The Impact of Value on Governance Decisions for IT-based Alliances: Evidence from a Joint Venture in the Wireless Networks Industry

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Abstract

Consideration of cost and resource benefits generated from an alliance have prevailed the theoretical and empirical research about strategic alliances and value networks/ webs. As research in the area advances, strategic and financial theories, such as Game Theory and Real Options Theory, set the groundwork for investigating the anticipated strategic value for IT-based alliances. This paper presents the theoretical consideration of a research stream building on the premise that strategic value affects not only the formation of alliances but also their governance, denoting the level of commitment that partners wish to have with each other. The paper provides a theoretically-based conceptualization of the expected alliance value and discusses a set of research propositions and hypotheses on the direct and indirect impact of firms' value expectations on their preference for the alliance governance mode. Finally, using evidence from a case study, it identifies the role of value expectations in an alliance's shift from contract-based agreement to joint venture.

1. Introduction

Whereas factors affecting alliance formation and governance have received abundant attention, the dynamic processes that underlie alliances have received relatively scant interest [21]. Yet, the large number of alliance failures suggests that there is a gap between the prospect of alliance formation and the practice of alliance management [43]. Research providing a theoretical explanation for interfirm collaboration failures uses argumentation from two major theoretical perspectives: the Transaction Cost Economics theory and the Resource-based View of the firm. More recent work has adopted a more integrative stance, based on an understanding that the transaction costs incurred in the exchange of resources are not independent of the nature of resources to be transacted and, similarly, the returns realized from these resources are not independent of the transaction-specific expenditures incurred in effectively combining them and maintaining their combination [26]. The key premise of such work is that viability in alliances is based on the net value of the collaborative transaction. Rather than efficiency through economizing on transaction costs, the value perspective approaches the alliance-related decisions in terms of cost effectiveness with respect to their value capturing capacity.

The prime motivation firing this research has been to investigate the value, along with the resource and cost, aspect of governance in IT-based alliances. Discussion on alliance governance mostly concerns the common dichotomy of *equity* versus *non-equity* alliances ([17], [30], [31], [32], [37]). Whereas equity alliances include joint ventures and minority equity alliances, non-equity alliances refer to all other contractual arrangements that do not involve equity exchange. Equity alliances are conceived as *quasi-hierarchies*, since they rely more on hierarchical governance mechanisms, while non-equity alliances are conceived as *quasi-markets* [31], since they rely more on arm's-length market transactions.

Figure 1 illustrates the three principal alliance governance modes, as described above, at a continuum of increasing hierarchical control and partners' degree of interdependence. At the one end we set *joint ventures*, which involve partners creating a new entity in which they share equity, and at the other end we set *contractual agreements*, alliances with no sharing of equity and only a few hierarchical controls built into them. In between, we can find *minority alliances* in which firms agree to cooperate by possessing minority equity in each other.

Figure 1. The three principal alliance governance modes

We postulate that managers of IT-based firms decide on the most efficient governance mode based on their expectations at the time of the alliance inception for the type and degree of value (net benefits) to be captured from each alternative alliance governance mode. The value aspects can be expressed by theories examining the potential for value capture, such as Game Theory and Real Options theory under conditions of either endogenous or exogenous uncertainty. The prime research intention is to specify factors sourced from these theories, investigate their interaction with the governance decision, and finally build a decision model able to explain how IT-based firms make up their minds on the governance mode of an alliance.

2. Background Theories

Several studies of strategic alliances have relied on Game Theory to explain the individual behavior of partners in a strategic alliance, especially when this alliance involves some conflict of interests. A key assumption underlying Game Theory is that the players (partners) are rational and their primary objective is to maximize utility; that is the value gained from the alliance implementation. Apart from Game Theory, Real Options Theory has also underlined the influence of unveiled future opportunities on firms' expectations from strategic investments. Following the same approach, we argue that firms will make investment decisions based on the expected payoffs that may arise from the choice of a specific governance mode.

While Game Theory addresses the endogenous uncertainty deriving from partners' behavior, Real Options Theory deals with the exogenous uncertainty, which results from changes in one or more environment-related dimensions, such as market demand, technology status, national or international regulatory framework. Nevertheless, both types of uncertainty are necessary in explaining the alliance-related behavior of firms within IT-based environments.

2.1. Game Theory

Game theory is a theory of rational decision in conflict situations. A key assumption underlying the structure of game theory is that the players in a game are rational, and their primary objective is to maximize utility [39]. Game theory views strategic alliances as "relatively enduring inter-firm cooperative arrangements, involving flows and linkages that utilize resources and/or governance structures from autonomous organizations, for joint accomplishment of individual goals linked to the corporate mission of each sponsoring firm" [33].

Companies enter alliances for a wide variety of strategic motives, using diverse organizational forms and legal structures. Game theory adopts a time dynamic approach for explaining firm behavior in alliance formation and performance [39]. Dynamic changes in the internal and external environments of firms may alter the initially estimated payoffs and force alteration of the alliance.

Much like Transaction Cost Economics, which emphasizes on the probability for opportunistic behavior of a partner, Game Theory analyzes the behavior of partners and their tendency to cheat in order to maximize their individual gains at the expense of others. This incentive creates high instability, which renders the selection of alliance governance structure by a firm even more critical. The risk of exposure to the other party's possible opportunistic behavior may be counterbalanced by selecting a governance mode that forces both partners to invest non-recoverable resources and promotes goal congruence [34]. Under the prospective for an iterative cooperation between partners, firm estimations for the future alliance gains are affected by their current actions. Thus, the firm decision over the preferred alliance governance mode is determined by the future benefits or risks that it anticipates ('shadow of the future' effects) as well as on their partner's behavior in previous iterations of the alliance ('shadow of the past' effects) [34].

2.2. Real Options Theory

Real Options Theory concerns the manner in which investments create value through operating flexibility. In recent years, real options have emerged as a compelling approach to modeling and evaluating strategic opportunities created through early investments in uncertain environments [40]. Using option-pricing models, it is possible to quantify these opportunities and indicate when these options should be optimally exercised [7].

Real options analysis has been extensively used to value interorganizational partnerships and related investments in Information and Communication Technology (ICT). Under such an application, joint ventures have been modeled as options to acquire the venture and expand in response to future technological and market developments [23]. Several other works ([24], [5]) focus on comparing as well as identifying links between Real Options Theory and other theories used in explaining alliance-related decisions, such as

Transaction Cost Economics, Resource-based View of the firm and Organizational Learning.

Two key assumptions underlying the real options perspective are that: a) managers are able to write contracts that provide implicit or explicit claim of partners on future, follow-on opportunities, and b) it is possible to specify a priori a distribution of expected returns associated with an alliance [24]. An important implication of these assumptions is that the value that an alliance incurs may be divided into two parts: the present value deriving from current access to the partner's resources and skills, and the expected value derived from discretional future opportunities. As such, firms may choose governance modes in a dynamic fashion in anticipation of future opportunities.

The real options logic suggests that the critical objective of firms making governance choices under conditions of exogenous uncertainty is the maintenance of their flexibility. The maintenance of flexibility under conditions of high exogenous uncertainty becomes a governance issue, since some governance modes are less flexible than others. In particular, it is generally assumed that it is more costly for firms to alter hierarchical forms of governance in response to the change of the uncertainty level in an exchange than it is to alter less hierarchical forms of governance [23]. Altering hierarchical forms of governance involves changing numerous explicit and implicit contracts that constitute this form of governance [27]. Changing less hierarchical forms of governance involves altering a smaller number of usually explicit contracts. This reasoning suggests that, under conditions of high exogenous uncertainty in an exchange, firms will opt for less hierarchical forms of governance [5].

While Real Options Theory argues that there is in some cases value in flexibility, it also addresses the trade off between flexibility and its risks, and therefore it addresses the question whether it is worth to maintain flexibility or not. Thus, under conditions of high endogenous uncertainty (i.e. threat from partners' self-affected activities), Real Options Theory opts for less-flexible and more protective alliance governance forms of alliances, such as minority equity alliances and joint ventures.

3. Research on Value Creation and Capture

Compared to traditional partnerships, such as buyer-seller business relationships, strategic alliances urge managers to take a broader view of value creation focusing on a wide range of outcomes (not only economic but also outcomes related to their initial objectives for entering an alliance). Conventional wisdom encourages managers to look for value creation potential in the initial design of the alliance and in terms of governance [13].

Alliances can create value in different ways depending on the growth goal that they serve. Different paths to value creation naturally affect the firm expectations for value capture, which in turn affect the ways in which alliances should be designed and managed. Thus, a first step in designing a strategic alliance is to identify the value creation logic based on the firm growth goal and its motives for entering an alliance.

Prior alliance research has assessed value creation in alliances in several ways. One way is in terms of the extent to which the partnering firms' managers are satisfied with the outcome of the alliance and are satisfied by the firms' ability to meet their strategic objectives specific to that alliance. Another measure concerns the abnormal stock market gains for the partnering firm(s) [1]. This last measure has also been used by Ethiraj et al. [15] to measure the value creation of alliances in the e-business environment. The observed marginal value creation was explained by two reasons; a) there is great uncertainty about the exact future and viability of many e-businesses, and b) alliances may be considered as necessary but not sufficient condition for competitive advantage in such hypercompetitive environments. These two reasons seem to be valid not only in the e-business but also in other emerging IT-based industries, such as the mobile and wireless networks industries to which our case study in Section 6 refers.

4. Conceptualization of Value Expectations

This research conceptualizes the firm's expectations on alliance value capture under the *Expected Alliance Value (EAV)* construct. This is defined as a multi-dimensional construct used to measure the expected benefits incurred for an organization from its participation in a strategic alliance. EAV items can also be considered as strategic motives towards alliance formation. The conceptualization of EAV includes a list of cost-economizing and strategic positioning motives, derived from the literature ([18], [19], [47], [48]). In order to set a structure in the extended list of motives met in the strategic alliance literature, we have used Contractor and Lorange's [10] framework for strategic contributions of cooperative arrangements. As result, we identified the following seven principal sources of strategic benefits; 1) *risk*

reduction, 2) *economies of scale*, 3) *complementary resources*, 4) *co-option*, 5) *social expansion*, 6) *vertical integration*, and 7) *learning*. The only significant change from the original classification is on the replacement of the 'trade barriers' group of benefits by the more commonly met strategic motivation of 'learning' partners' exceptional capabilities through allying ([8], [16], [44]). The learning motivation for engaging in alliances has been a growing theme in recent literature, particularly in technology-based alliances (e.g., [22], [9]).

Table 1. Dimensions and Items of the Expected Alliance Value (EAV) measure

Risk Reduction
1. Share market risk (i.e. production of new or differentiated products/services)
2. Share technological risk (i.e. development of technologically advanced products/ services)
3. Increase flexibility to rapid market and technological changes
Vertical Integration
4. Enable provision of products/ services in lower prices
5. Improve quality of after sales support
6. Expand service delivery in new channels
7. Benefit from partner's strong brand name
8. Reduce time-to-market
Complementarity
9. Exploit complementary resources
10. Extend products/services range (new products/services)
Learning
11. Gain access to the partner's resources
12. Internalize partners' capabilities (e.g. technological, production, marketing)
13. Deploy new skills and knowledge
17. Improve quality of products/ services
Co-option
15. Differentiate existing product/services (new features)
16. Deter entry of competitors
Economics
17. Economize on the sum of production and transaction costs
18. Increase Return On Asset (ROA)
19. Increase market share
Expansion
20. Increase knowledge about the partner and its social network (e.g. suppliers, complementors) for formation of new alliances in the future

5. Research Model

According to Real Options theory, the first and simplest means through which organizational governance decisions may create value is through the option to defer investment. In this research, investment is used to denote partners' contribution of both capital and resources/skills to their strategic alliances. The required investment grows as partners' governance preference scales from non-equity to equity alliances, and more specifically from contractual agreements (either relational or recurrent) to joint ventures.

When investments in alliance structures are irreversible, that is they cannot be fully recovered without incurring some considerable costs, and the future value of these investments is uncertain, Real Options theory indicates that committing prematurely may impose considerable risks. In these situations, there is value associated with the option of waiting for new information that might affect the desirability or timing of the investment. The ability to delay or defer an irreversible investment can thus be an important source of flexibility ([28], [36]) and the economic value associated with this flexibility may suggest deferring investment even if the net present value associated with the project is positive. Real Options theory recognizes the expected value associated with this latter flexibility and indicates that, under uncertainty, it may be optimal to utilize market-like mechanisms that provide greater flexibility. As already argued in Section 2.2, this flexibility is desired only under conditions of low uncertainty that derives from prospective opportunistic behavior of any of the involved partners.

Proposition 1: Managers' expectations for the alliance value affect the firm preference for an alliance governance mode.

H1: Under conditions of high exogenous uncertainty and low endogenous uncertainty, the expected alliance value is positively related to preference for flexibility, and thus for quasi-market alliances.

This research adopts a value approach towards providing an integrative model of preferred alliance governance mode. Such an approach has been proposed by Zajac and Olsen [49] as an opportunity for future research towards providing a more efficient framework to explain the variety of inter-organizational strategies as a function of their expected value. The theoretical proposition of this research does not discard the impact of key antecedent factors

(organizational, environmental, alliance-specific) identified from prior research [35]. Instead, it considers them as independent variables of both the Expected Alliance Value (EAV) and the governance mode. Moreover, the Expected Alliance Value is considered as independent variable of the governance mode. Thus, EAV is considered as mediator of the impact of several antecedent factors on the governance mode (Figure 2).

More specifically, we argue that organizational, environmental and alliance-specific factors can - not only directly but also indirectly - affect an alliance-related decision through managers' expectations for the alliance value at the initiation phase. Specifically, we contend that strategic managers' value expectations are formulated based on their organization's current status and vision, the conditions of the environment (industry, market) to which they operate, as well as their organization's relationship (compatibility and history) with the candidate partner. The following proposition summarizes the above arguments.

Proposition 2: The relationship between environmental factors (environment uncertainty, competition intensity) and preferred alliance governance mode is mediated by the expected alliance value.

Proposition 3: The relationship between organizational factors (firm size, competitive position, strategic orientation) and preferred alliance governance mode is mediated by the expected alliance value.

Proposition 4: The relationship between alliance-specific factors (partner compatibility, competitive relationship, alliance history) and preferred alliance governance mode is mediated by the expected alliance value.

Managers' strategic decisions are often challenged by high levels of uncertainty, usually regarding either the market demand or the technology evolution. To address the challenges of uncertain environments, firms are more liable to form strategic alliances as a strategy towards sharing and thus decreasing risk for the concerned firm [47]. Real option analysis suggests that, under conditions of uncertainty, current investments, including commitment of resources in strategic alliances, create many valuable follow-on opportunities or growth options, which can be more or less specified a priori [24].

H2a: Perceived environment uncertainty is positively associated with managers' expectations for the alliance value.

Strategic alliances constitute a response to the perceived threat of hyper-competition [6] enabling firms to gain competitive capabilities through co-option or/and leveraging co-specialized resources or/and gaining competence through internalized learning. These options denote the three value creation logics, *co-option*, *co-specialization* and *learning*, discussed by Doz and Hamel [13]. Thus, as the competition intensifies, managers think of strategic alliances as value-promising vehicles towards attaining their competitive strategies.

H2b: Perceived competition intensity is positively associated with managers' expectations for the alliance value.

There is both theoretical and empirical evidence provided by Dalziel [11] on the type of benefits that large and small firms seek to capture through alliance formation. On the one hand, large firms are motivated to enter an alliance by expecting to decrease speed to market, and thus accelerate innovation, and increase their scope by extending either their product portfolio or their target markets. On the other hand, small firms are incited to partner with other firms under the prospect of gaining access to complementary resources and capabilities, as well as increasing their credibility. In the case of asymmetric alliance, large firms are mostly concerned on protecting their core competence and brand name from their small-sized partners' opportunistic behavior, even under the threat of possibly losing benefits provided by open exchange. However, small firms are more interested in increasing the follow-on opportunities, provided by their investment in a strategic alliance. We hence have the following hypothesis:

H3a: Firm size is negatively associated with managers' expectations for the alliance value.

Eisenhardt and Schoonhoven [14] have found that alliances are more likely to be formed when both firms are in vulnerable strategic positions (i.e. in high need for resources) or when they are in strong social positions (i.e. possess valuable resources to share). Given that this research defines strategic position in terms of the competitive advantage that a firm possesses over its rivals, competitive advantage may incur from possessing a scarce resource and capability profile, holding a superior marker share, or even having an outstanding performance. The greater the firm's current competitive position, the narrower the

margins of reinforcing it significantly through the alliance, and thus the lower their expectations for the alliance value.

H3b: Firm competitive position is negatively associated with managers' expectations for the alliance value.

The underlying motivation to enter interfirm cooperation of any form is that companies can achieve together such targets that they would not be able to achieve alone [26]. Cooperation is believed to combine the advantages of vertical integration and scale economies in merging resources but keeping individual companies focused on their core competence [48]. Alliances are increasingly made not just to achieve vertical but also horizontal integration [29]. While vertical or horizontal integration may create value by exploiting any complementary or excess valuable resource (e.g., [45], [46]), recent conceptual ([38], [4]) and case study research [3] describes situations where alliance decisions seem to be driven by a firm's ability to leverage its core competence into adjacent value chain activities, thus implementing a diversification strategy.

H3c: Firm strategic orientation towards diversification and integration is positively associated with managers' expectations for the alliance value.

Value generated from alliances is enhanced when partners have different resource and capability profiles, yet share similarities in their social institutions [41]. Social incompatibility may lead to an inability on the part of the partners to develop a harmonious relationship, and thus negatively influence their expectations for value generated from the alliance. Higher levels of stress, and thus lower expectations for value, result for managers when the partnering entities attempt to blend incompatible values, norms, and capabilities in an alliance [12]. Moreover, organizational differences hinder role socialization [42], thus making it more difficult for interfacing managers to work together, which also has a negative impact on their expectations from the alliance.

H4a: Partner compatibility (resource complementarity, operational and social compatibility) is positively associated with managers' expectations for the alliance value.

Anderson and Narus [2] argue that "compatible partners working together in pursuit of mutually agreed strategic goals develop a strong feeling of 'chemistry', which results in satisfaction with the alliance". Instead, the existence of a competitive relationship may hinder the pursuit of a common goal and raise the perceived threat of partners' opportunistic behavior. Doz and Hamel [13] suggest that the more compatible the long-term strategic interests of the partners, the less likely they are to embrace unrealistic value expectations.

H4b: Partner competitive relationship is negatively associated with managers' expectations for the alliance value.

The existence of long cooperative history between the allying firms is one of the most commonly referred sources of inter-firm trust. Mutual trust develops as partners get involved in more partnerships, being either direct or indirect through common third-parties, and increase their level of commitment in them (i.e. share equity to each other or develop a joint equity) [17]. Mutual trust deters opportunistic behavior and has efficiency implications, which involve potential reduction of transaction cost and emergence of value enhancing opportunities [25].

H4c: Alliance history is positively associated with managers' expectations for the alliance value.

The following figure illustrates the direct and indirect effects that are postulated within this research.

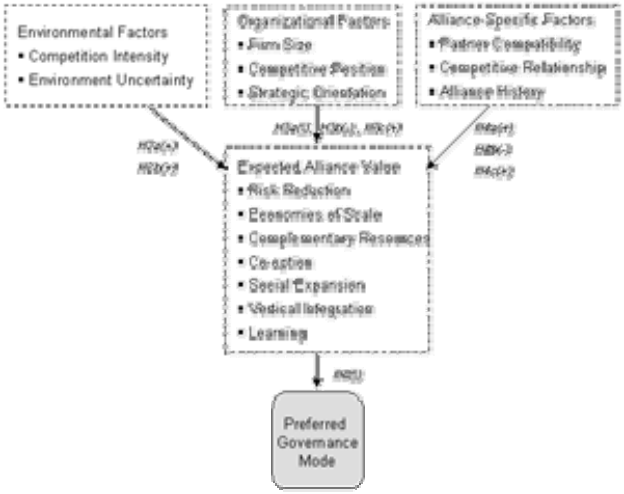

Figure 2. Direct and Indirect Effects of EAV

6. Evidence from a Joint Venture in the Wireless Networks Industry

Case study has traditionally been applied to exploratory studies, which aim at building rather than testing hypotheses [20]. In this research, we apply the case study method in order to confirm the applicability and usefulness of the EAV concept, as well as its

related dimensions, in explaining the preference of a firm first for a quasi-market and then for a quasi-hierarchy mode of an alliance.

Case study research requires data collected from multiple sources, so that the goal of data triangulation is achieved. One way to collect data from multiple sources is to use more than one data collection methods [20]. In this research, we applied three data collection methods; a) documentary evidence, b) interviews, c) questionnaire. The first method involved collecting and scrutinizing electronic material collected via the company or third-party (e.g. press or portal) sites. Such material included press releases on the examined alliance, company profiles, company announcements, and other information regarding the company's collaboration activities. Following the collection of documentary evidence, we conducted interviews with key managers of the two investigated companies.

On the 13th of July 2005, Unisystems and Nortel announced their collaboration agreement for the establishment of a new company called UNINORTEL, providing marketing and support services for the Nortel telecommunication and networking solutions in Greece and Cyprus. Nortel Networks and Unisystems have been partners since 2002, when they signed a contract-based agreement aiming at joining forces to compete dominant players in the Greek and Cypriot telecommunications industry. This alliance provided an opportunity for the two companies to assess their compatibility, in terms of strategic goals, social norms and resource complementarity, as well as develop trust for proceeding to a closer relationship involving the establishment of a joint venture.

Unisystems is one of the largest Greek Information Technology providers and holds the dominant position in the Greek market of Systems Integrators. A sample of integrated IT solutions that Unisystems provides includes ERP and CRM systems, e-Learning, Document and Workflow Management systems, billing systems, and mobile transactions systems. It also sells hardware, such as enterprise servers, VoIP telephony, optical networks infrastructure, and Interactive Voice Response (IVR) systems.

In the official announcement of the joint venture, Mr. Pierfransesco Di Giuseppe, the president of Nortel South Europe said that "through its collaboration with Unisystems, a leading provider of high technology solutions in the Greek market, Nortel targets the market of telecommunication providers of both wired and wireless networks, and aims at increasing its market share in the area of enterprise solutions. The long-lasting and close relationships that Unisystems holds with great telecommunication providers in the Greek market will give Nortel the opportunity to reinforce and consolidate its current position in Greece."

Nortel owns a broad alliance portfolio. The majority of its alliances are contract-based, while three of them have taken the form of joint ventures. Nortel treats strategic alliances as implementation means for serving its strategic vision of expanding and consolidating its position in existing and new markets. In fact, Nortel's strategic orientation involves three primary objectives: a) entering large markets worldwide, such as China, b) entering smaller but emerging and profit-promising markets, such as Poland, and c) saving implementation and operation costs, derived from its expansion in new markets, by creating joint ventures, through its cooperation with great local players, instead of establishing its own branch.

In general terms, the Greek wireless market is considered of low competitiveness for the time being. Nevertheless, Nortel is highly interested in improving the quality of its after-sales support, which includes one of its primary motivations for forming the alliance with Unisystems, in order to gain an early competitive advantage in the networking industry. Moreover, Nortel wishes to decrease market risk, incurred by the lack of adequate after-sales support, by joining forces with a local player having the resources and know-how required to support Nortel's enterprise customers in the Greek and Cypriot markets.

In this alliance, Nortel Networks has the negotiation power, since it provides the technological know-how and global brand name, while Unisystems has the management and marketing power in the Greek market. Also, Unisystems is the one that contributes to the joint venture with financial, human, and physical resources, while Nortel contributes with its networking equipment, as well as the knowledge for producing and installing it.

Through the alliance with Unisystems, Nortel mainly aimed at getting the following groups of benefits:

- *Complementarity of Resources.* Unisystems provides the financial, human, and physical resources required for the operation of the joint venture. Instead, Nortel is the prime contributor of technological knowledge embedded in the promoted products/ services. Nortel considers Unisystems to be a leader in the Greek market of system integrators, and thus expects to gain access to its valuable resources.
- *Co-option*. Although the competition in the Greek wireless market is not high enough to motivate co-option activities, Nortel wishes to gain early

competitive advantage by improving its after-sales support services and thus reinforcing its position over rivals in the Greek networking industry.

More specifically, Nortel's decision to evolve its previous contract-based alliance to a joint venture was driven by the following value expectations:

- *Economies of Scale.* As explained earlier, Nortel applies the strategy of joint venture creation in new or saturated markets to save costs from own-funded expansion. Thus, the joint venture solution means saving internal development costs incurred in case of developing a subsidiary, and decreasing transactions costs incurred in contract-based collaborations.
- *Risk Reduction.* Due to its long presence in the Greek market, Unisystems has obtained good knowledge of the Greek firms, and most specifically of their requirements for enterprise telecommunications solutions. Thus, it can save Nortel from the risk of producing or promoting useless products/services. Moreover, by improving its support services via the UNINORTEL venture, Nortel expects to reduce the market risk of dissatisfying, and thus losing, its enterprise customers due to poor service quality.
- *Learning.* One of Nortel's primary motives for evolving its previous contract-based collaboration to a joint venture was to transfer know-how to Unisystems' human resources, which contribute to the UNINORTEL venture, so that they can provide support for Nortel's products. Such a goal could only be supported by an alliance governance mode involving high degree of partner commitment and interdependence.

Apart from the initial motivations, which can also be considered as expected benefits, the primary value that Nortel wished to capture through this joint venture is to develop a staffed venture with strong brand name and large market share in the Greek networking market. It is part of their agreement that, given that the venture will successfully operate in the Greek market for a predefined time span (e.g. 5 years), the venture will be finally sold to Nortel, thus operating as owned subsidiary. Until that time, Unisystems will have gained value from UNINORTEL's profits, as well as from its final sale to Nortel Networks.

As stated by an executive of Nortel's Greek branch, the motivations of *complementary resources* and *co-option* affected highly Nortel's initial decision to collaborate with Unisystems (in 2002), while the motives of *risk reduction* and *learning* drove to the option of a joint venture over any other governance mode. Thus, in this case study, these two categories of benefits seem to affect the decision towards a quasi-hierarchy type of alliance. Since these two groups of benefits were rated with a 'high' value, one can hypothesize that the greater the expectations of managers for risk reduction and learning, the more quasi-hierarchy alliance types are preferred.

The need for protection, in order to achieve the benefits of risk reduction and learning, led Nortel to the option of a quasi-hierarchy alliance. Thus, this case study has indicated the need for more hierarchical alliances, when the expected alliance value – for risk reduction and learning – is high. While from a first sight, this conclusion seems to contradict Hypothesis 1, a more careful analysis can reveal that it is in alignment with the theoretical propositions of this research. Hypothesis 1 assumes a highly uncertain and competitive environment, which necessitates options assuring flexibility rather than protection, and thus requires looser alliance governance modes. In this case study, the manager's perceptions for the uncertainty and the competition intensity of the Greek mobile/wireless market is rather low, due to the early phase of its development, and thus the need for protection overcomes the need for flexibility.

7. Conclusions and Further Research

This research stream has been motivated by the challenge of investigating the role of value expectations in the governance decision of IT-based alliances. Towards this aim, we developed a conceptual measure of value expectations, named Expected Alliance Value, referring to a list of strategic motives for which firms usually enter alliances. Following the premises of Game Theory and Real Options Theory, which have recently applied to emphasize on the value aspect of alliances, we developed several assumptions on both the direct and indirect impact of Expected Alliance Value on the governance mode. Some preliminary evidence on the existence of some sort of relationship between value expectations and governance decision was provided to identify, rather than validate, the impact of several value dimensions on the governance mode of an alliance.

Regarding the direct value effects, the case study has indicated the need for formulating hypotheses on the individual impact of each of the seven value dimensions on the preference for the governance mode. More specifically, *complementarity of resources* and *co-option* seem to drive firms to a non-equity

alliance, while *risk reduction* and *learning* seem to affect positively the formation of equity alliances. However, the difficulty to assign a single value to the EAV measure has rendered the examination of indirect effects practically impossible.

To enable testing of the indirect effects as well as validation of the general direct impact of EAV on the governance mode of alliances, we have planned a survey. For the time being, data on approximately 50 technology alliances in the Greek wireless industry have been collected and analyzed. Nevertheless, to assure validity and generalizability of our statistical results, we currently work on increasing and enhancing the sample firms in other IT-based environments (i.e. mobile, Internet, micro-chips).

Our theoretical contribution has been restricted by the assumption that the Expected Alliance Value includes a number of expected benefits, which can be theoretically met as strategic contributions of alliances [10]. Thus, the structure provided on organizing these benefits has been adopted from literature on strategic contributions and motives of alliances. A challenging future research stream would involve initiating an exploratory research aiming at developing a measurement scale for the Expected Alliance Value. This could be either a generic scale applicable to any business environment, or a customized scale including dimensions of the alliance value in IT-based environments. As soon as the dimensions of the value are defined, one could assign weights to these dimensions. Towards this direction, one could initiate empirical research using a mixed methodology, which would include qualitative techniques (e.g. interviews with managers) for capturing insight from strategic managers on possible items of the construct, as well as quantitative techniques (e.g. factor analysis) for defining the construct structure and weights for its dimensions. This research would further encourage a new cycle of our planned empirical study to re-test the proposed research model of Section 5 using a more reliable and customized indicator of value capture expectations.

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