**Paper for the ISMD 12th Conference**

**Revisiting Network Organization in Practice: Network Organization or Dual Organizations**

Yimei Hu and Olav Jull Sørensen

Centre for International Business, Aalborg University, Denmark

Sino-Danish Centre for Education and Research

yimei@business.aau.dk

Olav Jull Sørensen

Centre for International Business, Aalborg University, Denmark

Sino-Danish Centre for Education and Research

ojs@business.aau.dk

**Network Organization or Dual Organizations?**

*Abstract*

*The theory of constructing a network organization for TNC’s R&D has become a common sense. However, there are still queries about the network organization, such as a network organization is only a “bureaucracy-lite” organization. From a multiple-case study, we find that there are six forms of networks in a network organization, which are internal market, IT networks, informal and social networks, global R&D project networks, global R&D specialists’ network, and alliances with external partners. Though the case TNCs are network-based, hierarchies remain to be an important part of the organizational designs, which we refer to duality of organization. In terms of duality of organization, there are three emerging patterns of duality, i.e. market-led, value-led and directed network organization. More important, we find that an organization is not only dual but also ternary since there is a mixture of hierarchy, market and network principles.*

*Key Words*

*Global R&D, Network, Organization, Hierarchy, Duality*

**INTRODUCTION**

Since the 1980s, in order to utilize technological resources across national borders, transnational corporations (TNCs) have begun to internationalize there R&D activities through setting up overseas R&D units, cross-border strategic alliances, joint ventures, M&A, etc., and more and more R&D resources are moving to developing and transition economies (Boutellier et al. 2008; Cantwell and Piscitello 1999; OECD 2008). TNCs usually use the incremental approach to build R&D capabilities overseas. They start by establishing their own R&D activities as part of sales and production activities, focusing more on the D than the R, and the R&D-group at headquarters is in full control of the activities. There are several popular research topics on TNCs’ internationalization of R&D. First, there are different motivations for TNCs’ internationalization of R&D activities and location choices (Gassmann and von Zedtwitz 1998; OECD 2008). Second, many empirical studies have shown the positive relationship between internationalization of R&D and TNCs’ innovation performances (Hayashi 2004; Neito and Rodr[í](http://zh.wikipedia.org/wiki/%C3%8D)guez 2011; Zander 1999). Third, there are different global R&D strategies and strategic roles of global R&D units (Chiesa 1996; Kuemmerle 1997; Medcof 1997). The fourth topic, which is also the main topic of this paper, is the organization for TNCs’ globally distributed R&D units.

Because TNCs’ global R&D units are highly distributed in different contexts, tight control and traditional hierarchies are no longer suitable and will even harm the innovation performance (Boutellier et al., 2008; Child 2005; Miles and Snow, 1986). As a result, more and more conceptual and empirical researches have shown that there is a trend towards so-called “network organization”, especially when organizing global R&D. Typical functional or divisional organizations with hierarchies, and matrix organizations characterized by dual authorities are common in real world. However, it is not easy to find pure “network organizations” in a TNC’s organizational design since network organizations are always coexist with other organizational forms such as hierarchies and matrix. As a result, though the principles of network organization seem quite clear, TNCs may have duality in their organizational designs, i.e. using network organization to promote innovation and using hierarchies to control the process.

This paper is trying to make sense of the network organization in TNCs’ global R&D, and to discover the duality in network organizations. In order to achieve the above research purpose, this paper provides an exploratory multiple-case study on three Danish TNCs which all declare they either have a network organization for innovation or are moving towards a network organization. The three case companies all have overseas R&D units and activities.

This paper is organized as follows. After the introduction part, we will review the existing literatures and theories of network organization and dual organization. Then we will discuss the research design of this paper, followed by case analysis. After exploring the three cases, we will discuss our findings and make some theoretical propositions. At last, there will be a conclusion.

**NETWORK ORGANIZATION AND DUAL ORGANIZATION**

In this section, we will review theories and literatures of network organization and the phenomenon of dual organization. In the theory of international business, “network” is not only a form of organizing, but also a perspective guiding people’s thinking and action. From the macro level, the global business environment can be conceptualized as networks of relationships evolved from interactions between business actors rather than neoclassical market with independent suppliers, customers, competitors, etc., thus doing business is not only transactions, but also a process of building trust and commitment (Johanson and Vahlne 2009). Following the network perspective, when regarding a TNC consisting of globally distributed subsidiaries, it can be seen as an interorganizational network embedded in a networked business environment consisting of other external business actors (Ghoshal and Bartlett 1990; Ensign 1999). In terms of innovation, it is widely recognized that critical knowledge resources for innovation may be located outside a firm (Barney 1991; Grant 1996) or even overseas, and the locus of innovation is found in networks of learning rather than in individual firms (Powell et al. 1996).Thus, transnational corporations globalize their R&D activities by setting up R&D subsidiaries overseas and trying to find global partners to utilize cross border R&D resources (Cantwell and Piscitello 1999).

Under complex, rapidly changing, and turbulent environments, hierarchical structure is not suitable for innovation, especially global innovation (Gassmann and von Zedtwitz 1999). Moreover, because of its inflexibility, inefficiency and high management cost, the traditional hierarchical organization characterized by ladder of authority and responsibility, chain of command, and tight control will harm employee’s initiatives on innovation (Child 2005). More and more researches have shown a transition in organizational design from hierarchical bureaucracy to matrix design, and then to network organization (Jarillo 1988; Josserand 2004; Miles and Snow 1992). Downsizing, delayering, building teams, integrating functions are becoming common attempts to reduce aspects of hierarchy and to encourage bottom-up initiatives (Child 2005). Child and McGrath (2001) describe how traditional organization forms have changed in terms of three major organizational activities, i.e. setting goals, maintaining integrity, differentiating rights and duties, and the results reveal some “network” features, such as decentralization, flexibility, fuzzy boundaries, interdependence and innovation oriented.

In order to enhance TNC’s innovation performance, it is not enough to form networks with external partners, but to integrate internal units into a coordinated network. Generally speaking, there are three generic competitive strategies, i.e. prospectors, defenders and analyzers (Miles and Snow 1986; Snow et al. 2010). Prospectors are firms that continually develop new products, services, technologies and markets. They achieve success by moving first, either by own efforts on R&D or by building a market through their customer-relating capabilities. Defenders are firms focusing on stable product or service lines, thus standardization and efficiency are the main focuses. Analyzers have a “second-in” strategy, and they imitate and improve the products offered by competitors, i.e. have innovation on the periphery and also efficiency. Based on different strategies, there will be different organizational design. Defenders usually have functional organization, analyzers employ matrix structure, and prospectors usually have more flat and flexible organizations with autonomous work groups, i.e. network organization.

TNCs which act as prospectors that emphasizing innovation will tend to use network structures such as autonomous work-groups or product divisions, in which planning and control are highly decentralized in order to handle tasks and environments that demand flexibility and adaptability. A network organization can be defined as “clusters of firms or specialist units coordinated by market mechanisms instead of chains of commands” (Miles and Snow 1992). Through an internal market, there is a fluid division of labor and there are informally constituted, self-managing work units or teams (Hales 2002). Besides arms’ length transactions, the relationships between different units are also trustful and mutual. There are three types of network organizations, i.e. stable network, internal network and dynamic network (Miles and Snow 1992). A stable network organization requires a core firm to link a number of carefully selected upstream and downstream partners; an internal network organization replaces centrally determined decisions with genuine buying and selling relationships among a firm’s internal units, i.e. creates an internal market; a dynamic network organization is characterized by vertical disaggregation, brokering, market mechanisms, and full-disclosure information systems.

Within a network organization, there are three levels of networks. Firstly, employees’ social networks exist both within and out of firm’s boundary, and will influence the knowledge generation as well as innovation performance. Since a multinational corporation is consisted by a group of geographically dispersed and goal-disparate organizations, with which different units or subsidiaries interact, thus, the second level is a TNC’s intraorganizational (internal) network which is based on ownership. In terms of global R&D organization, Gassmann and von Zedtwitz (1999) classified five evolutionary types of R&D, which were ethnocentric centralized, geocentric centralized, polycentric decentralized, R&D hub, and integrated R&D network, and their empirical multiple case studies shows a general trend towards the integrated network model. A R&D network organization requires synergetic integration of dispersed R&D units (Gassmann and von Zedtwitz 1999). Similarly, Medcof (2004) proposes four types of structural cells for internationally dispersed technology, i.e. star, cluster, network and satellite. Among them, the network cell has strong communication links among both the central and periphery units. The third level is the networks with other firms or partners through equity strategic alliances, non-equity strategic alliances, outsourcing, or virtual organization.

Though different scholars have given their definitions on network organization and have proposed the era of network organization, it is hard to say whether a pure network organization exist since a firm may always need some hierarchies, layers, or formal reporting routines to keep stability and efficiency. That is why some scholars stress that the so-called network organization is neither a radical shift in organizational design nor a new phenomenon supported by empirical evidences. Firms continue to operate in organizations which are guided by the visible hand of hierarchies and rigid rules rather than invisible hand of a market-driven network (Hales 2002). Informal and formal hierarchies still exist in network organizations (Diefenbach and Sillince 2011), and network organization is merely “bureaucracy-lite” organization or post bureaucracy organization which attenuates hierarchies and rigid rules (Hales 2002). Similarly, Gassmann and von Zedtwitz (1998) propose that there are four levels of structure in TNCs’ R&D organizations, which are informal networks, project and process based networks, hierarchical and functional structures, and regional and legal structure. These four levels construct an “overlaying structure” of all corporate mechanisms and procedures.

As a result, despite organizations are becoming flatter, hierarchies are still persistent, and in many cases, there is a dual organization with both hierarchy and network organization (Fuglsang and Sundbo 2005; Sundbo, 1997). Each member of a firm has a clearly defined formal position, while at the same time there is a loosely coupled interactive network structure which ensures bottom-up initiatives. Employees’ behaviors are guided by top managers located at higher levels, and it is up to the managers to make the final decisions. Though employees are labeled with different titles from different business units, they may have different roles at a time or change there roles from time to time. If we add market mechanism inside a firm, it seems that an organization is not only dual, but also ternary.

Here we need to recall the discussions on hierarchy, market and network. One stream based on Williamson (1991) thinks that network lies in between of market and hierarchy, which can be viewed as an inter-penetrated form of market and hierarchical or functional organizations. Another stream regard network as a distinctive form of coordinating economic activity which is different from market and hierarchy (Powell 1990). In terms of a firm’s organizational design, it seems we have a third stream, a mixture of hierarchy, market and network. A hierarchy clarifies responsibility and authority will prevent a firm from being chaotic; a market mechanism based on arms-length transaction substitutes traditional bureaucratic commands; and a network based on mutuality and reciprocity encourages bottom-up innovation potentials and creates internal trusts between different business units.

**RESEARCH DESIGN**

The definitions of network organization have two focuses, one stream focus more on the internal market mechanisms, and the other focus on the cooperation and interaction mechanisms. Thus, there might be different ways to design a network organization for a TNC’s global R&D. Another interesting issue is that, though the theory of network organization has been proposed for several decades, we still see TNCs with an M-form or matrix organizational design. Interestingly, a firm’s internal network organization is usually promoted by its top managers, which means that we need formal hierarchies to initiate and operate the network organization. With the purpose of enriching the existing theory of network organization, this paper attempts to answer the following research questions.

* *How to design an internal network organization for TNCs’ R&D through different ways?*
* *How to understand the duality of TNCs’ network organizations?*

In order to make sense of different forms of network organizations and dual organizations, a multiple-case study on three Danish TNCs is adopted in this paper. The three Danish case companies are purposefully selected following the both the literal replication and theoretical replication strategies (Yin 2009). The three Danish case companies: firstly, winning leading positions in their respective fields through a prospector’s strategy; secondly, all declaring that they have quite networked organizations; thirdly, though the three case companies have a network organization, but their network organizations are achieved through different ways. Since the three case companies are from different industries with different forms of network organizational design, which will provide us with diversities in practice and possibilities on theory building.

Case 1 is a leading niche company develops, manufactures and supplies upholstery fabrics. Innovation and value-adding cooperation are key words of its business concept. Case 1 has decided to and been transitioning from a hierarchy to a network-alike organization since 2006. It regards the new organization as an innovative one which empowers and encourages every employee to “speak things into practice”.

Case 2 is a world leading developer, manufacturer and supplier of pumps and pump solutions. It has several global R&D subsidiaries and innovation has always been one of its core values. Recent years, Case 2 is trying to promote a global R&D network organization which integrates globally distributed R&D subsidiaries, talents, and resources.

Case 3 is a world leader in bioinnovation. It is an innovation-driven company which has more than 20% of the workforce works in R&D and devotes around 14% of revenue annually on R&D. Its ability to innovate, change, and adapt to the environment has put the company in a strong market position. In terms of R&D, the idea of innovation through networks and connections to partners are deep-rooted in the company’s key values. Its R&D competent subsidiaries are globally coordinated rather than separated or subordinate to one central unit.

Both primary data and secondary data will be used to support our analysis. Primary data are collected from interviews and discussions with R&D directors, R&D managers and experienced employees in both Danish headquarters and Chinese R&D subsidiary. The discussions are more open, while interviews are based on semi-structured questionnaires. An interview or discussion takes around 1.5 hour, some of which are up to 2 hours. Interviews are recorded and transcribed, and notes are taken during discussions. Reflections on interviews and discussions are taken down within 24 hours. Besides primary data, secondary data are collected mainly from case companies’ websites and annual reports. We mainly refer to the latest five years’ annual reports, and the reports add up to around 1200 pages in total. The analysis is based on triangulation of different sources of data. Firstly, within-case analysis is conducted. The interview transcripts, discussion notes, and secondary data of each case are coded through an iterative process, i.e. moving back and forth between theories, case data, and emerging theoretical patterns. We will discuss the empirical findings in the next section.

**FINDINGS**

*Different Networks within an Organization*

The three cases show different ways of achieving a network organizational design. The focus will be network organization for global R&D. Generally speaking, there are seven forms of network organizations, and each case company may adopt several forms. The six forms are: internal market, IT networks, informal and social networks, global R&D project networks, global R&D specialists’ network, and alliances with external partners.

The first form of network organization, which accords with Miles and Snow (1992)’s definition, has an internal market. Thus we call the first form as “*internal market*”. The most remarkable one is Case 1’s organizational design. Case 1 has different function-based business units inside, and each business unit consists of a team of specialists. There are market transactions between different units and employees, meaning if one unit or one employee needs support from another one, it should pay market price due to other’s efforts. Basically, there are two advantages of having an internal market: firstly, value creation and resource allocation can be tracked clearly; secondly, employees’ potentials are highly mobilized since everyone has to prove his/her ability on value creation. Moreover, based on the logic of market mechanism, one business unit is actually allowed to choose external partners or even competitors. However, in practice, each business unit tend to regard Case 1’s other units as the first choice since there is trust between different units. For Case 2 and Case3, budgets are still more centrally coordinated, and each R&D subsidiary needs to apply for the budget even though after that it has the right to decide how to allot the budget. However, since Case 2 and Case 3 have many global subsidiaries, there are also market transactions between different subsidiaries. For example, after manufacturing new products, Case 2 will sell the products to its sales company on an internal price. Also, regarding engineering and manufacturing new products, Case 2 may need some new mechanical tools to be designed, thus they have a department aiming at designing and producing tools for manufacturing purpose. This department is an exclusive supplier to Case 2’s R&D department, and it will charge the R&D department a fair price. Similarly, Case 3 has several global production companies, and these production companies are not subordinate to those R&D subsidiaries. Thus if one R&D subsidiary needs the production company to produce its newly developed product, there will be market transactions between them.

The second form is a full-disclosure information system that creates a virtual *IT network* for a TNC. An effective IT system is extremely important for a TNC with globally distributed subsidiaries or business units. An internal IT system provides global employees with an infrastructure and platform for knowledge sharing and communication. An internal IT system serves several functions. Firstly, by using the internal IT system, project members may be able to track the job processing and discuss problems related to the project. Secondly, the internal IT system serves as a knowledge pool, in which employees are able to find the knowledge they need. For example, Case 2 has its own “Wiki”, and Case 3 has developed its own search engine. Thirdly, the IT system can be also used for bottom-up idea generation. Case 1 has just developed such a tool, while Case 3 has a long tradition initiating new projects from selected ideas and proposals posted in its “Ideation Database”. Ideas and proposals will then be evaluated by a group of specialists, and some of which will then be developed into new project. In terms of IT, the three cases are at different development stages. Case 1 is at the primary stage; Case 2 has a matured IT system; Case 3 also has a well-developed IT system, but the problem is that it has too much information inside to find the right information since it is open to every employee.

Though the information technology is highly developed, nothing can substitute the effectiveness and efficiency of face-to-face communication. Thus, the third network is *informal and social networks*. It is very important to create a harmonious atmosphere among employees. Once people regard others as trustful and friends, they will be willing to cooperate. Socialization and team-building are common ways used to facilitate employees’ social networks. For example, though Case 3 has a very strong IT system inside to cope with internal knowledge management, it still prioritizes a high level of face to face interaction between global scientists and cross-cultural/geographical collaboration. Besides, when an employee encounters some problems at work, he/she may choose firstly to consult a friend with the specialty rather than a colleague. The informal and social networks may cross different departments, and expand the firm’s boundary. As a result, it is a network that connects different firms and industries.

The fourth network, which is the network related to product or process innovation directly, is the *global project network*. As a formally arranged network organization, global innovation project integrate global talents and knowledge. Case 1’s subsidiary in China has just changed from a sourcing unit to an independent development unit that can initiate global project. Case 2 and Case 3 have several R&D subsidiaries, and each subsidiary has its own expertise and business area. Since the innovation projects are getting more and more complicated nowadays, TNCs may need to utilize innovation resources from different subsidiaries in a global innovation project. In Case 3, the global innovation projects are usually very dynamic. When an R&D subsidiary initiates a new project, it has the autonomy to choose other subsidiaries to join when needed, and the project manager is responsible for the coordination of project members from different R&D subsidiaries. The coordination of a global innovation project requires an IT system as infrastructure. However, as mentioned before, communication through emails or video conference can never substitute face-to-face social networks. Moreover, though it is an era of globalization and networking, managers of Case 2 and Case 3 all stress that it is not easy, and even impossible to include more than three global R&D subsidiaries in one project. One R&D director expresses that “I don’t believe in so-called time-zone management.”

The fifth form is the *global R&D specialists’ network*. Case 2 is trying to stimulating and facilitating professional discussions and knowledge sharing between technical specialists, and providing the state-of-art knowledge, experiences, and tolls through out the whole organization- regardless of locations. Case 2 refer is as a “global technical competence network,” which is a “virtual forum for R&D staff executing a certain competence as part of their daily work-across locations, units, functions and departments.” It is also a virtual version of an R&D technical department without a fixed hierarchical chart. This global technical competence network of Case 2 is overlapping with the IT network, project network, and face-to-face social network. The specialists collaborate and communicate with each other either on a virtual IT system or on a formal face-to-face meeting. In Case 3, specialists’ network has another function, i.e. evaluating new ideas that are outside of current strategic focus but with radical innovation potential. The specialists’ network in Case 3 is a cross-functional group collaborating on idea qualification. This evaluation of knowledge is additional to core group specialists’ daily works. They are gatekeepers of new innovation projects though it is up to the top managers to make the final decision.

The sixth network organization, i.e. *alliances with external partners*, goes beyond a firm’s boundary and includes external partners. Case 1 works as an orchestrator in its innovation network with external customers and suppliers (Hu and Sørensen 2012). Its customers are world leading furniture or design companies, and Case 1 strives to grow with its customers. Besides, it outsourced some of its functions such as production to a set of qualified global suppliers. Unlike Case 1, Case 2 and Case 3 own manufacturing subsidiaries and sales companies, but in terms of R&D, they have strategic alliances and joint R&D with global customers, peer companies, and universities.

In Conclusion, the above six forms of networks are overlapping, and complementary to each other to make an innovative, dynamic, and efficient network organization for a TNC’s global R&D. Though these networks are mainly inside a firm, as mentioned before, the existence of social networks, R&D alliances with external partners connects a TNC with its other global companies and blurs its boundary.

*The Dual Organization*

The above findings show that a network organization for TNC’s global R&D consists of different forms of networks that are cross-functional, cross-geographical, cross-cultural and cross-firm boundary. Thus we can say that the three case companies have a quite networked organization inside. However, if we take a look at the organizational chart of the three case companies, we can see that Case 2 has a typical global matrix design, and Case 3 has a traditional functional design. Only Case 1 has designed an organization that is closest to Miles and Snow (1986, 1992)’s definition, but is still has top managers that are high up there out of any business units. Thus Case 1 remains some extent of hierarchies inside though the interactions between different business units are based on market mechanisms and internal trustful relationships (Hu and Sørensen 2012). As mentioned before, an organization is dual or even ternary. The three cases show three different dualities when designing there network organizations. In this section, we will discuss three patterns that emerged from our empirical findings, i.e. market-led network organization; value-led network organization; and directed network organization (See Table 1). Each pattern has its own features and potential problems.

*Insert Table 1 here.*

Case 1 is an example of a *market-led network organization*. In order to create value and optimize resource allocation, an internal market mechanism is developed to assist the strategy of being a prospector. In Case 1, the market transaction is not only based on each business unit’s efforts, but also individual employee’s working hours. If we imagine an extreme case on a market-led network, i.e. each employee should be able to generate business value and work as a self-employed entrepreneur inside a company, there will be intensive competitions inside a firm. Employees may snatch customers with each other, and a business unit may cooperate with competitors rather than colleagues. Though this may stimulate each employee’s potential, it is a waste of resources. In the long run, a firm may lose its cohesiveness inside and its network organization may turn into a chaos. According to Case 1’s experiences, in order to facilitating cooperation rather than competition, the top managers should be able to guide different business units to work on their specialized areas of the value chain. Besides, it is very important to have a strong corporate culture and common strategy that glues the business units together. Plus, cultivating internal trust and long-term beneficial relationships between different business units is a very important complementary mechanism to a market-led network organization.

Case 2 has is a mixture of matrix and network organizations. As a Danish TNC with long history, the operation of the company is based on the presumption that employees can fully understand corporate values and are able to be responsible and proactive. Thus, we call Case 2 as a *value-led network organization*. There are few rigid rules inside the company, and managers or directors are usually not giving many deadlines to employees. However, how to develop such an effective value system that can substitute traditional bureaucratic rules needs long-term cultivation. More important, since Case 2 is a TNC with globally distributed subsidiaries, and each subsidiary is located in different contexts, the corporate culture may be highly influenced by local cultures. As a result, such a value-led network organization can hardly get rid of rules and commands. Due to culture differences and different development stages of subsidiaries, it is hard to create synergetic effects and global cooperations with out formal hierarchical tools of management.

Case 3 is a directed network organization. It has a tradition to be networked, and it developed an internal measurement systems and rules to promote networking. Also, networking is an important part of the KPI. For example, it is a rule for each scientist to work in another R&D subsidiary overseas for at least two weeks a year. In doing so, Network activities, which should be voluntary, sometimes are trying to meet the rigid requirements. Thus, questions such as how to keep the vitality of a directed network organization, and shall it keep the existing rules remain ambiguous.

**THEORETICAL REFLECTIONS**

Many researchers regard network organization as the common choice for a firm that focus on innovation and for 21st century. They also indicates that there is a transition from traditional hierarchical organizations with many layers to a network organization coordinated by market mechanisms, interdependency, mutuality, reciprocity, and trustful long-term relationships (Hu & Sørensen 2011). However, when investigating the practice of TNCs, especially their organizational design for global R&D, we found that TNCs have never given up hierarchies. Though modern companies have tried to substitute hierarchies with market mechanisms or strong corporate values and cultures, we find those fantastic titles, such as CEO, director or manger, are still high up there holding strong authorities as well as more responsibilities.

In terms of internal market mechanisms aiming at tracking value creation, initiate arm’s length transactions, optimizing resource allocation inside a TNC, here we must note that the market mechanism for a network organization is different from the one in theory of economics. In economics, market transactions are one-off and a rational man has no memory about the past. In a network organization, the market mechanism twists with the accumulation of trustful relationships and successful experiences. Thus, a firm or an individual may establish social networks with business partners, and will tend to cooperate with the partner that gives them good impressions. In line with this, a common identity of a company can be kept from being harmed by a market mechanism inside. The internal business units know each other’s expertise and have faith on each other’s behaviors when cooperating, so they will regard internal partners as their first choice rather than turning to competitors or unfamiliar partners. Besides, it is very important to have a strong corporate culture and value system that can encourage global employees to work toward a common goal and avoid opportunistic behaviors.

In this multiple-case study, we find three forms of network organizations, i.e. market-led network organization, value-led network organization, and directed network organization. The three forms of network organization are shown in Table 2. Market-led network organization is actually a mixture of market and network; directed network organization is a mixture of hierarchical principles and network. The value-led network organization is using mainly the principles of networks (Powell 1990) as internal coordination mechanisms. Moreover, in a value-led network organization and a market-led network organization, we still see some hierarchies inside. Thus, at the end of this paper, we propose that: *Organizations, especially transnational corporations’ organizations, are moving towards a ternary organization*. A ternary organization uses network as a main design to facilitate flexibility and innovation while mixing market mechanism ensuring fair cooperation and hierarchies ensuring responsibilities and formality.

The balance of three forms, i.e. market, hierarchy and network, in a ternary organization depends on each TNC’s practical situation. It may related to several factors, such as top managers’ style of leadership, firm’s history, local context and culture, business focus, etc. However, based on existing theories and empirical findings, we can see that in TNC’s practice, there is a mixture of three presumptions. A hierarchical firm assumes that every employee likes to be regarded as more important in a group and wants to own more power than others, which is also the motivation of working hard. A firm led by market mechanism assumes that an only arm’s length transactions can optimize resource allocations. A firm led by strong values believes that every employee has the innovation potential, and only a flexible and dynamic organization can fully motivate bottom-up potentials. In all, pure network organization, hierarchy, market, matrix may only exist in theory.

**CONCLUSION**

This paper investigates network organization in practice, and designed a multiple-case study of three TNCs’ global R&D organization. This research is explorative in nature, and the main contributions are: 1. we find that there are sixth forms of networks exist in a TNC’s network organization; 2. the case companies show three patterns of dualities, i.e. market-led, value-led and directed network organizations; 3. Organizations are actually ternary in practice, and this finding requires a combination of different theories when explaining and conducting the organizational design for a TNC.

**REFERENCES**

Baker, Wayne E. (1993): “The Network Organization in Theory and Practice”. In Nohria, Nitin and Robert G. Eccles (eds.), *Networks and Organizations*, 397-429. Boston: Harvard Business School Press.

Boutellier, Roman, Oliver Gassmann and Maximilian von Zedtwitz (2008), *Managing Global Innovation: Uncovering the Secrets of Future Competitiveness* (3rd Ed.), Springer, Berlin Heidelberg.

Cantwell, John and Lucia Piscitello (1999): “The emergence of corporate international networks for the accumulation of dispersed technological competences”, *Management International Review*, 1, 123-147.

Capaldo, Antonio (2007): “Network structure and innovation: the leveraging of a dual network as a distinctive relational capability”, *Strategic Management Journal*, 28 (6), 585-608.

Child, John, David Faulkner and Stephen Tallman (2005): “Cooperative strategy: Managing alliances, networks, and joint ventures”, Oxford University Press, USA.

Ensign, Prescott C. (1999), “The multinational corporation as a coordinated network: organizing and managing differently,” *Thunderbird International Business Review*, 41(3), 291-322.

Gassmann, Oliver and Maximilian von Zedtwitz (1998): “Organization of industrial R&D on a global scale”, *R&D Management*, 5 (3), 11-16.

Neito, Marỉa J. and Alicia Rodr[í](http://zh.wikipedia.org/wiki/%C3%8D)guez (2011): “Looking abroad to improve innovation performance”, *Journal of International Business Studies*, 42, 345-361.

Ghoshal, Sumantra and Christopher A. Bartlett (1990): “The multinational corporation as an international network”, *The Academy of Management Review*, 15 (4), 603-625.

Hayashi, Takabumi (2004): “Globalization and networking of R&D activities by 19 electronics MNCs”, *Internationalization of Research and Development and the Emergence of Global R&D, Research in International Business,* 8, 85-111.

Hu, Yimei and Sørensen, Olav J. (2011): “In Search of a Network Organization for TNC’s Innovation”, Paper presented at *CICALICS Academy 2011*, Beijing, China.

Jarillo, J. C. (1988): “On strategic networks”, *Strategic Management Journal*, 9 (1), 31-41.

Johanson, J. & Vahlne, J.E. 2009, "The Uppsala internationalization process model revisited: From liability of foreignness to liability of Outsidership", *Journal of International Business Studies*, 40 (9), 1411-1431.

Josserand, [Emmanuel](http://www.google.dk/search?hl=da&tbo=p&tbm=bks&q=inauthor:%22Emmanuel+Josserand%22) (2004): *The Network Organization: The Experience of Leading French Multinationals*, Edward Elgar Publishing, Massachusetts, USA.

Medcof, John W. (2004): “Network centrality and power among internationally dispersed technology units”, *Internationalization of Research and Development and the Emergence of Global R&D, Research in International Business,* 8, 179-203.

Miles, Raymonde E. and Charles C. Snow (1986): “Organizations: New concepts for new forms”, *California Management Review*, XXVII (3) (Spring), 62-73.

Snow, Charles C., Øystein D. Fjeldstad , Christopher Lettl and Raymond E. Miles (2010), “Organizing continuous product development and commercialization: the collaborative community of firms model”, *Journal of Product Innovation* Management, 28 (1), 3-16.

Sundbo, Jon. (1997), “Management of innovation in services”, *The Service Industries Journal, 17 (2)*, 432-455.

Fuglsang, Lars and Jon Sundbo (2005), “The organizational innovation systems: three modes”, *Journal of Change Management*, 5 (3), 329-344.

Yin, Robert. (2009), *Case Study Research: Design and Methods (Fourth Edition)*, USA: Sage Publications.

Zander, Ivo (1999): “How do you mean ‘global’? An empirical investigation of innovation networks in the multinational corporation. ” *Research Policy*, 28 (2-3), 195-214.

**Table 1. Three Patterns of Network Organizations**

|  |  |  |
| --- | --- | --- |
|  | Features | Main problems |
| Market-led network organization  | Internal market mechanism instead of commands and directions | How to keep the same identity and unite different units.  |
| Value-led network organization | Strong corporate culture and core values as invisible hand guiding employee’s behaviors. | Culture differences, long-term cultivation. Floating and to loose. |
| Directed network organization | Make networking as a rule. Create a set of index or targets to measure the performance of networks. | Loose the autonomy and the ability of self-organizing. Forced to be networked? |

**Table 2. A Ternary Organization.**

Directed Network Organization

Market-led Network Organization

Value-led Network Organization