1 Introduction

A new mode of economic organisation – cooperative, interdependent, long-term relations among independent organisations become an important instrument to compete and survive on the global market. The state of “hyper-competition” (D’Aveni) between individual companies is transforming into one of hyper-cooperation. As Gomes-Casseres (1996) argues, growing collaboration among firms generated new forms of rivalry: business rivals will often occur between sets of allied firms, which he called ‘constellations’, rather than between individual firms. Therefore the important ability to choose the “right” form of co-operation in a given situation and partner constellation depends also on the knowledge about the relevant differences between given organisational forms and their influence on long-term performance.

The following literature review is descriptive in nature and discusses the three forms of interfirm cooperation most popular in management research: alliance, joint venture and network. The three terms are often used as synonymous, but imply different legal and functional characteristics. A precise understanding of their linguistic meaning is a first step in the process of defining content and characteristics of the three forms. The review serves two interrelated purposes: first to find an adequate theoretical foundation for the similarities and differences and second to discuss the implications for knowledge management and financial performance. In the first part of our analysis we are primarily using a deductive approach, in the second inductive. Both modes of analysis entail an extensive literature review. The review suggests that further analysis is needed in order to discover how knowledge management and financial effects are achieved.

The key dimensions used to analyse alliances, JV and networks are: 1. origin and formation, 2. Purpose of the organization; 3. Variations within every one of them; 4. Differences in terms of knowledge management (What is the role of knowledge?); and 5. Effects on organizational performance.

We argue that these criteria can be used to differentiate between the three forms of interfirm co-operation in order to explore their structure and capability to produce, own and manage knowledge. These criteria will guide us through the literature review.
2 Review of the Theory

Definitions

Webster's New World College Dictionary defines Alliance as 1 allying or being allied, specif. a union or joining, as of families by marriage; 2 a close association for a common objective, as of nations, political parties, etc. 3 the agreement made for such an association; 4 the countries, groups, etc. forming such a connection; 5 similarity or relationship in characteristics, structure etc; affinity. 

Allied means 1 united by kinship, treaty, agreement; 2 closely related, especially by shared qualities, similar.

In Merriam-Webster's Collegiate Dictionary Alliance has the function of noun, dates from the 13th century and means: 1 a : the state of being allied : the action of allying b: a bond or connection between families, states, parties, or individuals <a closer alliance between government and industry>; 2: an association to further the common interests of the members; specifically: a confederation of nations by treaty; 3: union by relationship in qualities; Affinity and 4 : a treaty of alliance.

The term network has a function of noun and dates from 1560. It means: 1: a fabric or structure of cords or wires that cross at regular intervals and are knotted or secured at the crossings; 2: a system of lines or channels resembling a network, 3a : an interconnected or interrelated chain, group, or system <a network of hotels> b: a system of computers, terminals, and databases connected by communications lines, 4 a : a group of radio or television stations linked by wire or radio relay b : a radio or television company that produces programs for broadcast over such a network (Merriam-Webster's Collegiate Dictionary).

According to Webster's College Dictionary network means 1 any arrangement or fabric of parallel wires, threads, crossed at regular intervals fastened to them so as to leave open spaces, (...) 2 a thing resembling this in some way; specif. a) system of roads, canals, veins, etc. that connect with or cross one another, b) a group, system of interconnected or cooperating individuals, c) system consisting of a computer, or computers, and connected terminals; 3 a) a chain of transmitting stations linked by wire or microwave relay, usually sharing the same programs, b) a company that produces programs to be broadcast over such network; 4 the making of nets or netted fabric, to develop contacts or exchange information with others, as to further career.

Following these definitions, alliance indicates that a limited number of partners have close relationship by affinity, similarity or/and common interests, it suggests that purposiveness and common goals are distinguishing features of alliances. Network implies other kind of relatedness: a traffic connection within a system. Networks connote that resources flow through an open system of entities in the direction they are needed, while alliance – a state of joining, closeness and exclusion of others.

Building on the linguistic definitions, the meaning of words is constructed also in their practical use in communicative interactions. In research work on alliances, networks and JV we found the following definitions:
Strategic alliances can be defined as *purposive strategic relationships* between independent firms that share compatible goals, strive for mutual benefits and acknowledge a high level of mutual dependence (*Mohr and Spekman 1994*).

... any independently initiated interfirn link that involves exchange, sharing or co-development (*Gulati 1995*).

Alliances are complex organizational forms that are usually viewed as *incomplete contracts*. They typically involve the transfer of know-how between firms, a process that is fraught with ambiguity (*Anand & Khanna 2000*). (…) Detailed interactions between the alliance partners can rarely be fully prespecified (*Anand & Khanna 2000*).

**Strategic Business Alliances (SBA)** are qualitatively different from JV and distribution agreements. SBAs are formed by rivalling companies to increase their respective capabilities and competitive positions in non-competing lines of markets. SBAs comprise a wide range of arrangements: multi-purpose JV, limited purpose JV etc. (*Shiva 1997*)

... a firm will form an alliance with another firm in order to bring together specific skills and resources in such ways that may complement each other, without the complications and expenses associated with a merger (*Shiva Ramu 1997*).

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**Joint ventures** and licensing arrangements are the two most common examples of alliances.

JVs are (...) simultaneously contractual agreements between two or more organizations and a separate legal (and usually organizational) entity with its own purpose. (*Borys/Jemison 1989*). Partners retain organizational sovereignty, maintaining differentiation within the hybrid that may hamper cooperation.

The close collaboration typically found in JV requires that the JV develop its own identity and institutions. Partner involvement intended either to help the venture or to restrict its activities often threatens its ability to accomplish its purpose.

Partners remain independent (*Borys and Jemison 1989*) and they are engaged in evolving collaboration (ibid.).

JVs are "combinations of at least two firms into a "distinct" firm with shared equity investments. Profits and losses accrue on the basis of investment" (*Shiva Ramu 1997*).

**JV** is a separate Business activity, formed and owned by two or more parties (venturers). A JV may have both a separate legal and tax identity, and often a separate management structure. The best of joint ventures are, above all, powerful strategic alliances that have these strategic, structural, and operational characteristics: synergistic, strategic, separate management and organization, tight operating linkages, beyond win–win, reciprocal relationships (*Morris 1998*).

**JV** is a form of strong cooperation based on technology complementarity, reduction of time span for innovation and market access (*Shiva Ramu 1997*).
Networks encompass a firm’s set of relationships, both horizontal and vertical, with other organizations – be they suppliers, customers, competitors, or other entities – including relationships across industries and countries. These networks are composed of interorganizational ties that are enduring, are of strategic significance for the firms entering them and include strategic alliances, joint ventures, long term buyer–supplier partnerships and a host of similar ties (Gulati/Nohria/Zaheer 2000).

Castells (1996) defines a network as a set of interconnected nodes. A node is the point at which a curve intersects itself. What a node is (...) depends on the kind of concrete networks of which we speak". The distance between the nodes is defined by the network topology. (...) an economic network is the pattern of relationships among firms and institutions (Kogut 2000). (...) the structure of a network implies principles of coordination that not only enhance the individual capabilities of member firms, but themselves lead to capabilities that are not isolated to any one firm.

Networks are dynamic, involve relational and embedded ties and can be beneficial but also constraining (Doz/Olk/Ring (2000) and also Burt (1992), Ebers (1997), Gulati (1998), Nohria and Eccles (1992), Powell, Kogut and Smith-Doerr (1996)).

Networks result from the “linking of different units” (Tsai 2001) forming an intimate connection versus hierarchical structure. Networks are “arrangements between markets and hierarchies” (Thorelli 1986). Networks are relationships of power and trust through which organizations either exchange influence and resources (Thorelli 1986), or take advantage of economic efficiencies (Jarillo 1988).

Networks are sometimes viewed as an organizational actor, implying that strategic management of the network yields benefits to be distributed among the network members (Astley 1984).

Networks are a “set of important relationships extendable in any direction without limits” (Shiva Ramu 1997) and “independent organisations team up with others with complementary skills in order to overcome the complexities of the business environment” (Shiva Ramu 1997).

(Borys/Jemison 1989) talk about hybrids as organizational arrangements that use resources and/or governance structures from more than one existing organization. They are formations between markets and hierarchies. Alliances, networks, JV are forms of hybrids.

Comparing the network and transaction cost approach, Johanson/Matssson (1987) describe the network as system of relationships based on a division of work in the network and thus, on dependency. The network position determines the firm’s access to resources, controlled
by other firms. There are also only vague criteria, which is part of the network and no common hierarchical structure of responsibility.

From the above definitions we can derive the following conclusions. First, the difference between alliance and JV, and network and JV is relatively unclear. JV’s is a subset of strategic alliances and alliances involves network ties. Despite this intersection and jointness of definitions it is possible to flesh out distinguishing features between the three.

All surveyed definitions describe JV as a legally independent entity, “a child”, created with a purpose from also legally independent “parents”. Joint venture (JV) means established, separate, legal entity and an acknowledged intent by the partners to share in the management of the JV as well as partnership between legally incorporated entities. Each partner holds equity positions.

The difference between network and alliance is more fluid. In accordance with the linguistic meaning of the words a few main differences occur: alliance means joining of resources for a purpose, while network means grouping of entities around a common function or task. While alliances imply authority, which decides upon inclusion and exclusion, networks suggest an open system of flows, without a governance structure. Alliances are common between large partners (in terms of size and power) while networks are not determined about the size. It is the task that has a central influence on the network formation. Network means a flow, while alliance means a steady disposal upon joined resources. Also there seems to be a difference based on the geographical location of the author. In the Anglo–American literature alliance is often used on a general level as a synonym for a network, while European authors tend to use the term networks. These differences reflect two different concepts of (political/geographical/economical) organization and value creation.

**Origin and formation of Alliances, Networks, JV**

Alliances, networks and JVs originate from different generating principles. According to Kogut (2000) these rules can be technological, but also institutional or social. It is possible to use familial descriptions of alliance companies as “parents” and the JV as a “child”. The social regulations for family ties and reproduction have their analogies in the implication of identity of industrial and financial companies. As Podolny/Stuart (1995) show, those companies with similar status level tend to engage in strong ties, while they maintain weak ties with less prestigious firms. Gulati (1995) explores how social structure affects interfirm alliance formation patterns, using longitudinal multi–industry data. He observes “the dynamics between social structure and alliance formation suggest a dialectic between action and social structure such that each influences the other”.

Hellgren/Stjernberg (1987) state that networks “may be set up by inviting potential members according to some formulation of membership criteria”. Networks are therefore “voluntary organizations”. There is no superior level that may take decisions that are binding for the network as a unit. Therefore the network has a function rather than an objective.

Kogut (2000) argues that “the emergence of structure in a network is sensitive to specific industry settings” and that cumulative commercial alliance patterns are a predictor of companies’ future commercial alliance patterns (Walker/Kogut/Shan 1994). Further in Kogut (2000): “the emergent properties of networks ride on self–organizing processes that tend to freeze the structure among firms over time into stable patterns of interactions”.

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Doz/Olk/Ring (2000) analyse the formation activities within R&D networks: Environmental interdependence, similar interests, triggering entity, seeking domain consensus, open solicitation, continuity of expectation, formal structure, learning and escalation of commitment and satisfaction. They also imply that initial conditions matter for the formation process.

The study of Reuer/Zollo/Singh (2002) finds that ex post governance changes are a feature of many collaborations in the biotechnology industry. They also isolate conditions under which such changes are more or less likely to occur. To model the post-formation dynamics of collaborative agreements they combine governance perspectives on alliance attributes and evolutionary views of firms' accumulation of knowledge from previous alliances.

Chung/Singh/Lee (2000) explore the factors that drive alliance formation between two specific firms and find out that resource complementarity, status similarity and social capital are a basis for alliance formation.

Eisenhardt/Schoonhoven (1996) combine strategic and social explanations for strategic alliance formation. Alliance formation is an effect of both rational business calculus and the social calculus related to the skills, reputation, and past relationships of top executives. From strategic point of view, vulnerable strategic position leads to the formation of strategic alliances, which is influenced by the social position of the top management.

Kogut (1991) develops the "perspective that JVs are created as real options to expand in response to future technological and market developments". Companies exercise the option (acquire the JV), when there is a growing product market or change in other factors. According to the results, JV can be interpreted as an option to expand.

In conclusion, the theoretical conceptions and alliances and JVs formation follow the logic of their defined meanings. Sociological and economical theories are used to explain their emergence, development and "death"-patterns. While JVs originate from apriori determined contractual relationships agreement, networks and alliances emerge from less specified terms of interaction. Prior to the formation of alliance is its purpose. It influences the process of negotiations and is usually stated in a co-operation contract. On the other hand, networks follow incompletely specified (and to the great extend accidental) patterns of interaction, which can stabilize over time. A parallel between norms of individual behaviour and organizational behaviour can be drawn, which allows us to situate interactions and outcomes to generate predictability.

Purpose

An important attribute of interactions is their (often unarticulated) purpose. This purpose influences the form and structure of interaction and is therefore essential for our analysis.

According to the literature, alliances are formed around a common purpose, which can be learning (information and knowledge exchange), building of competitive advantage in the market space, access or internalization of new technologies and know–how beyond firm boundaries, to realize economies of scale and scope or to share risk and uncertainty with the partners (Morris 1998, Shiva Ramu 1997).

In a more formalized way, Joint Ventures communicate a legal effect of two companies pursuing a common purpose. They can be marketing JVs – Host/Beneficiary–Relationship, R&D JVs or production JVs.
Objective in a **network** is “an aggregate of the objectives of the individual actors” (Hellgren/Stjernberg 1987). The function of a network is diffusion of experiences and integration of resources (Hellgren/Stjernberg 1987).

Comparing in terms of purpose, we can conclude, that while a driving force in alliance and JV formation is a clearly outlined common purpose, networks is a function of the different goals of its members, structured by the flows between the nodes.

**Variance within the Interorganizational arrangements**

To explore the meaning of the three terms, our analysis includes review of the variations within them.

According to the **number of partners alliances** can be a) monogamous – a strong lock in and exclusion of the others, constrained alliance choices have significant performance consequences and b) multiple – “real options”: the value of the alliance varies. There are also **variations in terms of governance and ownership** such as equity alliances (cross shareholding), contract (non-equity) alliances, and acquisitions. To mention are also the **value chain alliances** – functional alliances (Shiva Ramu 1997): assembly (Nestle & Coca-Cola; Renault & Volvo), procurement, finance, R&D, and marketing (working partnership to market their products as complements. There are also variations on **direction**: vertical downstream/upstream (value chain alliances) and horizontal (between competitors – see Shiva Ramu 1997) alliances.

Alliances that can truly be specified as a **learning alliance** is rare. More typical are alliances in which the partners openly acknowledge both asymmetric objectives and an expectation of learning via private benefits (Inkpen 2000).

JVs can vary on legal basis (Hewitt&Picot 2000): The contractual JV – does not involve the creation of an independent legal entity and it is suitable when parties are sharing cost or output have been shared rather than revenue. Such contractual JVs can be licensing, distribution, and supply agreements (Kogut 1991). Mostly, the research is focussed on equity JVs, which can be also two types: ‘scale’ JVs result from similar moves by all the parents (e.g. vertical integration) and ‘link’ JVs, where the position of the partners is not symmetrical (Kogut 1991). Kogut (1991) explains also under which conditions a ‘scale’ or a ‘link’ JV is likely to emerge.

There are different legal forms for equity JV. In the United Kingdom they can be public limited company (plc), limited company (Ltd.), or unlimited company. In Germany they can be Gesellschaft mit beschränkter Haftung (GmbH), Aktiengesellschaft (AG).

**Network**

While alliances vary with emphasis on their purpose, networks vary according to differences in activity links, resource ties and actor bonds (Håkansson/Snehota1995 ). The actions accentuate on their function – such as R&D consortia (Doz, Olk, Ring 2000) or in their structure, e.g. alliance network (Baum/Calabrese/Silverman 2000).

In conclusion the analysis of variations shows, that the more formally specified a form of cooperation is, the more clearly variations on structure and purpose can be distinguished.
The role of knowledge

Mostly, interfirm co-operation is based on knowledge sharing and learning, therefore it is important to know the different ways of creation, management and ownership of knowledge, which alliances, joint ventures and networks imply.

Most studies on knowledge transfer in networks indicate the importance to know who has the specific knowledge and how to connect to this knowledge through relationships (Powell 1990), emphasizing the informational aspect of deploying external relationships. Kogut (2000) applies a different view: how "a network is arising out of generative rules that guide the formation of relationships and code for organizing principles of coordination". The network becomes knowledge itself and influences to a great extend the single firm's competitive capabilities, generated by network coordination. Specialization and variety define complements within a network, but are antithetical within a firm.

Kale/Singh/Perlmutter (2000) examine the role of relational capital between alliance partners as a means of both enhancing cooperative behaviour and mitigating competitive conflicts. On the basis of large empirical data they show that relational capital based on mutual trust and interaction at the individual level between alliance partners creates a basis for learning and know-how transfer across the exchange interfaces.

Purpose of knowledge transfer is the commercial utilisation of capabilities, which is reflected in financial performance. In a longitudinal analysis Gulati (1999) found that the proclivity of firms to enter new alliances is influenced by the amount of network resources available to them. Network resources were a significant predictor of the frequency with which firms entered new alliances.

Anand/Khanna (2000) investigate whether firms learn to manage interfirm alliances as experience accumulates and find evidence of large learning effects in managing JV, but none in managing licensing contracts. Learning therefore depends on the underlying complexity of context and is stronger in R&D JV than in other categories of JV.

Dyer/Nobeoka (2000) offer empirical evidence (Toyota-case) for the importance of the network as a unit of analysis for explaining competitive advantage and show that network is superior to company due to the greater diversity of knowledge. Toyota creates ‘identity’ for the network as well as infrastructure to support the knowledge transfer among suppliers. This article provides also insight into the knowledge transfer in the network, which is provided by solving three main obstacles: motivation for participation, free riding effect and efficient transfer of explicit and tacit knowledge. Most importantly, production of knowledge is viewed as the property of the network rather than the individual firm. This strong tie network facilitates especially the diffusion of tacit knowledge. The study also provides insights into the evolution of a network and suggests that it takes time to develop the relationships that facilitate effective learning.

In terms of alliance learning research shows that similarity between alliance and company’s markets and products is a prerequisite for great learning benefits (Inkpen 1995).

Barkema/Shenkar (1997) explore the role of learning in national and international JVs. They also find that learning via an international JV is closely related to the experiences in domestic JVs and other learning activities.
Variances of alliance structure influence the ability to assimilate and implement knowledge. Findings indicate that non-equity alliances are more effective for discovering knowledge than equity. Equity forms stress issues of control, while non-equity alliances promote the development of common language and information exchange of knowledge. Research work suggests that for knowledge-rich alliances companies favour non-equity forms because of their flexibility even if they offer fewer legal protections (Hagedoorn/Narula 1996).

Through acquisition of core competences JVs often transform the parent company and/or build the path for a new strategic market positioning (Morris 1998). JVs are used for the transfer of organizationally embedded knowledge which cannot be easily codified (Kogut 1988).

Gulati/Nohria/Zaheer (2000) discuss the phenomenon “learning races”, in which co-operating companies can be trapped when they try to absorb the knowledge of the partner and exploit it independently. Some researchers have adopted the idea that every dyadic relationship has to be seen as a learning race, in which the absorptive capacity (Cohen/Levinthal 1990) and learning skills are of major advantage. We argue that this problem occurs in alliances more often than in networks and is nonexistent in joint venture per definition. Learning alliances, in which partners agree to share a piece of knowledge relevant for the other, creates the problem of preserving the core competences. In a network, learning races are less prominent, as access to the partners’ knowledge or core-competence only indirectly is the purpose of interconnected companies. Other purposes as sharing of complementary resources, exchange of goods and information (e.g. about competitors) are more important. Joint venture as a separate unity owned equally by the partners owns the knowledge resources under its own management and in order to profit from the joint venture partners have incentives to invest a high amount of know-how.

The difference between alliance and network in terms of knowledge transfer is related to their purpose. In the literature both terms are often used synonymously, because on the first sight they imply identical purposes - cooperation to fulfil a task too complex for a single company. However, the devil is in the detail. Naming a partnership an alliance usually indicates a pooling of (similar) resources (knowledge, finances) in order to increase market power via economies of scope/scale. By ‘networks’ the literature often means relations between complementary resource owners, tied together by personal bonds in order to accomplish a variety of purposes and tasks. Strong or weak ties between small or medium sized companies allow them to use each other’s unique or similar core competences (division of labour) whenever a customer project needs them. Knowledge can be said to be the effect of network ties while in alliance knowledge is usually located in either party.

Joint ventures as a separate business unit pool resources of both allies, exercise ownership rights over them and decide upon management direction. Both parties share the revenues through their equity ownership, which is normally 50:50. Therefore a joint venture arrangement in its different legal forms offers the best way to legalize ownership on newly created knowledge. It is a solution for free rider problems as well as for learning races (Inkpen 1995).

Alliance as a cooperation between legally independent entities often creates a moral hazard problem. Therefore, if the goal is pooling knowledge, the management of which is difficult to specify, a joint venture offers an acceptable alternative. Considering alliances,
complications of other kind must be taken into account: if partners of two different legislation or cultural backgrounds ally, communication and coordination problems may arise due to information asymmetry. Joint venture offers a plausible solution if partnering companies plan to cooperate on one of their core businesses, while in others they may differ significantly (FujitsuSiemens case) and pursue separate goals. While networks remain more open to new participating companies due to the weaker ties at the formation, alliances seem to bound resources, which are costly to separate.

A model of learning and performance for international JV propose and test Lane/Salk/Lyles (2001). Building on the Cohen/Levinthal (1990) they segment absorptive capacity into 1. Trust influences the ability of JV to understand new knowledge from foreign parents, 2. Learning structures and processes of the JV, and 3. JV’s strategy and training competences. These three components support the knowledge assimilation and its commercial application. The empirical results show that management support and trust influence performance but not learning.

Doz (1996) examines how learning that takes place in strategic alliances between firms mediates between the initial conditions and the outcomes of these alliances. He discovered that successful alliance projects were highly evolutionary and went through a sequence of interactive cycles of learning, re-evaluation and re-adjustment.

Mowery/Oxley/Silverman (1996) use a new technique to track effects of alliance activity on interfirm knowledge transfer and the transfer of technology–based capabilities. They find that equity JVs are more effective conduits for the transfer of complex capabilities than contract–based alliances. The results support the argument that the structure and content of alliances are jointly determined, and that alliances near the ‘hierarchy’ end of the ‘market–hierarchy’ continuum outperform alternatives in supporting interfirm learning. The findings support also the argument, that experience is an important determinant of the absorptive capacity and learning (path- and firm– dependency).

In conclusion, the articles reviewed are typically based on large–scale surveys (the Toyata case being an important exception), thus little knowledge exist as to how alliances, networks and JVs actually learn, avoid learning races and perform knowledge management.

The research work on learning in alliances is multidimensional, encompassing all aspects of the process of knowledge creation, transfer and utilization. Knowledge plays a central role in the formation of alliances, networks or JVs and is often their main purpose. But the three forms differ in their relation to knowledge. Alliances are often initiated with the aim of learning skills and competencies from partner companies, which is why learning races figure more prominently in alliances. Networks exist because of flows between nodes. The flows can be information but relations are often not initiated for that purpose. More common are relations that are based on the exchange of goods, whereby access to resources, and not knowledge, is paramount. JVs are founded in order to exploit specific market or technological possibilities that are dependent on competencies located in partnering firms.

Performance and Financial Effects

Indisputably the company’s external relationships affect significantly management and therefore performance. Research based on European and American empirical material shows not only positive (access to information, resources, markets) but also negative effects (lock–
in unproductive relationships that prevent from partnering with others). Gulati/Nohria/Zaheer (2000) discuss the negative impact of lock-in and lock-out effects and learning races on performance as the network evolves over time. Choices made early in the evolution of the network shape the differences in return. Gulati/Nohria/Zaheer (2000) describe also the influence of position in a network and network modalities on performance and argue that competition based on occupied network space affects performance.

From our analysis of purpose, we can deduce that while the measurement of financial performance is especially important for alliances and JVs, networks can be assessed only from the perspective of the participants. To measure the exact network contribution to the financial performance of the single participant is not of primary importance, because resource availability and not specific financial outcome is the aim. Also, the costs to isolate the network contribution from its external effects exceed the benefits.

Adopting a network perspective for looking at performance allows us to see firms as embedded in networks of social, economical and personal relationships (Granovetter 1985, Gulati 1998). If the measurement of the alliance’s or JV’s performance as an organizational entity is to be precise, it has to be separated from its contributions to a given sponsor, just like the performance of an organization can be different from its contribution to each particular stakeholder (Osborn/Hagedorn 1997). The measurement of performance therefore has to be related to the specific formation purpose and multidimensional, decoupled from the measurement of sponsor’s performance. Anderson (1990) proposes to use different evaluation approaches for the performance of JV and parent companies. He argues that JVs often have different objectives than the parent companies, which not always can be measured quantitatively (e. g. learning, market opening, blocking a competitor). These qualitative inputs often create the ground for quantitative output. In addition, JVs are usually formed in risky environment so that profits can be expected only in the long run.

In terms of relationship formation and outcomes, Baum/Calabrese/Silverman (2000) investigate how variation in the alliance network that biotechnology start-ups configure at founding shapes their initial performance. They question the causal relationship between superior performance and alliance formation: do alliances enhance performance or do only superior performing companies form alliances? Start-ups can enhance their value by a. establishing alliances, b. configuring them into efficient network and c. allying with established rivals. In the same line of thoughts Stuart/Toby/Hoang/Hybels (1999) argue that strategic alliances can help start-ups in procuring resources from third parties through the signalling role of the alliance.

Concerned about the influence of JV formation on shareholder value of the parent company, Merchant/Schendel (2000) find that JV–based shareholder value is influenced by variables in task–related, competitive and structural contexts. Above normal returns associated with firms’ international JV formation announcements increase with higher levels of partner–venture business relatedness, greater equity ownership and large firm size and are higher when JVs undertake R&D activities. Further in the Anglo–American tradition, Reuer/Koza (2000) show the complementary application of two different approaches to JV’s performance: the asymmetric information perspective and the indigestibility. According to the empirics of

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this article, stock market judges favourably JV formed under conditions of asymmetric information between transacting parties.

Stuart (2000) examines the relationship between intercorporate technology alliances and firm performance. He sees alliances as access relationships, which create an advantage depending on the choice of the alliance partner (characteristics, reputation). Therefore the advantages, which a focal firm derives from a portfolio of strategic coalitions, depend upon the resource profiles of its alliance partners. Alliances are both pathways for the exchange of resources and signals that convey social status and recognition. Empirical findings confirm that organizations with large and innovative alliance partners perform better than otherwise comparable firms that lack such partners. Small firms in general profit more from the alliance.

Using empirical data on strategic alliance networks in the steel and semiconductor industries Rowley/Behrens/Krackhardt (2000) show, that the influence of relational and structural embeddedness on firm performance is contingent on industry context. They argue that strong ties negatively influence performance, when the strategic alliance network is highly interconnected. Here the meaning of the term “alliance” is close to “network”, where advantage is created with the mobilization of weak ties on the periphery. In contrast, alliances imply mobilization of resources in the centre of close integration.

Derived from our literature review, the central importance of relational embeddedness becomes evident. Not only choosing the “right partner”, but also his dynamics over time is essential for firm’s performance. Building on empirical data from producers of computer workstations, Afuah (2000) asks one main question: how much does a firm’s performance deteriorate as a result of the impact of technological change on the firm’s co-opetitors’ capabilities? Results show that firm’s ties with suppliers may be a source of advantage in exploiting an existing technology, but they can also become handicap when technology changes. However performance deterioration can result also from network externalities, not only from complementor’s capability deterioration. Therefore strong technological co-operation produces resource lock-in, which, depending on the industrial characteristics, can affect (future) performance to a great extend.

Within a network, an important issue are the property rights, which influence the generation and appropriation of rents. Kogut (2000) argues that property rights over “bottle neck” resources can have a powerful effect on the network producing structural holes with the gains to the broker and that “rents to coordination provide self-organizing incentives to members to maintain the network structure”. “The consequences for rent generation and distribution depend on the assessment of the viability of competing rules for cooperation”. Some kinds of network structures can also lead to a zero-sum game – the one party’s gain is the other party’s loss. However this one-period game does not comply with social capital theory.

The study of Choonwoo/Kyunkmook/Pennings (2001) examines the influence of internal capabilities and external networks on firm performance by using empirical data on Korean technological start-up companies. Internal capabilities comprise entrepreneurial orientation, technological capabilities, and financial resources. External networks comprise partnership- and sponsorship–based linkages. Results show that technological and financial capabilities are important predictors of performance. Among the external networks only the linkages to
venture capital and financial companies have effects on performance. There is also interdependence of internal capabilities and external ties. These findings however may not be fully valid in a European context.

Structure is related to performance, this is what Parkhe (1993) found using game and transaction cost theory. He suggests that interfirm cooperation is complex, embedded in various institutional arrangements and the perceived potential for opportunism influences both structure and performance. Therefore partners erect a variety of deterrent measures to stem possible losses from agreement violations. One way to prevent opportunistic behaviour is reputation. The findings also add to an understanding of how specific structural elements may help build superior alliance performance levels, by suggesting that high behavioral transparency, long time horizons, and frequent interactions promote reciprocal cooperation.

The same reflections on structure translated in an (European) understanding on networks Holm/Eriksson/Johanson (1999) develop and test a model for business relationship dynamics in a business network context and show that mutuality in business network relationships is critical in interfirm systems of workflow interdependence. Firms achieve a greater value, when they organize and share a structure of interdependent activities. By examining the relationship between companies’ alliances embeddedness and their likelihood for survival, Gulati (1999) assesses the influence of network resources on performance.

In relation to network embeddedness, research has grown also on the causes for longevity and high performance of alliances. Saxton (1997) focuses on the effects of partner relationships on the alliance outcome. Using resource dependence theory, game theory and organizational learning, he suggests that a combination of partner and relationship characteristics provides the strongest explanation for alliance success. Among the success factors were reputation, degree of shared decision-making and strategic similarities.

Emphasizing the importance of national culture, Park/Ungson (1997) focus on the impact of intercultural differences for the ‘rise and fall’ of international JVs and their productivity.

From the literature review we conclude that the choice of the co–operational form as well as the nature of the relationships and network position affect significantly performance. The effect can be positive but lock in effects, where a company is tied into relationships with partners that have weak resource profiles, have a negative impact on financial performance. In general the literature relating financial performance to interorganisational co–operation do not distinguish clearly between alliances and networks. The positive effects of network and alliance activity are 1) occupation of structural holes, where rents accrue to co–ordination and information advantages. 2) Access to resources of innovative companies 3) Weak ties with external parties in highly interconnected alliance networks 4) reputation affects performance positively due to prevention of opportunistic behaviour 5) Small companies and Start–ups profit more from partnering activity than large companies, the rents stem from various sources but enhanced credibility in the eyes of the customer and supplier has a positive impact especially for small firms. JVs profit above all from relations with venture capitalists.

The three forms are suitable for the transfer of different kinds of knowledge and the choice of one of them affects the long–term profitability of a company. Issues of indigestibility and information asymmetry influence the decision about the form of cooperation.
an alternative to acquisitions and eliminate the issue on indigestibility. Sometimes alliances produce negative effects such as learning races. JVs offer a solution for the problem of learning races through the institutionalisation of the cooperative relationship. Another dimension of the relationship between organizational form and performance is the cultural embeddedness.

**Conclusion**

Purpose of our paper was to outline the differences and similarities of the three forms of partnership using an inductive approach to the literature review. We collected definitions and examples of theory and empirics on the three organizational forms in order to find out the precise meanings behind them. In a preview we distilled four key criteria for comparison to achieve a more detailed perspective. Central to our observations was the concept of purpose, which determines the differences in variations, origin, knowledge management and performance. While networks imply flow of resources without clear defined boundaries, alliances suggest the pooling of resources, a strong lock-in and exclusiveness. In some of the texts alliances appeared to be a sub form of networks, in other networks as an alliance forms. The usage of the terms follows also geographical logic: in European literature networks are used more commonly to describe interfirm relations, while in Anglo-American sources alliance seem to be the more important form of cooperation. Joint ventures are often seen as a “child” of an alliance, because they appear as a third entity, a single institution with its own goals and management culture. The three forms of cooperation are supposed to translate different forms of resources (knowledge, infrastructure) into marketable products. Through their ability to mobilize resources in different parts of the system they influence the firm’s performance significantly. This study was aimed at providing insights into the potential for resource mobilization and utilization, which is central for the market performance of companies (managers).

The results of this review is summarised below:

<table>
<thead>
<tr>
<th></th>
<th>Network</th>
<th>Alliances</th>
<th>Jointventures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Connection between 3 or more persons, companies or things</td>
<td>An exclusive partnership</td>
<td>A company owned by two or more independent companies</td>
</tr>
<tr>
<td><strong>Formalisation</strong></td>
<td>In principle None</td>
<td>Incomplete contracts, Dependent on relationship</td>
<td>Equity ownership</td>
</tr>
<tr>
<td><strong>Relation to knowledge</strong></td>
<td>Flows through ties. Knowledge is an effect</td>
<td>Alliances are formed in to order to learn from partner. Knowledge is located in partner</td>
<td>Are formed to capitalise on knowledge in parent firms and to generate knowledge</td>
</tr>
<tr>
<td><strong>Nature of theory</strong></td>
<td>A perspective</td>
<td>Normative theories based on empirical observation</td>
<td>It is not a theory, it is a legal form</td>
</tr>
<tr>
<td><strong>Boundaries</strong></td>
<td>Networks are open</td>
<td>Defined by partnering</td>
<td>Clear, legal</td>
</tr>
<tr>
<td>Purpose</td>
<td>firms</td>
<td>boundaries</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------</td>
<td>------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Each node or company have an individual purpose</td>
<td>Partnering firms have to some extent a common purpose</td>
<td>The JV has a purpose, strategies of parent firms might diverge.</td>
</tr>
</tbody>
</table>