“Learning success factors of strategic alliances and estimating under an alternate specification”

AUTHORS	Rama Prasad Kanungo
ARTICLE INFO	Rama Prasad Kanungo (2015). Learning success factors of strategic alliances and estimating under an alternate specification. *Investment Management and Financial Innovations*, *12*(3-1), 120-131
RELEASED ON	Thursday, 29 October 2015
JOURNAL	"Investment Management and Financial Innovations"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES **0**

NUMBER OF FIGURES **0**

NUMBER OF TABLES **0**

Rama Prasad Kanungo (UK)

Learning success factors of strategic alliances and estimating under an alternate specification

Abstract

Strategic alliances pass through different stages of partnering that eventually give rise to bilateral or multilateral relationship resulting either in success or failure. Typically, strategic alliances require some crucial attributes to survive and thrive such as, sharing competence, mutual trust, complimenting the resources, communicating expressly and building collective working teams. In addition, transparency, sharing power and *co-opetition*, and structural developments are important constructs of successful alliances. Survival of strategic alliances largely depends on learning what are the factors that drive an alliance successful? Drawing upon prior evidences and empirical literature, this study identifies eight key factors that contribute to successful strategic alliances. In addition, the study proposes a modified Principal Component Analysis (CPA) under an alternate specification to examine the key success factors of alliances. In particular, the method demonstrates the order of significance by introducing a *feature vector*. Thus, clearly identifies weighting for each contributing factor by their rank.

Keywords: alliance success factors, principal component analysis, strategic alliance, success and survival of strategic alliance.
JEL Classification: G34, L1, L10.

Introduction

Strategic alliances serve a number of corporate strategies by undertaking structural alignment, operational restructuring and resource sharing of firms. Events like strategic alliances are often seen as principal constituents in the agenda of many firms' strategic growth. Firms attempt achieving competitive advantage by accessing more dynamic markets, capabilities, core competence through collaboration, compromise and accommodation through strategic alliances. The advantages they seek are both endogenous and exogenous at firm and economic level (Kumar, 2014). However, rewards of such alliances may sometimes prove to be difficult resulting in discouraging firm performance. Therefore, the alliance success remains inconclusive. A number of studies have indicated different constructs as success attributes of strategic alliances. Kogut (1991) finds enhanced market power through alliance structure; Rothaermel and Boeker (2008) observe that alliance architecture increases resource capabilities; while Kale et al. (2009) account for revenue growth. Gulati (1995, 1998) emphasizes that a relevant mutual benefit is what firms adopt for strategic alliance. On the other hand, Lunnan and Haugland (2008) noted that around half of the alliances are terminated because of lack of strategic fit. Similarly, Kale et al. (2002) observe that shareholders' value is destroyed as a result of alliances.

The intense competition to manage businesses has engaged firms to adopt different approaches to survive and grow. In particular, firms aim to develop new strengths whereby delivering products and services quickly and at lower cost to rapidly expand their presence while managing risk through sharing resources. To achieve a set of objectives, firms usually follow a structural approach by soliciting partnerships (Kale and Singh, 2009). This is typically known as strategic alliances. The prior five decades have witnessed a significant number of strategic alliances to develop rapid and effective changes in firms' assets, resources, and capital structure. At the same time, it has been subjected to prevalent debate about its success and failure. Controversy over the effectiveness of strategic alliances has arisen because of conflicting opinions and theories as well as for the rate of alliance failure. Critics emphasize that strategic alliances never exceed the anticipated benefit in the long run, where as proponents argue that the fault lies with the failure to identify the critical success factors behind alliances. A significant part of the controversy stems from the lack of systematic academic studies to isolate the determinants of success those contribute towards the alliance accomplishment.

This study reviews the process of strategic alliances drawing on extant literature and empirical evidences. Based on the review, the paper identifies several critical success factors as drivers of successful strategic alliances. Therefore, a distinct understanding of how and why alliances succeed can be realized. Further, it proposes a modified Principal Component Analysis (PCA) under an alternate specification to examine significance of each success factors/attributes by order of their rank. The modified version of the PCA is predominantly drawn from the conventional PCA methodology. Since the modified PCA is only proposed, it is intended for further examination by using real data. Herein, Principal Component Analysis is referred as PCA throughout the text.

Rama Prasad Kanungo, Dr., Lecturer in Accounting and Finance, Newcastle University London, UK.

The dynamics of strategic alliance is worth exploring for three primary reasons. First, how firms learn to identify a potential partner for the alliance? Second, to what extent strategic alliances are feasible and beneficial to their partners? Finally, how effectively partners can avoid the possibilities of making recurring mistakes in delivering and rendering their products and services to the target audience? Surprisingly, despite potential benefits, the majority of alliances are not poised for success. For instance, Segil (1999a) reports that approximately 55% of alliances and 78% of mergers and acquisitions fall apart within three years; and, only 23% of these recover their costs of walking down the corporate aisle. Similarly, Bamford et al. (2004) observe that around 30-70% of alliances fail without achieving shared goals or operational benefits.

This paper is organized into 3 Sections. Section 1 reviews related literature with a focus to alliance survival and success. Section 2 presents eight key success factors/attributes identified by using a method of theoretical abstraction within a contextual framework. Section 3 proposes a methodology based on a modified PCA outlining how success factors/attributes can be ranked in order of their significance. The Final Section summarizes and concludes the paper.

1. Related literature: alliance survival and success

Survival of strategic alliances has been an area of considerable research. What drives an alliance to be successful is often inconclusive (Agarwal et al., 2010). Typically, strategic alliance is a process to create synergies by appropriating the competitive intent (joint knowledge), unambiguous transparency (openness toward partners) and high mutuality (collaboration of content) of partnering firms. In addition, strategic alliance reinforces core strength and joint knowledge relocating the resources of the partners by contributing to high receptivity, collaboration and collective learning. Dodgson (1993) and Hagedoorn (1993) observe that forging a strategic alliance relies on how partners learn to improve their operations through effective co-operation and collaboration. Nielsen (2010) finds that the stability and longevity of alliances are appropriate metrics in defining the success factors of partnership. Poss (1999) opines that it is critical to understand the risk, benefits and legal ramifications of a strategic alliance. Erik and Rule (1999) propose that a successful partnership requires an environment of harmony, trust and honesty in which management and employees all strive to improve their overall performance. Supporting this line of argument, Caroline (1996) adds that it is the environment of trust, sustaining a broad strategic vision and the feeling of genuine empathy for others, even those are still competitors in their areas are essential for successful alliance. However, strategic alliance can not only thrive in an environment of harmony and trust when corporate flexibility and core competencies are not duly considered as essentials.

Brian (1999) highlighted seven factors critical to the success of alliances after an extensive study and interviews with all of the relevant parties associated with 17 industry alliances in the USA. The factors he summarized are the following. (1) Mutual goals – goals should be clearly defined, (2) goals linked to profitability – goals should be tied to profitability for the parties. (3) There should be a well-defined process i.e., partners work together to define all the steps required in the process with enough detail to eliminate redundancies. Also, a willingness to accept unconventional assignments to further the alliance. (4) Buy-in at appropriate levels i.e., employees at all levels from the board of directors to the field should agree with the alliance goals and accept the changes in corporate culture that may accrue as a result of the alliance. They need to be introduced to changes and implore the necessity of such changes. (5) Quantitative performance measurement tools i.e., quantitative tools are used to measure the success of alliance achievement against established goals. (6) Performance measures as performance based incentives i.e., incentives for partners are tied to specific benchmarks. (7) Process improvement analyzis i.e., methods to analyse performance are built in to the process, and this analysis serves as a well-documented, proactive focus on improving the process when changes occur.

Many factors influence alliance process and success. These factors have strategic as well as incentive-compatible benefits for the both partners. The following sections review some of the key factors that duly impact strategic alliances.

1.1. Common goal. Child and Faulkner (1998) state that firms join forces in pursuit of common goals without losing their strategic autonomy and without abandoning their own specific interests. Whereas, Bleeke and Ernst (1991) highlight that meeting the requirements of common goals after all, is the main imperative for success in alliances. Meanwhile, Nanda (2000) iterates that this term (common goal) has been used to describe a plethora of inter-firm relationships, co-operative or not, pre-planned or serendipitous. He describes it as; when independent firms enter a relationship to achieve some defined goals, each partners contributes resources to the alliance, and each partner exercises shared control

over it. Therefore, fostering a set of common goals during the process of partnership strengthens the alliances. Essentially, strategic alliances require sharing between partners to survive and thrive. Phillips et al. (1994) and Barnette and Spearman (1994) argue that the success of an alliance is largely based on sharing the goals, trust, communication and teamwork.

Segil (1999) finds it is a relationship either strategic or tactical, and that is entered into for mutual benefit by two or more parties having compatible or complementary business interests and goals. She illustrates the determining factors of strategic alliance in a pyramid form as a top down model including different organizational alliances such as, take-over/mergers, joint venture/equity transfer, R&D or technology transfer, Original Equipment Manufacturing (OEM)/licensing at private level, joint marketing/distribution. The top of the model represents high risk, maximum use of human resources and high cost, where the bottom one represents low risk, maximum use of human resources and low cost. She argues that the higher section reflects more compatibility of goals though it involves higher risk and cost.

1.2. Complexities of task. Strategic alliance is a complex task, and is a comprehensive framework to manage diligently the relational and operational aspects of both the partners. At the same time, it requires to maintain control, flexibility, security and productivity by accomplishing a set of tasks stipulated by the partners. Previous studies by Faulkner (1995), Dussage and Garrette (1999), Doz and Hamel (1998), Erik et al. (1999), Borys, Bryan and Jemison (1989), Osland et al. (1995) and Contractor and Lorange (1988) agree that relational and operational aspects of sharing firms should be compatible and flexible for collective gain of control and productivity. To achieve gain of control and productivity, alliances evolve through a series of complex tasks. It is important to remember that a strategic alliance is not an off-the shelf product. It needs articulate planning, structured follow-ups, and above all a stroke of genuine creativity.

Das and Teng (1999) suggest forging of strategic alliances passes through different stages eventually giving rise to a collective competition or establishing a win-win relationship. They have proposed a structural model to explain how strategic alliances develop and culminate at, either as success or collapse as failure. This is shown in diagram 1. The diagram emphasises the four possible crucial stages of the alliance process and complexities of tasks involved with the entire process. The model is developed upon selecting a suitable partner having resource and strategic fit. In addition, the partner requires to maintain flexibility to continue a successful relationship. The structure of the alliance then needs to be defined in a way that there should be a mutual balance between competition and co-operation to manage the complexities involved with the shared tasks. This balance should evaluate the immediate risks as well as any possible future risks that the partners may encounter and how to avert such risks with shared resources and strengths. Eventually, the alliance should be attentive to address the short term and long term orientation of both the partners by assessing their joint operations and mutual tasks. Das and Teng (1999) further add that if the alliance competently manages all the stages then an effective alliance performance emerges as the outcome.

1.3. Link alliance and scale alliance. Nanda (2000) classifies that there are generally two types of strategic alliances, and these need to be identified in order to understand the failure and success factors, such as *link alliance* and *Scale alliance*. In the link alliance, the partners divide the activities within a value chain between themselves, so that one can manufacture and the other can market; this type of alliance has long-term perspective and the nature of exchange may not be always mutually exclusive. The effect of such a partnership is non-stretching and the alliance often faces difficulties to survive. The scale alliance allows firms to share the execution of one or more activities like joint marketing and production etc., but when the nature of the relationship are drawn out in advance two things evolve out of this. First, personal relationships substantially supplement formal role relationships. Second, informal psychological contracts increasingly substitute for formal legal contracts (Ring and Ven, 1994). Both types of alliances have their own merits depending on length and duration of partnership. However, scale alliances have wider scope for fulfilling role relationship and developing inter-personal understanding compared to link alliance. Nanda (2000) notes scale alliances indicate higher survival rate contrary to link alliances.

1.4. Communication and cooperation. A further aspect of strategic alliance is the process of communication between the partners. Generally, communication among boundary-spanning personnel produces a shared interpretation of goals and common agreements on norms, work roles, and the nature of organizational relationships. Therefore, any ineffective communication may jeopardise alliances where the defining characteristics of communication have been misinterpreted. In this light, Hull et al. (2000) propose three potential factors that are required for alliance success. They considered the *Alpha-Omega* alliance as a real case study to find these factors. First, communication and the proactive exchange of information can strengthen the alliance. Second, trust plays an important role in maintaining

communication, but often a dominant role in successful alliances. They define trust as "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of a partner". Third, they indicated that personal relationship should serve as a potential substitute for formalized rigidity of legal documentation.

Bensimon (1999) proposes "co-operate now, compete later" as the emerging guideline for successful alliances. He further suggests that to avoid partnership to dissolve amid mutual recrimination; four guidelines ought to be observed. The guidelines he presented are: (1) assimilate the competencies of your partner to reinvigorate yourself even as you keep developing your own; i.e., do not look to your partner as a permanent solution for your deficiencies; (2) condition yourself to think of your partner as today's ally, but tomorrow's competitor; he may well decide to go his own way once he has mined your gold; (3) alliances mean sharing power and resources, but share information wisely; give your partner only what is needed to achieve current, mutual objectives; (4) structure your alliance carefully; a joint venture, equity partnership, or collaborative research may be what you need to compete successfully against other alliances or single companies. These guidelines very much rely on factors like culture and cultural compatibility depending upon the locations, perspectives and corporate objectives. Business strategies and cultures of China are exceedingly different from that of Europe. Similarly, the American way of leading businesses from corporate perspective is very distinct from Asian countries. Therefore, cooperation has different definitions within different contexts and should be carefully considered for a successful alliance.

1.5. Business change and strategy. Alliances used to have a single purpose and be incremental to the main business change and strategies; now they are core to the partners' strategic outcomes and become instrumental of global consolidation of corporate communion. The number of strategic alliances is increasing at a pace that is arguably much faster than last three decades. It is commonly conceived that political nationalism is the biggest obstacle in the way of alliance formation to deliver business and strategic changes, which mostly includes cultural biases, trade barriers, ownership bureaucracy and operational risks. For example, a study by Ma (1998) reports that in the 1980s an unprecedented intellectual alliance marked the climax of a decade long dissident in China by allowing changes in socio-economic structure as well as business strategies of the country. The years 1978-79 became known as the democracy wall movement. Such changes in social dynamics indicate how an individualistic or monolithic power concentration can damage the business progress by limiting strategic changes. This strict individualism refers to iconoclastic culture which stands between geo-political directives and business change/strategies. The iconoclastic culture is becoming an overcasting issue and a lack of attention to cultural implication can be potentially damaging for the success of strategic alliances.

Larsson et al. (1998), Kathleen and Schoonhoven (1996) and Parkhe (1993) maintain that business strategy, synergy, complementary stability, combined market opportunities, and commitment to human engineering are all very critical to navigate successfully the process of alliances. For example, Goodyear in the USA and Japan's Sumitomo Rubber industries entered into an alliance in 1999 that was described as a major success (The Economist, 1999). At that time, scepticism ran high but subsequently they proved their sceptics wrong by showing how successful they were. Goodyear, who acquired a 10% ownership of Sumitomo as part of their 1999 global alliance; in 2002 sold 20.83 million shares for approximately $83.4 million. Sumitomo bought 20.33 million of these shares as a strategic initiative. Goodyear, which now holds about 1.5% of Sumitomo, only takes non-cash charge of approximately $10 million (6 cents per share) related to the transaction in the second quarter. They went through six consecutive joint ventures to accomplish their alliance (Gould and Price, 2003). The success of this alliance is not only based on a real understanding of financial and other legalities but largely depends on rightly identifying the business and portfolio changes at appropriate strategic level.

2. Identifying critical success factors

Drawing on existing theoretical arguments and empirical findings related to the consequences and determinants of successful strategic alliances, eight critical success factors for the strategic alliances are identified. These identified factors are derived from the literature discussed in Section 1. Under each critical success factor, a thematic discussion is presented with illustrations. The rationales of identifying these factors are multi-dimensional. All the eight success factors are discussed to establish the purposive nature of alliance success.

2.1. Common cultural orientation. Undoubtedly, it can be argued that the cultural similarities and symmetries are crucial in deciding the formation of successful strategic alliances. The cultural compatibility has significant bearings on the successful outcome of the strategic alliances. Global organizations like GM, Lotus, IBM, Airbus etc. pay very detailed attention to such aspects during their

alliance process. Too often, the business justification for an alliance emerges from the common culture. The cultural factors not only facilitate corporate perspectives but also restrict incompatibility, in particular, when non-business issues arise and interfere with the process of a healthy alliance. Labovitz and Rosansy (1997) find business practices shape firm level behaviour, and subsequently, behavior creates cultural symmetry. Cultural symmetry strongly influences collective organizational behavior. Freidheim (1991) maintains that strategic alliances have taken a giant leap across cultural barriers rather than simple merger and acquisition, which he describes as "*relationship enterprise*". He argues that the nature and life span of those alliances have changed dramatically as a result of cultural inputs.

Faulkner (1995) highlights that the cultural conditions are very important within the context of strategic alliances. The understanding of one partner's perception about the cultural compatibility with other one always remains as a potential criterion in selecting a partner. For example: Eurobreak, ICI-Fujitsu, Imperial-Wintermans, RBS-Santander have all identified and paid much attention to cultural commonalties and compatibility as their selection criteria in the process of strategic alliances. Similarly, firms such as Dunlop-Pirelli, AT&T-Olivetti, Rover-Honda, ICI-Sumitomo are also some interesting examples where cultural orientation and patterns were given wider focus and timely preference. It is often seen that similar cultural orientation narrows the gap of cultural asymmetry between the partners. Notably firm level culture is not too different from the cultural orientation. Mainly firm level cultures emerge from the cultural orientation as a sub-set. The cultural sub-set at firm level largely defines the wider organizational culture. The cultural orientation is therefore a more appropriate way to effectively manage portfolio and enhance synergy between the successful alliance partners. The sooner the partners became more acquainted with each other's cultural response, the quicker the synergy created by the alliances grows.

2.2. Structural specificity of the process. Strategic alliance is a complex, multi-dimensional and structural task. A successful alliance requires a specific structure and systematic integration to maintain the partnership. In general, alliances are divided into different tiers or categories according to their value and task endorsement. The structural approach manages value and task endorsement of the sharing firms allocating resources and distributing capitals. The specific structural process enhances stability of alliance by creating real value for both the partners. Subsequently this supports the value chain of the partners and shares the task building practice. The structural specificity defines the process and links the value chain to partners' operations by reducing costs and accelerating production. Managing different tiers through an alliance builds successful economy of scale and prolongs alliance life cycle. This lowers transactional costs, typical market imperfection and adds standardized norms to their economies. Therefore, the majority of all successful alliances follow a tier system by recognising the inadequacy of scale, risk differentials and strategic reasoning, so that they can better optimize real value by avoiding quality uncertainty. An interesting example of achieving task and value integration in R&D through a flexible interface is provided by the Japanese research co-operation known as Very Large Scale Integration (VLSI) which is considered as one of the first successful research co-operatives in the country (Kyonori, 1993). Reuer and Arino (2007) suggest that in non-equity partnership, if the contractual specificity remains consistent during the partnering process, the alliances will be successful.

It is less likely that the partners will embrace unrealistic expectations of success, when value creation is effective and compatible through different tiers by structural specificity. The informal and non-scheduled gaps between the partners, such as symbiotic failures can be minimized by clearly specifying structural choices. Essentially, effective alliance structure leads to mutual trust and long term relationship between the partners.

2.3. Mutual trust and commitment. Strategic alliances are frequently built on mutual trust and common commitments by supporting partners' priorities. Shah and Swaminathan (2008) examining more than 40 studies found that complementary commitment and compatibility impart a positive influence on alliance performance. Usually, consensus among partners is very important and generally preferred to maintain trust and commitments. This is due to two main reasons. First, consensus leads decision-making and second, consensus creates trust and commitments better than simply making decisions. The trust and commitment in alliance transpire not with ranks but with knowledge and the ability to get things done effectively by mutual agreement. Niederkofler (1991) observes that goodwill and trust impart a stabilizing effect on the relationship at all stages of alliances. A clear understanding of commitments and genuine trust increase the partners' tolerance for each other's behavior and help avoid conflicts. Effective trust and shared commitments also promote the general level of communication

between the partners, thereby increasing the chances for uncovering and dealing with operating misfits. Lynch (1990) recommends that the rapport via trust between partners is necessary to accomplish their intended goals. Kanter (1989) emphasizes that the alliances face many challenges from the management of hierarchies, therefore trust is crucial between them.

It is essential for managers to maintain cordiality, rather than controlling subordinates, they thereby should share trust and commitments. In the alliances, managers' view of commitment comprises of three main themes i.e. first, senior management's involvement with the process; second, dedication of alliance team members to shared goal; and third, successful alliance outcomes. In the case of the Courtaulds-Nippon paint alliance, attitude barriers and lack of mutual trust worked against the fulfilment of alliance and inherent difficulties of non-commitment resulted in failing partnership (Ref Nippon paint home page). Faulkner (1995) studying 67 different alliances reported that various partners carry significantly divergent attitude towards mutual trust and commitment. Mutual trust and commitment not only sustain the alliances but also bring lasting benefits to both the partners.

2.4. Open and interactive communication. The overall objectives of strategic alliances depend much on openness and transparency of communication. Proper communication clears the withdrawal of information by facilitating collective trust and commitment. The subjective aspects, such as openness and shared communication between the partners fall within Social Exchange Theory (SET) (Murray and Kotabe, 2005). Mainly mutually contingent inclusiveness and reciprocal reward system of alliances are based on SET. A transparent communication, which is open and highly receptive of partners' priorities, facilitates a healthy and successful relationship effectively building common trust and mutual respect. In most problematic alliances, the lines of communication are not set up correctly from the beginning. In particular, communication plays a vital role in establishing the norms they apply to their alliance interactions. Strategic alliances survive by increasing the "*band-width*" of inter-partner communication by developing an interface to allow intense and informal contact between the partners. For example, in the alliance of GE and SNECMA, their early learning effort was based on this type of inter-partner interface which made them successful in the market (Ref Press release of Honeywell Homepage). Doz and Hamel (1998) indicate that a transparent open communication limits the risk of a sudden collapse of the partner's subjective expectations, therefore the chances of survival increases. Underhill (1996) reports that the increases in communication by bringing suppliers into plant and field operational meetings made AMOCO a successful global partner in many strategic alliances.

2.5. Regular monitoring of customer responses and services. Strategic alliances on a wider scale aim to fit between people, products/services and core competencies of the partnering firms. After an alliance both the partners need to collaborate and complement their product and service lines equally. But a conflict or a misfit between them can damage the growth of firms when customers' experience each partner is contributing separately and leading the market individually. If co-ordination is not seamless, or the partners do not stick to the same standards, then the product may fail to meet customer expectations and it is likely that partners may dispute over who is to blame. Doz and Hamel (1998) observe that such conflicts affect many service alliances with detrimental effects on customer orientation. Therefore, alliance partners should be vigilant enough to regularly monitor customers' response to their joint products and services. In relation to this, Mozota (1998) suggests that it is imperative to understand the consumers' need within the "new management" model (horizontal and/or flat structure) of alliance firms.

Thompson (1999) states that firms should agree to join forces to develop new products and services for customers not individually but collectively by maintaining common interests. For example, Club Mediterranean – Carnival Cruise Lines, Philips-Nintendo and Airbus Consortium all developed complementary products and services to supplement their partners. At the same time, they all prioritized their customers' interest and took customer's response into account for delivering their products and services. When customer satisfaction has been prioritized, the customers feel privileged and became loyal to the firms. Moreover, the customers tend to refer the products and services to others, by that, a larger clientele is created and retained for both the partners. A study undertaken by Brown (1998) reports that almost 25% of EarthLink's new customers are referred to by existing customers leading to a further build up of customer base. Hence, regular monitoring and measuring customers' attitude, behavior and response increase the market presence of both the partners making the alliances very successful.

2.6. Collaborating with competitors: co-opetition. In successful strategic alliances, sharing partnership with a competitor is sometimes a

preferred choice amongst firms. Wakeman (2010) using an interview survey finds that negotiating co-promotion between partners particularly in biotech firms allows commercialization of knowledge, which is essential for survival of competing partners. Collaborating with a competitor may be risky, but arguably, it could be the best policy for both the partners to internalize and optimize their respective knowledge base. Casti (1991) recognising this, illustrated how our innate inclination to act selfishly for the collective rationality of individual sacrifice and for the sake of the common good is evidenced in business world (Ref the "*prisoner's dilemma*"). This word was coined by Albert Tucker, a mathematician during his class room teaching to explain competition in terms of individual and collaborative partnership (Hagenmayer, 1995). The prisoner's dilemma addresses this issue of relationship between competitors. This concept is conceived from the game theory of economics. Further, game theory explains the choice of selection in a socio-economic context. In strategic alliance terms, if a partner chooses a dominant strategy alone, then he fails to maximize the gains from the collaboration. However, when both of them agree to or follow a common dominant strategy, they mutually benefit. This is also similar for partners in global strategic alliances, when a partner might co-operate even with their best competitors. Interestingly, Dussauge and Garrette (1999) reveal that the alliances with competitors are proved to be successful or at least partially successful. Table 1 shows that 44% of alliances have no impact of competition and 31% of alliance are still ongoing, whereas there is a 12% reduction of competition between partnering firms and only 13% of alliances have suffered from increasing competition.

Table 1. Strategic alliance between competitors

Alliance outcomes and percentage of their cases	
Evolution of alliance over time	
♦ Ongoing alliance	31%
♦ Natural end	9%
♦ Extension	23%
♦ Premature termination	16%
♦ Continuation by one partner	14%
♦ Take-over	7%
Strategic consequence of each partner	
♦ Ongoing alliances	31%
♦ New capability acquisition	1%
♦ Mutual specialisation	4%
♦ One-way skill appropriation	26%
♦ No consequence	38%
Impact on competition	
♦ Ongoing alliances	31%
♦ Increased intensity of competition	13%
♦ Reduced intensity of competition	12%
♦ No impact on intensity of competition	44%

Doz and Hamel (1998) argue that the strategic use of competitors in an alliance is very relevant, as the partners share a common set of underlying 'logic'. This commonality can leverage specialization by co-option and internalizing learning from each other. Oligopolistic industries often engage in this type of alliances to exit from the mature and ageing market. For example, Maruti Udyog Ltd. of India forged an alliance with the Japanese car manufacturer Suzuki to introduce a portfolio of new and affordable family cars to increase their middle class customer base in the country. Prior to this, Suzuki was involved in negotiation with potential partners to enter into the Indian market as an independent competitor to Maruti. Prahalad et al. (1989) argue that the successes and failures of alliances are judged by the shift in competitive strength of the partners. Collaboration between competitors generates enough combined force to give a shift in the desired direction.

2.7. Adjusting the compatible factors. Strategic alliances are largely a process of mutual adjustment to achieve a desired set of goals or targets. From the onset of the alliance process, partners should agree how to assess the success and failure of their relationship. Particularly pre-determined goals, carefully planned objectives, and shared expectations help to ensure an objective evaluation of the process. Schreiner et al. (2009) find that a continuous monitoring and evaluation process adjusts their compatibility and achieves value for both the partners. Commonly, the long-term adjustments of the relationship get maximum priority in comparison to immediate ones. For example, profitable alliances set up by USAA, Lotus, Starbucks, and Oracle provide enough evidence in favor of adjusting compatible factors between partners. Usually, partners adjust to accommodate mutually defined goals keeping an eye on long-term results and exclusively agree to assess the achievements for collective benefits. Lorange and Roos (1992) suggest that the strategic intent of the alliance should be clearly defined so that there will be no strategic gap left to make up in the future, therefore understanding adjustment of compatible factors between partners is greatly required. Yashino and Rangan (1995) indicate that to revitalize competencies and maintain compatibility, partners should assess the harmony of alliance process. Hence, it can be argued that monitoring and assessment creates. An environment of compatibility and adjustment between the partners helps identifying their core competencies and strategic intents to maintain a stable relationship.

2.8. Flexibility throughout the alliances. Success of alliances relies on adjustment as much as on flexibility of partners. Murray and Kotabe (2005)

find that flexibility towards partner's needs and response to their changing environment provides a sustained relationship. Flexibility between partners provides an integrative dimension to alliance process and strengthens the relationship. For the partners, a flexible approach with a win-win attitude is very important. Ohame (1989) states that flexibility as a key objective should be followed if circumstances of partners change during the period of partnership. A carefully crafted alliance must practise flexibility to address issues on a case-by-case basis. Otherwise, the level of integration in the organization might not work as expected. For example, Rover-Honda and ICL-Fujitsu are two successful examples of this type of alliance. Here, both the partners paid careful attention to flexibility carving out how decisions are to be made on the basis of changing issues. Flexibility establishes mutual obligations of the partners and inspires to work together on liabilities. At the same time, one partner learns identifying other one's individual contribution by sharing their approach to flexibility. Following the same argument, Duncan (1976) observes that alliances succeed when the dynamic competitive forces promote flexibility and efficiency between the partners.

3. An alternate specification: modified principal component analysis (CPA)

Based on conceptual discussion and critical review, this study proposes a modified PCA (CPA) under an alternate specification. This alternate specification adopts a conventional CPA methodology as its key framework. However, the paper is limited by several constraints to use real data, therefore has not conducted any empirical test.

To date, a number of studies have utilized empirical analysis primarily based on content perspective (Ireland et al., 2002). In particular, the PCA is one of the most preferred methods used in the extant literature of strategic alliances. For example, Pansiri (2008); and Murray and Kotabe (2005) employed PCA as the extraction method with *varimax rotation,* while they used *Kaiser normalization* to identify the most critical success characteristics of alliance partnership. However, the use of PCA suffers from several issues (Costello and Osborne, 2005). Therefore, an alternate specification of conventional PCA is proposed in this section.

The proposed specification reduces the computational complexities and limits weaknesses *of varimax rotation*. In addition, it adjusts the orthogonal transformation of Gaussian distribution associated with PCA. The method incorporates each identified success factor as a variable in the estimation process. Each variable is assigned with a varying *Likert-scale* value of 1 to 5, where 1 denotes the highest value and 5 stands for the lowest one. For the first factor i.e. similarities in cultural orientation; a very high cultural compatibility between alliance partners is assigned a value of 1, while very low compatibility 5. The second variable "structural specificity of the process" is represented by how alliances have maintained the structural process of the partnership. Thus, high structural specificity is assigned a score of 1 and low specificity is by 5. Similarly, the third factor stands for trust and communication, where high trust and communication is assigned a score of 1 and low trust and communication 5. The fourth factor represents clear and transparent communication, that is denoted as 1 and ambiguous and limited communication is denoted as 5. The fifth factor denotes a score of 1 when the partners maintain regular review of customer response whereas; a score of 5 is assigned if the partners adopt a periodic review over 1 year from the completion of the alliance process. The sixth factor is assigned with a score of 1 when both the alliance partners are main competitors in the allied industry, if not a score of 5 is given. The seventh factor, adjusting the compatible factors indicates for making strategic changes to achieve shared objectives. Hence, a score of 1 is assigned if the partners realign their competencies and a score of 5 is given if the competencies are mutually exclusive. The last factor, flexibility throughout the alliance represents how partners are poised to make integration. If the level of integration is high, a score of 1 is assigned and a score of 5 is given if integrations are independent and non-shared between them.

At the initial step, covariance matrix is estimated similar to the PCA, since the data set will have 8 variables; it will be like a n dimensional matrix, such as $\frac{n!}{(n-2)!\times 2}$ for different covariance values and will be arranged in a matrix. Therefore, the definition for the covariance matrix for a set of data with n dimensions will be represented as,

$$c^{n\times n} = (c_{i,j}, c_{i,j} = \text{cov}\,(Dim_i, Dim_j)), \quad (1)$$

where $c^{n\times n}$ is a matrix comprising n rows and n columns and Dim_x is the x^{th} dimension. The non-diagonal elements in this matrix are positive, therefore, each variable increases or decreases together. Since each success factor is measured on *Likert-scale*, therefore is always positive.

At the following step, the *eigenvectors* and *eigenvalues* of the covariance matrix will be calculated. Typically, the *eigenvector* with highest *eigenvalue* is the principal component. To extend the

methodological procedure, an additional step will be incorporated, i.e. estimation of *feature vector* or *matrix of vectors*. At this step, reduction of dimensionality becomes important, as it generates a set of order to scale *eigenvalues* from highest to lowest. Hence, individual contribution of each factor can be ascertained for the overall alliance architecture. By ignoring lesser values compromises data lose, therefore, prudence should be maintained not to ignore any factor while reducing dimensionality. However, while additional factors alongside these eight factors will be incorporated in to PCA, components with lesser *eigenvalues* can be ignored. This may reduce the probability of knowing the contribution of lesser factors. Therefore, several number of success factors are always very important. The next step will be to construct columns by taking all the *eigenvectors* of each success factor and forming a matrix with these *eigenvectors* in the columns. This matrix will be known as the *feature vector* which is represented by:

$$Feature\ vector = (eig_1, eig_2, eig_3 \ldots eig_n). \quad (2)$$

Once the *eigenfactors* are determined and included in the analysis by forming a *feature vector matrix*, then the vectors are transposed and multiplied with the left column of the original data set forming a transposed set. The transposed set will be represented as:

$$Final\ data = Row\ feature\ vector \times Row\ data\ adjust, \quad (3)$$

where *Row feature vector* is the matrix with the *eigenvectors* in the columns. The *Row feature vector* will be transposed to form a new row, with the most significant *eigenvector* ranked at the top. The *Row vector adjust* is the mean-adjusted value of the transposed data, representing the data items those are in each column having each row holding a separate dimension.

Therefore, the original data (the critical success factors as variables) give a set of selected vectors by combining individual *eigenvector*s. This process effectively reduces the dimensionality of the factors used in the PCA. In addition, this transforms the underlying patterns between the factors in such a way that the classification of the factors is expressed as a combination of individual factors. The original data set was comprised of data plotted on x and y axes; whereas, now the transposed data set is based on *eigenvectors* which clearly indicates a pattern between each individual factors with a specific order. In particular, the proposed specification by modifying the conventional PCA shows how each factor contributes and their ranking by order.

Conclusion

The success of strategic alliances is arguably a contentious theme. Many questions remain unresolved relating to its success and survival. Although in practice, strategic alliances have always been a good strategist's choice but suffer from repeated criticisms for failures. Moreover, the high level of diversity in theory and practice has made strategic alliance more vulnerable to criticisms. Often it is mentioned that it is not a marriage of convenience but rather a critical relationship to share, care and dare. The challenges facing strategic alliances are many, since it is a complex and multi-structural task. Strategic alliances usually focus on the partners' competencies aiming to bridge the symmetries and asymmetries inherent in both the sides.

A number of debates have been raised to explain the underlying rationale of strategic alliance and how to achieve success in alliances? Firms prefer strategic alliances due to their potential benefits and anticipated synergy. Despite many differences, there are some common rationales behind strategic alliance such as, tomorrow's business cannot survive alone and finding a right partner to compliment the strength is crucial for today's survival.

This study has made a significant attempt to clearly identify eight critical success factors as underlying drivers of successful strategic alliances. In particular, why these factors are important and how truly they can be accomplished. However, there is always a legitimate apprehension as to how far the convergence of issues arising from a strategic alliance could be effectively addressed. However, the issues can be mitigated by assessing the process of alliances by examining and learning these different success factors identified in this study. Further, to understand the alliance process and identify the order of each success factor, a modified PCA is proposed under an alternate specification. Essentially, the proposed specification finds individual contribution of each factor by empirically testing them within a multidimensional framework. The significance of this approach relies on finding an order of ranks for the factors. The order of ranks suggests which particular factors contribute most to the success of alliance partnership.

References

1. Agarwal, R., Croson, R. and Mahoney, J. (2010). The Role of Incentives and Communication in Strategic Alliances: An Experimental Investigation, *Strategic Management Journal*, 3, pp. 413-437.
2. Bamford, J., Gomes-Casseres, B., and Robinson, M. (2004). *Envisioning collaboration: Mastering alliance strategies.* San Francisco: Jossey-Bass.

3. Barnette, J.C. and Spearman, J.W. (1994). Service Companies perspective of Strategic Alliance in Alaska, Proceedings, 64th Annual SPE western Regional Meeting in Long Beach, CA, March 23-25, SPE Paper 27859, pp. 135-143.
4. Bensimon, S. (1999). Strategic Alliances. *Executive Excellence Provo*, Oct.
5. Bleeke, J. and Ernst, D. (1991). The way to win in cross-border alliances. *Harvard Business review*, 12, pp. 129-135.
6. Borys, B. and Jemison, D. (1989). Hybrid Arrangement as Strategic Alliances: Theoretical Issues in Organisational Combinations, *Academy of Management Review*, 14, pp. 234-249.
7. Brian, G. (1999). Technical Process Integration: The Key to Building Successful drilling alliances. GRI Final Report No. GRI-96/0232.
8. Brown, E. (1998). Could Earth Link possibly be the next American on line? *Fortune*, April 27.
9. Casti, J. (1991). *Paradigms Lost*. London: Abacus Books.
10. Contractor, F. and Lorange, P. (1988). *Co-operative Strategies in International Business*. Lexington Mass: Lexington Books.
11. Costello, A.B. and Osborne, J.W. (2005). Best Practices in Exploratory Factor Analysis: Four Recommendations for Getting the Most from Your Analysis, *Practical Assessment*, *Research and Evaluation*, 10, pp. 1-9.
12. Das, T.K. and Teng, B.S. (1999). Managing Risk in Strategic Alliances, *The Academy of Management Executives*, 11, pp. 215-233.
13. Dodgson, M. (1993). Learning, trust and technological collaboration, *Human Relation*, 46, pp. 77-95.
14. Doz, Y.L. and Hamel, G. (1998). *Alliance Advantage*. Harvard Business School Press.
15. Dussage, P. and Garrette, B. (1999). *Co-operative strategy: competing successfully through alliances.* John Wiley and Sons Ltd.
16. Ellis, C. (1996). Making strategic alliances succeed, *Harvard Business review*, 74, pp. 8-9.
17. Erik, R. and Rules, T. (1999). Globalisation spurs Alliances, *Industry Week*, 1, 8.
18. Faulkner, D. (1998). *Strategies of Co-operation: Managing Alliances, Networks and Joint Ventures*. Oxford: Oxford University Press.
19. Faulkner, D. (1995). *International Strategic Alliances: Co-operating to compete*, McGraw-Hill Book Company.
20. Freidheim, C. Jr. (1999). The battle of alliances, *Management Review*, 9, pp. 146-153.
21. Gulati, R. (1995). Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances, *Academy of Management Journal*, 38, pp. 85-112.
22. Gulati, R. (1998). Alliances and networks, *Strategic Management Journal*, 19, pp. 293-317.
23. Hagedoorn, J. (1993). Understanding the rationale of strategic technology partnership: Interorganisational modes of co-operation and sectional differences, *Strategic Management Journal*, 14, pp. 371-385.
24. Hagedoorn, J. (1995). A note on international market leaders and networks of strategic technology partnering, *Strategic Management Journal*, 16, pp. 241-250.
25. Hagenmayer, S.J. (1995). Albert W. Tucker, 89, Famed Mathematician, *The Philadelphia Inquirer*, Thursday, Feb. 2, B7.
26. Hull, M.D. (2000). Case study: Defining the social network of a Strategic Alliance, *Sloan Management Review*, 12, pp. 213-221.
27. Ireland, M.A., Hitt, M.A. and Vaidyanath, D. (2002). Alliance management as a source of competitive advantage, *Journal of Management*, 28, pp. 413-446.
28. Kale, P., Dyer, J. and Singh, H. (2002). Alliance capability, stock market response and long-term alliance success: The role of the alliance function, *Strategic Management Journal*, 23, pp. 747-767.
29. Kale, P. and Singh, H. (2009). Managing Strategic Alliances: What Do We Know Now, and Where Do We Go From Here? *Academy of Management Perspectives*, 8, pp. 45-62.
30. Kale, P., Singh, H. and Bell, J. (2009). Relating well: Building capabilities for sustaining alliance networks. In P. Kleindorfer and Y. Wind (Eds.), *The network challenge: Strategies for managing the new interlinked enterprise.* London: Pearson Press.
31. Kanter, R.M. (1989). *When giants learn to Dance*. London: Simon and Schuster.
32. Kathleen, M., Eisenhardt, K.M. and Schoonhoven, C.B. (1996). Resource based view of strategic alliance formation: Strategic and social effects in entrepreneurial firms, *Organisation Science*, 7, pp. 136-150.
33. Kogut, B. (1991). Joint ventures and the option to expand and acquire, *Management Science*, 37, pp. 19-34.
34. Kumar, R. (2014). Managing Ambiguity in Strategic Alliances, *California Management Review*, 56, pp. 82-102.
35. Kyonori, S. (1993). R&D Cooperation Among Competitors: A case study of the VSLI Semiconductor Research project in Japan, *Journal of Engineering and Technology Management*, 10, pp. 393-407.
36. Larsson. R., Bengtsson, L., Henriksson, K. and Sparks, J. (1998). The inter-organisational learning dilemma: Collective knowledge development in strategic alliances, *Organisation Science*, 9, pp. 285-305.
37. Labovitz, G. and Rosansky, V. (1997). *The power of Alignment*. John Wiley and Sons Inc.
38. Lorange, P. and Roos, J. (1992). *Strategic Alliances: Formation, Implementation and Evolution.* Oxford: Basil Black Well.
39. Lunnan, R. and Haugland, S. (2008). Predicting and measuring alliance performance: A multidimensional analysis, *Strategic Management Journal*, 29, pp. 545-556.
40. Lynch, R.P. (1990). Building Alliances to penetrate European Markets, *Journal of Business Strategy*, 3, pp. 4-8.

41. Ma, S. (1998). Clientelism, Foreign attention, and Chinese Intellectual Autonomy: The case of Fang Lizhi, *Modern China*, 24, pp. 445-471.
42. Mozota, B. and De, B. (1998). Challenge of Design relationship: The Covering Paradigm, in *Management of Design Alliances: Sustaining Competitive Advantage*, Ed. By Margaret Bruce and Javnaker, B.H., John Wiley and Sons.
43. Murray, J.Y. and Kotabe, M. (2008). Performance implications of strategic fit between alliance attributes and alliance forms, *Journal of Business Research*, 58, pp. 1525-1533.
44. Nanda, A. (2001). *Joint Ventures and Strategic Alliances*. Chapter 1, available at: www.people.hbs.edu/cormsby/jvsa/resource/bookJVSA/bookCh1.html.
45. Niederkofler, M. (1991). The evolution of Strategic Alliances: Opportunities for managerial influence, *Journal Business Venturing*, 6, pp. 237-257.
46. Nielsen, B.B. (2010). Strategic fit, contractual, and procedural governance in alliances, *Journal of Business Research*, 63, pp. 682-689.
47. Ohmae, K. (1989). The Global Logic of Strategic Alliances, *Harvard Business Review*, 3, pp. 321-336.
48. Osland, G. (1995). Learning through Strategic Alliances: Process and Factors that Enhance Marketing effectiveness, *European Journal of Marketing*, 29, pp. 124-129.
49. Pansiri, J. (2008). The effects of characteristics of partners on strategic alliance performance in the SME dominated travel sector, *Tourism Management*, 29, pp. 101-115.
50. Parkhe, A. (1993). Strategic alliance structuring: A game theoretic and transaction cost examination of interfirm co-operation, *Academy of Management Journal*, 36, pp. 794-829.
51. Phillips, C.J. (1994). *Strategic Alliances in the wireline services industry*. Proceedings, IADC/SPE Drilling Conference, Dallas, TX, Feb. 15 SPE, Paper 27460.
52. Poss, S. (1999). How to create a Successful Strategic Alliance, *Los Angeles Business Journal*, 7, pp. 19-25.
53. Prahalad, C.K. (1989). Collaborate with your Competitors- and win, *Harvard Business Review*, 67, pp. 411-423.
54. Reuer, J. and Arino, A. (2007). Strategic alliance contracts: Dimensions and determinants of contractual complexity, *Strategic Management Journal*, 28, pp. 313-330.
55. Price, K. and Gould, B. (2003). Goodyear Reduces Holdings in Sumitomo Rubber Industries, News Release 04/09/2003, 06:33:21 AM GMT, Pressi.com.
56. Rothaermel, F. and Boeker, W. (2008). Old technology meets new technology: Complementarities, similarities and alliance formation, *Strategic Management Journal*, 29, pp. 47-77.
57. Ring, P.S. and Ven, A.H. (1994). Developmental processes of Interorganisational Relationships, *Academy of Management Review*, 19, pp. 235-243.
58. Schreiner, M., Kale, P. and Corsten, D. (2009). What really is alliance management capability and how does it impact alliance outcomes and success? *Strategic Management Journal*, 30, pp. 1395-1419.
59. Segil, L. (1999a). Alliances for the 21st century, *Executive Excellence*, *Provo*, October.
60. Segil, L. (1999). *Intelligent Business Alliances*. Random House, London.
61. Shah, R. and Swaminathan, V. (2008). Factors influencing partner selection in strategic alliances: The moderating role of alliance context, *Strategic Management Journal*, 29, pp. 471-494.
62. The Economist (1999). Business: Tread Carefully. Feb. 6, p. 65.
63. Thompson, J.L. (1999). *Strategic Management: Awareness and Change*. 3rd Ed. International Thomson Business Press.
64. Underhill, T. (1996). *Strategic Alliances: Managing the Supply Chain*. Pennwell Books: Oklahoma.
65. Wakeman, S.D. (2010). Profiting from technological capabilities: technology commercialization strategy in a dynamic context. ESMT Working Paper.
66. Yashino, M.Y. and Rangan, U.S. (1995). *Strategic Alliances: An Entrepreneurial Approach to Globalisation.* Boston MA: Harvard School Press.

Appendix

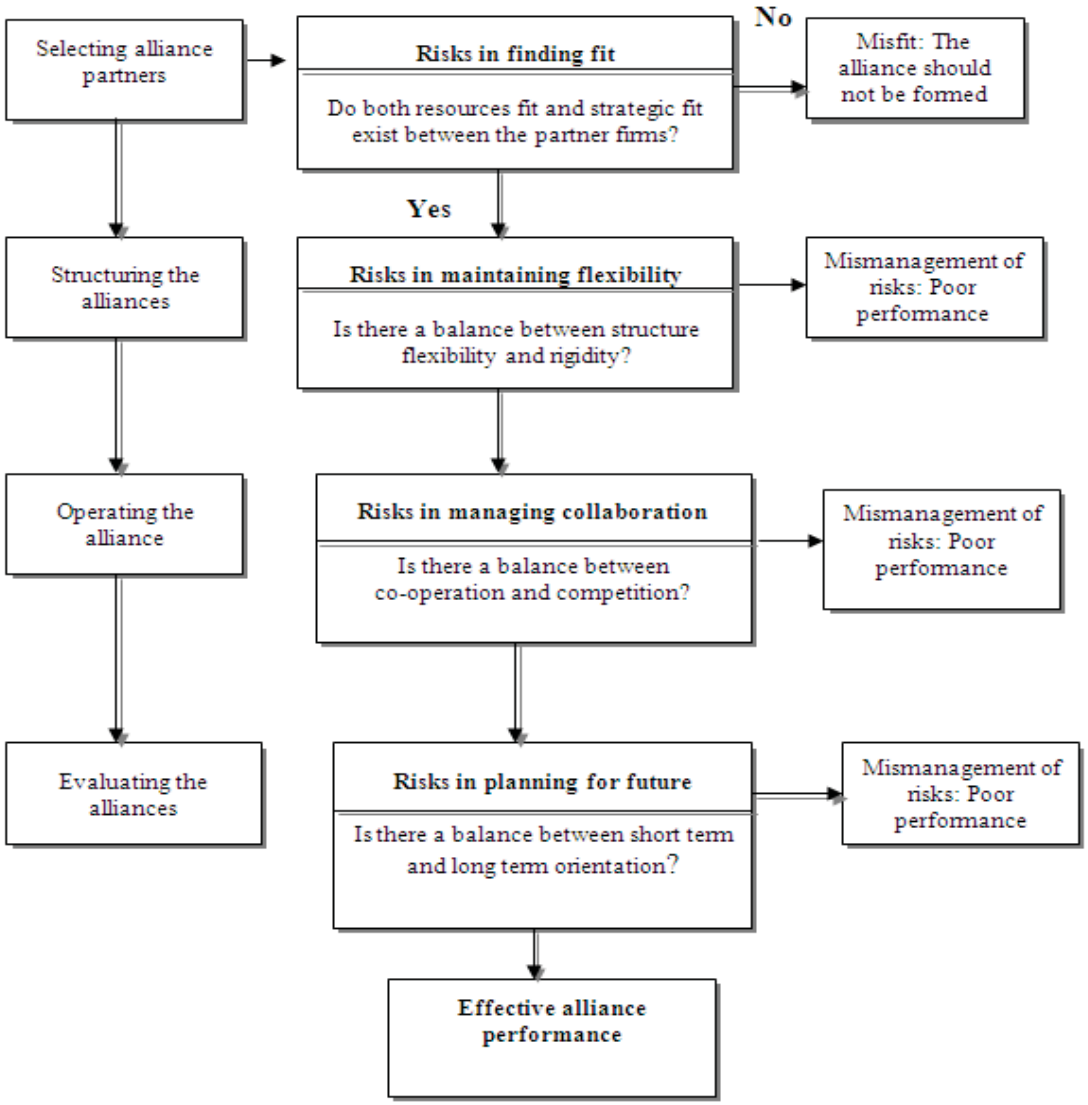

Fig. 1. Alliance management stages