variables the linear by linear chi-square test is consider more powerful as compared to Pearson chi-square test [30].

In the questionnaire different participants have selected different options on the 7-point likert scale suggestion for each of the listed CSF. For analysis, we have categorised their responses into three categories as shown in Table 2. First category is Positive (Extremely Agree + Moderately Agree + Slightly Agree). Second category is Negative (Extremely Disagree + Moderately Disagree + Slightly Disagree). Third category is Neutral neither (Neither Positive nor Negative).

Fig. 1. Number of daily responses.

Table 1. Summary of CSFs identified through empirical study.

S. No.	Success Factors	Total Expert Responses = 35									
		Positive				Negative				Neutral	
		Extremely Agree frequency	Moderately Agree frequency	Slightly Agree frequency	Agree %	Extremely Disagree frequency	Moderately Disagree frequency	Slightly Disagree Frequency	Disagree %	Not sure	%
1	Mutual interdependence and shared values	17	13	3	94%	0	0	0	0%	2	6%
2	Mutual trust	27	4	2	94%	0	0	0	0%	2	6%
3	Effective and timely communication	24	7	3	97%	0	0	0	0%	1	3%
4	Quality production	23	9	2	97%	0	0	0	0%	1	3%
5	Organisational proximity	9	11	5	71%	0	0	1	3%	9	26%
6	3C (coordination, cooperation and collaboration)	22	9	2	94%	0	0	0	0%	2	6%
7	Flexible Service Level Agreements (SLA)	10	14	8	91%	0	0	0	0%	3	9%
8	Bidirectional transfer of knowledge (BTK)	16	12	4	91%	0	0	1	3%	2	6%
9	Long-term commitments	16	12	4	91%	0	0	1	3%	2	6%
10	Joint management infrastructure	15	6	5	74%	0	2	2	11%	5	14%
11	Cross Cultural understanding and sensitivity	15	10	5	86%	1	0	0	3%	4	11%
12	Success stories of previous projects	22	9	3	97%	0	0	0	0%	1	3%
13	Access to new markets, technologies and complementary skills	17	11	6	97%	0	0	0	0%	1	3%
14	Governance and control	9	11	5	71%	1	1	3	14%	5	14%
15	Financial stability and relation specific investment	13	14	5	91%	0	0	1	3%	2	6%
16	Organisational transparency and receptivity	13	14	6	94%	0	0	0	0%	2	6%
17	Flexibility and reliability	15	13	4	91%	0	0	0	0%	3	9%
18	Spurring innovation	11	10	4	71%	0	0	1	3%	9	26%
19	Win-Win strategy	12	11	6	83%	0	0	0	0%	6	17%
20	Effective relationship management	21	7	6	97%	0	0	0	0%	1	3%
21	Constructive conflicts resolution mechanism	10	16	3	83%	0	0	0	0%	6	17%
22	Top management engagement	22	8	4	97%	0	0	0	0%	1	3%
23	Social networking	7	11	4	63%	0	4	1	14%	8	23%
24	New business opportunity	10	8	4	63%	1	4	4	26%	4	11%
25	Honesty and openness	16	10	3	83%	1	0	1	6%	4	11%
26	Human Resource Management	15	4	3	83%	0	1	0	6%	4	11%

4.1 Summary of Factors, Identified through Empirical Study

Table 1 illustrates that all the identified factors have been ranked positively/agreed by more than 60% of the participants. Similarly others most high ranked success factors, in the survey, are 'effective and timely communication' 'quality production', 'success stories of previous projects' 'access to new markets, technologies and complementary skills', 'top management engagement' and 'effective relationship management'. All these

factors are positively agreed by 97% of the experts. This confirms the findings of the literature as reported below:

- According to Webb and Laborde [31] 'effective and efficient communication' between client and vendor organisations gives them an opportunity for the formation of strong relationship for quality production. Partnership is the most suitable way to get access to new markets, new technologies and complementary skills that are not available in house/insource. In view of Berger et al [32] effective communication between outsourcing partners is assumed to be of crucial importance for the successful relationship like partnership.

- Effective communication provide strong opportunity to enter into partnership [31].

- Today's outsourcing relationship is not formed just for cost saving, but for the best quality that the counterpart offer [14].

- Partnership offers the opportunity for both parties involved to get access to new markets, new technologies and complementary skills that are not available in house/insource, for undertaking complimentary activities to achieve mutual benefits [33].

- Effective relationship management is the key to outsourcing partnership formation [10].

- Success stories of previous projects is an important factor, generally a mature and successful outsourcing arrangement may convert to outsourcing partnership [17, 18].

Similarly the second most highly agreed success factors, in the survey, are 'mutual trust', 'mutual interdependence and shared values', 'organisational transparency and receptivity' and '3C (coordination, cooperation and collaboration)'. This in turn supports the findings of the literature which is reported as:

- According to Bowersox et al [20] in order to attain mutual benefits, greater than the organisations would be able to achieve individually, a long-term partnering relationship is formed. Where organisations with common goals make joint decisions, work together, share resources and information, benefits and risks, and achieve mutually valuable outcomes.

- Literature reveals that the current inter-organisational trend is changing from competition to coordination, cooperation and collaboration [34].

- In view of Alexandrova [34], special attention should be put on the way in which organisations "learn" from their partners, as this appears to be one of the means for the development of key competences.

Our results also indicate that that the following success factors got the third rank (91%) in the identified list for vendors. These include 'flexible service level agreements (SLA)', 'bidirectional transfer of knowledge (BTK)', 'long-term commitments', 'financial stability and relation specific investment', 'and 'flexibility and reliability'. Literature reveals the importance of these factors in the following manner:

- Most conventional organisational relationship uses a formally written contract as a control instrument, because it helps to put mutually enforceable bounds on the power and activities of each partner [35]. While partnership relationship uses flexible service level agreement (FSLA) as a controller instrument in the SDO arrangements, that would implement control approaches through mutual trust [35].

- BTK emerges when optimal (in terms of quantity and quality) information necessary for the realization of the service is provided through the channels of effective communication between the partners. The knowledge could have two forms: implicit i.e. informal, tacit, and explicit i.e. formal [11].

- Commitment guarantee parties that the association will be continued till long time and has been categorised as "a lasting wish to continue a value added relationship" [36].

- According to Klepper and Jones [37] financial stability of the partner is necessary factors of the SOP because partnership requires asset investment by both client and vendor organisation.

- Partnership type relationship is flexible, i.e it allows changes in the SLA/contract and project requirement throughout the agreed time spans. This relationship is a long lasting

and may result in contracts renewal several times [37].

We also found that 'cross cultural understanding and sensitivity' i.e. 86% in the fourth ranked significant factor to SOP vendor's organisation. The literature reveals the importance of these factors as:

- Many cross cultural software development relationship failures have been endorsed to a cultural differences and lack of capability to boost 'cross cultural understanding and sensitivity' [38].

'Win-Win strategy', 'constructive conflicts resolution mechanism', 'honesty and openness' and 'human resource management' are ranked as fifth (83% positively agreed) in our survey findings.

- Conventional outsourcing is based on win-loss mentality, while partnership outsourcing is based on win-win mentality where both parties win [19].
- Conflicts represent the level of disagreement in the functioning partnership. Resolve disagreement as they arise [10].
- In partnership both parties share information of the project status openly, which vanishes chances of conflicts [6].
- According to Khan and Niazi [11, 42] HRM is an important factor to be addressed by vendors efficiently in outsourcing relationship.

Seventy % of the respondents are positive about 'organisational proximity', 'governance and control', and 'spurring innovation' is an important factor of outsourcing partnership. Literature reports the importance of these factors as follow:

- 'Governance and control' is concerned with taking corrective action in problems situation, for resolution, among distributed partners. It also involves the settlement of conflicts of concern between numerous outsourcing partners [39].
- Organisational proximity is the factor, which controls organisational differences as it is "belonging to the same space of references". It is also the development of shared norms, representations, work standards and practices [40].
- According to Lee and Kim [33] outsourcing vendor must be capable of innovation in order to become partner.

'Social networking' and 'new business opportunity' are the two factors having percentages less than 70%, i.e., 63% in the survey findings. Literature also reveals that:

- Social networking is an essential element of partnership [19, 43].
- Partnership provides new business opportunity' [19].

4.2 Distribution of the Factors, Identified through Empirical Study, across Respondents Job Locations

A total of 35 industrial practitioners/experts participated in the survey. We have divided all these professionals into two groups (vicinity and foreign) grounded on their company's location. By local experts we mean those experts who are involved in Pakistani software outsourcing industry while 'foreign' experts are those working in overseas organisations i.e other than Pakistan.

Table 2 demonstrates distribution the identified success factors across these two kinds of SDO experts. Fig. 2 graphically illustrates responses of professional experts.

In our empirical results eight experts are 'foreigners' while the remaining twenty seven experts are 'locals' as shown in Table 2. Table 2 reveals that most of the success factors are positively agreed by both foreign and local experts.

We have found only one significant difference based on expert's job location i.e bidirectional transfer of knowledge (BTK), for which 'p' significance is less than the standard significance level 0.05 as shown in Table 2. BTK having percentage 96% in local group while 25% in overseas group. This shows that it is more known factor in local group as compared to overseas.

4.3 Distribution of the Factors, Identified through Empirical Study, across different Company Size

We have categorised the survey participants into three categories based on their company size. According to the standard definition of organisation size, reported by Australian bureau of statistics [41], these three categories are: large (more than 200 employees), medium (20 to 199 employees), small (0 to19 employees).

Table 2. Distribution of factors based on job location.

S. No.	Success factors	Expert Responses = 35						Chi Square Test (Linear-by-Linear association ∝ =0.05)	
		Vicinity (N = 27)			Overseas (N = 8)				
		A	DA	NS	A	DA	NS	X^2	P
1	Mutual interdependence and shared values	93%	0%	7%	100%	0%	0%	0.611	0.435
2	Mutual trust	93%	0%	7%	100%	0%	0%	0.611	0.435
3	Effective and timely communication	96%	0%	4%	100%	0%	0%	0.296	0.586
4	Quality production	96%	0%	4%	100%	0%	0%	0.296	0.586
5	Organisational proximity	70%	0%	30%	75%	13%	13%	2.254	0.133
6	3C (coordination, cooperation and collaboration)	93%	0%	7%	100%	0%	0%	0.611	0.435
7	Flexible Service Level Agreements (SLA)	93%	0%	7%	88%	0%	13%	0.198	0.656
8	Bidirectional transfer of knowledge	96%	0%	4%	75%	25%	0%	5.818	0.016
9	Long-term commitments	89%	4%	7%	100%	0%	0%	0.097	0.756
10	Joint management infrastructure	70%	11%	19%	88%	13%	0%	0.927	0.336
11	Cross cultural understanding and sensitivity	81%	4%	15%	100%	0%	0%	0.546	0.460
12	Success stories of previous projects	96%	0%	4%	100%	0%	0%	0.296	0.586
13	Access to new technologies, markets, and complementary skills	96%	0%	4%	100%	0%	0%	0.296	0.586
14	Governance and control	70%	15%	15%	75%	13%	13%	0.000	1.000
15	Financial stability and relation specific investment	89%	4%	7%	100%	0%	0%	0.097	0.756
16	Organisational transparency and receptivity	93%	0%	7%	100%	0%	0%	0.611	0.435
17	Flexibility and reliability	93%	0%	7%	88%	0%	13%	0.198	0.656
18	Spurring innovation	67%	4%	30%	88%	0%	13%	0.463	0.496
19	Win-Win strategy	81%	0%	19%	88%	0%	13%	0.153	0.696
20	Effective relationship management	96%	0%	4%	100%	0%	0%	0.296	0.586
21	Constructive conflicts resolution mechanism	93%	0%	7%	100%	0%	0%	0.611	0.435
22	Top management engagement	96%	0%	4%	100%	0%	0%	0.296	0.586
23	Social Networking	59%	15%	26%	75%	13%	13%	0.203	0.652
24	New business opportunity	59%	26%	15%	75%	25%	0%	0.329	0.566
25	Honesty and openness	81%	15%	4%	88%	0%	13%	1.987	0.159
26	Human Resource Management	81%	15%	4%	88%	0%	13%	1.987	0.159

Fig. 2. Respondent Job location.

Table 3. Distribution of factors base on company size.

| S. No. | Success Factors | Expert Responses = 35 | | | | | | | | | Chi Square Test(Linear-by-Linear association ∝ 0.05) | |
| | | Small (N = 11) | | | Medium (N = 14) | | | Large (N = 10) | | | | |
		A	DA	NS	A	DA	NS	A	DA	NS	X^2	P
1	Mutual interdependence and shared values	82%	0%	18%	100%	0%	0%	100%	0%	0%	3.245	0.72
2	Mutual trust	82%	0%	18%	100%	0%	0%	100%	0%	0%	3.245	0.72
3	Effective and timely communication	91%	0%	9%	100%	0%	0%	100%	0%	0%	1.575	0.209
4	Quality production	91%	0%	9%	100%	0%	0%	100%	0%	0%	1.575	0.209
5	Organisational proximity	82%	0%	18%	64%	0%	36%	70%	20%	10%	0.118	0.731
6	3C (coordination, cooperation and collaboration)	82%	0%	18%	100%	0%	0%	100%	0%	0%	3.245	0.72
7	Flexible Service Level Agreements	91%	0%	9%	86%	0%	14%	100%	0%	0%	0.494	0.482
8	Bidirectional transfer of knowledge	91%	0%	9%	93%	7%	0%	100%	0%	0%	0.811	0.368
9	Long-term commitments	82%	0%	18%	100%	0%	0%	90%	10%	0%	4.817	0.028
10	Joint management infrastructure	73%	0%	27%	71%	21%	7%	80%	10%	10%	1.596	0.207
11	Cross Cultural understanding and sensitivity	73%	0%	27%	100%	0%	0%	80%	10%	10%	2.903	0.088
12	Success stories of previous projects	91%	0%	9%	100%	0%	0%	100%	0%	0%	1.575	0.209
13	Access to new technologies, markets, and complementary skills	91%	0%	9%	100%	0%	0%	100%	0%	0%	1.575	0.209
14	Governance and control	73%	9%	18%	86%	0%	14%	50%	20%	30%	0.000	1.000
15	Financial stability and relation specific investment	82%	0%	18%	93%	7%	0%	100%	0%	0%	2.121	0.145
16	Organisational transparency and receptivity	91%	0%	9%	100%	0%	0%	90%	0%	10%	0.003	0.958
17	Flexibility and reliability	91%	0%	9%	93%	0%	7%	90%	0%	10%	0.004	0.947
18	Spurring innovation	55%	0%	45%	79%	7%	14%	80%	0%	20%	1.524	0.217
19	Win-Win strategy	73%	0%	27%	86%	0%	14%	90%	0%	10%	1.090	0.296
20	Effective relationship management	91%	0%	9%	100%	0%	0	100%	0%	0%	1.575	0.209
21	Constructive conflicts resolution mechanism	73%	0%	27%	100%	0%	0	80%	0%	20%	0.278	0.598
22	Top management engagement	91%	0%	9%	100%	0%	0	100%	0%	0%	1.575	0.209
23	Social Networking	64%	18%	18%	57%	7%	36	70%	20%	10%	0.106	0.744
24	New business opportunity	73%	18%	9%	71%	21%	7	40%	40%	20%	0.172	0.678
25	Honesty and openness	82%	9%	9%	100%	0%	0	60%	30%	10%	1.166	0.280
26	Human Resource Management	82%	9%	9%	100%	0%	0	60%	30%	10%	1.166	0.280

Table 3 characterises the results of empirical survey from these three types of outsourcing professionals. In our empirical results 11 participants are from small, 14 from medium and 10 participants from large sized organisation as shown Fig. 3. The results indicate that out of 26 CSF, 18 CSFs are such that more than 80% of small organisation experts are agree that these CSFs can play positive role in conversion of SDO vendor to outsourcing partner. It is clear from Table 3 that 21 out of 26 CSFs are such that more than 80% of the medium size organisation experts are agree that these CSF can positively impact SDO client(s) in promotion of SDO vendor organisation. Table 3 illustrate that 20 out of 26 CSFs are such that more than 80% of large companies experts are agree that these CSFs can help SDO vendor organisation in order to enter
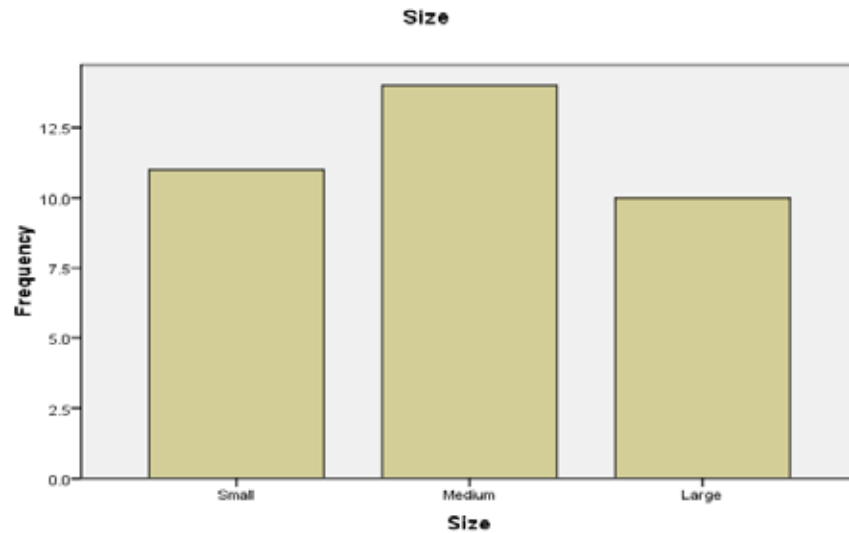
Fig. 3. Company.

into outsourcing partnership with client organisation.

We have found only one significant difference, based on expert's company size i.e. Long-term commitments, for which 'p' value is less than significance level 0.05 as shown in Table 3. 'Long-term commitments having percentage 82% in small, 100% in medium while 90% in large organisation. It shows that 'long-term commitments' is greater in medium and large size organisations, as compared to small type organisations. The reason might be that, it is difficult for large and established organisation to change outsourcing partner.

5. STUDY LIMITATIONS

This section discusses the validity of our findings of empirical study. One possible threat to internal validity is the small size of the foreigner participants. Out of 35 just 8 participants are from abroad. We should have to include more foreigners SDO experts, in order to obtain better results, but due to scarcity of resources and time it was not possible for the current study. We have tried our best in present resources to reach international experts. We have posted email requests to experts of various LinkedIn software development outsourcing and outsourcing partnership groups for participation in our survey. Because of the volunteer participation only limited numbers of respondents from abroad participate in our survey. Therefore reader should be careful

while generalising the results. One possible threat to internal validity is that for any specific response, the respondent does not provide the reasons to report success factors. We are not able to independently control this treat. In this study the participants were not questioned to provide the underlying causes of SOP success factors in outsourcing partnership.

For the current study we have executed online questionnaires. In questionnaire based survey respondents are provided with a list of possible CSF and asked to rank the CSF that plays a vital role in outsourcing partnership formation, which is main disadvantage of questionnaire survey. We have address this issue up to some extent by asking the participant to also write in SOP other than those already mentioned on the questionnaire.

Though, these findings confirms the findings of our previous SLR study [19]. There is no major difference between the finding of the SLR and the empirical study. That's why we have full confidence in our results. This may fill the gap amongst industry and academia in the context of SOP.

6. CONCLUSIONS

We have identified 26 success factors for SOP in total, through empirical study, faced by vendors in SOP formation. Out of these twenty success factors have occurrences of greater than or equal to 80% as shown in Table 1. These twenty most

reported factors are 'mutual trust', 'quality production', 'mutual-interdependence and shared values', 'effective and timely communication', '3C (coordination, cooperation and collaboration)', 'flexible service level agreements (SLA)', 'bidirectional transfer of knowledge (BTK)', 'long-term commitments', 'cross cultural understanding and sensitivity', 'success stories of previous projects', 'access to new markets, technologies and complementary skills', 'financial stability and relation specific investment', 'organisational transparency and receptivity', 'flexibility and reliability', 'win-win strategy', 'effective relationship management', 'constructive conflicts resolution mechanism', 'top management engagement', 'honesty and openness', 'human resource management.

Beside all the stated limitations, we have confidence in that; our study is contributing one to both academia and industrialist. The results of this study are expected to:

1. Provide guiding information to SDO vendors that can support them in designing and implementing successful SOP initiatives. The findings of this study recommend that SDO vendors must adopt all of the reported success factors especially the critical one in order to gain partner position.

2. Increase partnership cohesiveness, as it will guide both sides to understand each other's requirements and goals, in order to sustain long term commitment.

3. Provide guidance to SDO client, in taking factual decision regarding continuing, renewing or terminating their agreements with their current vendor.

4. Will serve as guidepost for future planning for software outsourcing relationship especially SOP.

5. Provide assistance in well understanding of CSFs for SOP, to ensure successful partnership.

Overall these results complement the results of our SLR [19]. There is no major dissimilarity between the SLR and the empirical study findings. This may fill the gap between industry and academia in the context of SOP.

Our research aimed at providing SDO vendors with a guiding knowledge that can assist them to implement and design successful outsourcing partnership initiatives. This paper recommends that SDO vendors should focus on all of the reported CSFs as mentioned in Table 1. SDO vendors should also emphasis on the given percentage of SOP factors in Table 2 and Table 3.We have noted the following points as a future plan from the findings of this study:

- The solutions/practices will be identified and analysed in SOP relationships from vendor's perspectives.
- To analyses the critical risk in the conversion to, or formation process of SOP from vendor perspective.
- To find the underlying reasons of why some factors are not important for specific group of SDO organisations.

Our ultimate future work is focussed on the development of a Software Outsourcing Partnership Model (SOPM). This paper gives input to the development of the 1st phase of the SOPM, such as the identification of various CSFs through empirical study. The SOPM will assist SDO vendors in promoting their existing contractual SDO relationship into SOP with client organisation. The SOPM will provide guidance and boost the work undertaken till date on models of key success factors development for outsourcing partnership.

7. ACKNOWLEDGMENTS

8. REFERENCES

1. Bamford, J., D. Ernst & D.G. Fubini. Launching a World-Class Joint Venture. *Harvard Business Review* 82: 90-100 (2004).

2. Kelly, M.J., J.L. Schaan & H. Joncas. Managing Alliance Relationships: Key Challenges in the Early Stages of Collaboration. *R&D Management* 32: 11-22 (2002).

3. Ylitalo, J, E. Mäki & K. Ziegler. *Building Mutuality and Trust in Strategic Partnership. Meaning of Early Stages in Relationship Formation: A Case Study*. Working Paper, Helsinki University of Technology BIT Research Centre, Espoo, Finland (2004).

4. Lane, M.S. & W.H. Lum. Examining client perceptions of partnership quality and the relationships between its dimensions in an IT outsourcing relationship. *Australasian Journal of Information Systems* 17: 5-34 (2011).

5. Kinnula, M. & V. SeppAnen. *Information technology requirements in an outsourcing partnership*. In: *Frontiers of e-Business Research Conference*, Tampere, Finland, p. 493-502 (2003).

6. Kinnula, M., V. Seppanen, J. Warsta & S. Vilminko. The formation and management of a software outsourcing partnership process. In: *40th Hawaii International Conference on System Sciences*. Washington, USA, p. 1530-1605 (2007).

7. Moe, N., B, Mite, S. Darja & G.K, Hanssen. From offshore outsourcing to in sourcing and partnerships: Four failed outsourcing attempts. *Empirical Software Engineering* 19:1225-1258 (2014).

8. Roy, V. & B.A. Aubert. A resource-based analysis of IT sourcing. *ACM Special Interest Group on Management Information Systems* 33(2): 29-40 (2002).

9. Kishore, R., H.R. Rao., K. Nam, S. Rajagopalan & A. Chaudhury. A relationship perspective on IT outsourcing. *Communications of the ACM - Mobile Computing Opportunities and Challenges* 46(12): 86-92 (2003).

10. Kinnula, M. *The Formation and Management of a Software Outsourcing Partnership.* Dissertation, Department of information processing science: University of Oulu, Finland, 187 pp. (2006).

11. Khan, S.U, M. Niazi & R. Ahmad. Empirical investigation of success factors for offshore software development outsourcing vendors. *Institution of Engineering and Technology Software* 6(1): 1-15(2010).

12. Dictionary, O. E. *Oxford English dictionary online*: Oxford University Press, Oxford, UK, http://www.oed.com/ (2008).

13. Bocij, P., D. Chaffey. A. Greasley & S. Hickie. *Business Information Systems: Technology, Development and Management for the E-Business 4th ed*. FT Press, 736 pp. (2009).

14. Brinkerhoff, J.M. Government non-profit partnership: A defining framework. *Public Administration and Development* 22: 19-30 (2002).

15. La Londe, B.J. & M.C. Cooper. *Partnerships in Providing Customer Service: A Third-Party Perspective.* Council of Logistics Management, Oak Brook, Illinois, USA, 139 pp. (1989).

16. Lambert, D.M., M.A. Emmelhainz & J.T. Gardner. Building Successful Logistics Partnerships. *Journal of Business Logistics* 20: 165-181(1999).

17. Ali, S. & S.U. Khan. Systematic literature review protocol for software outsourcing partnership (SOP). *IOSR Journal of Computer Engineering (IOSRJCE)* 2(1): 08-18 (2012).

18. Ali, S. & S.U. Khan. Software outsourcing partnership (SOP): a systematic literature review protocol with preliminary results. *International Journal of Hybrid Information Technology* 7: 377-392 (2014).

19. Ali, S. & S.U. Khan. Critical Success Factors for Software Outsourcing Partnership (SOP): A Systematic Literature Review, In: *International Conference on Global Software Engineering*, Shanghai China, p. 153-162 (2014).

20. Bowersox, D, D. Closs & T. Stank. How to master cross-enterprise collaboration. *Supply Chain Management Review* 7: 18–27 (2003).

21. Ellram, L.M. & O.R. Edis. A case study of successful partnering implementation. *Journal of Supply Chain Management* 32: 20-28 (1996).

22. Sehic, I. & H. Gilani. *It Outsourcing: A Strategic Partnership between Buyer and Seller Organization*. PhD Dissertation, International Business School, Jönköping University, Jönköping, Sweden. 105 pp. (2010).

23. Dominguez, L.R. *The Manager's Step-by-step Guide to Outsourcing*: McGraw Hill Professional, 226 pp. (2006).

24. Mohr, J. & R. Spekman. Characteristics of partnership success: partnership attributes, communication behavior, and conflict resolution techniques. *Strategic Management Journal* 15:135-152 (1994).

25. Oza, N.V. *An Empirical Evaluation of Client - Vendor Relationships in Indian Software Outsourcing Companies*. PhD Dissertation, School of Computer Science: University of Hertfordshire, UK, 231 pp. (2006).

26. Virolainen, V.M. *Motives, Circumstances and Success Factors in Partnership Sourcing*. PhD Dissertation, Lappeenranta University of Technology Lappeenranta, Finland, 232 pp. (1998).

27. Ali, S. & S.U. Khan. Software Outsourcing Partnership Model. *Science International (Lahore)* 26: 1437-144 (2014).

28. Creswell, J.W. *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*: Sage Publications, USA, 26 pp. (2013).

29. Cox, K, M. Niazi & J. Verner, Empirical study of *Sommerville and Sawyer's* requirements engineering practices. *Institution of Engineering and Technology Software* 3: 339-355 (2009).

30. Martin, B. *An Introduction to Medical Statistics*, 3rd edition: Oxford medical publications, UK 391(2000).

31. Webb, L. & J. Laborde. Crafting a successful outsourcing vendor/client relationship. *Business Process Management Journal* 11: 437-443 (2005).

32. Berger, H. & C. Lewis. Stakeholder analysis is key to client–supplier relationships of global outsourcing project success. *International Journal of Information Management* 31: 480-485(2011).

33. Lee, S. & G. Lim. The impact of partnership attributes on EDI implementation success. *Information & Management* 42:5 03-516 (2005).

34. Alexandrova, M. IT outsourcing partnerships: Empirical research on key success factors in Bulgarian organizations. *Management: Journal of Contemporary Management Issues* 17: 31-50(2012).

35. Goo, J. Structure of service level agreements (SLA) in IT outsourcing: The construct and its measurement. *Information Systems Frontiers* 12: 185-205(2010).

36. Simpson, J.T. & D.T. May. Relationship management: A call for fewer influence attempts? *Journal of Business Research* 39: 209-218 (1997).

37. Klepper, R. & W O. Jones. *Outsourcing Information Technology, Systems and Services.* Prentice-Hall, Upper Saddle River, NJ, US, 392 pp. (1998).

38. Johnson, J.P., T. Lenartowicz & S. Apud. Cross-cultural competence in international business: Toward a definition and a model. *Journal of International Business Studies* 37: 525-543 (2006).

39. Becht, M, P. Bolton & A. Rajell. Corporate governance and control. *Handbook of the Economics of Finance,* 109 pp. (2003).

40. Torre, A. & A. Rallet. Proximity and Localization. *Regional Studies* 39: 47-59(2005).

41. Trewin, D. *Australian Small Business Key Statistics and Analysis*. Department of Industry, Innovation, Science, Research and Tertiary Education, Australia, 109 pp. (2014).

42. Niazi, M., D. Wilson, D. Zowghi, & B. Wong. A model for the implementation of software process improvement: An empirical study. In: *Product Focused Software Process Improvement* (Profes 2004), Japan (2004).

43. Niazi, M., N. Ikram, M. Bano, S. Imtiaz & S.U. Khan, Establishing trust in offshore software outsourcing relationships: An exploratory study using systematic literature review. *IET Software* 7(5): 283 - 293 (2013).