

Where Do Advantages Come From? An Integrated Concept of Resource-Based View and Network Perspective

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Abstract

This paper integrated the resource-based view and the network perspective to clarify different sources of advantages for a hospital and to answer where do the advantages come from. This research unpacked two different sources of resource advantages, hospital-source and network-source advantages. The author not only examined the effects of hospital-source advantage and network-source advantage on hospital performance but also explore whether the network members with centrality acquire more network-source advantages. The empirical results demonstrated that the hospital-source advantages and centrality independently affect performance but the network-source advantages do not affect performance. Moreover, centrality plays the supplementary explanation over the relationship between hospital-source advantages and performance and the relationship between network-source advantages and performance. In addition, hospital-source advantages facilitate hospitals to increase its centrality, suggesting that hospitals should occupy the central positions to benefit from the network and to increase the performance.

Keywords: Resource-based view; network perspective; hospital-source advantage; network-source advantage; centrality.

1. Background

The fundamental resources-based view (RBV) stated that valuable and rare organizational resources can be a source of competitive advantage (Barney, 1991). In Barney's article, he defined firm advantages as "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness" and as "firm attributes that may enable firms to conceive of and implement value-creating strategies" (Barney, 1991). The resource-based view emphasizes that firms are continuously heterogeneous in terms of their resource base, which then leads to economic rents. Thus, firms' specific advantages have positive effect on performance (Barney, 1991; Chi, 1994; Das and Teng, 2000; Dierickx and Cool, 1989; Peteraf, 1993; Wernerfelt, 1984; Wong, 2005; Zajac and Olsen, 1993).

Not only by cultivating from itself but also by obtaining from other partners within the network will a firm build up its resource bases. However, where do resource advantages come

from? They come from acquiring on its own or from the network relationship? Chang and Hong (2000) emphasized that: "We need to separate the performance generated by advantages owned by that business unit from the performance generated when that unit shares the advantages owned by other business units." Therefore, while seeking for interorganizational strategy, it is necessary for a firm to differentiate the benefits generated by advantages, cultivated by its own, or obtaining from its partners within a network.

In the Taiwanese healthcare sector, like in western world, hospitals are increasingly being engaged in various interorganizational strategies in response to the increasing turbulent environment (Baxter, Levin, Legaspi, Bailey, and Brown, 2002; McKay, 1998; Meidan, Peck, and Handscombe, 2000; Naimoli, 2009; Zuckerman, Kaluzny, and Ricketts, 1995) and prior success has reinforced patterns of strategies that probably will not be successful in the future (Gillies, Shortell, and Young, 1997). As the proliferation of healthcare networks, scholars have recognized network as a critical source of advantage from which a firm creates value and generates performance (Douglas and Ryman, 2003; Gill, 2004; Retchin, Clark, Downey, 2005; Stefl and Bontempo, 2008; Thielst, 2007). Whether a hospital possesses its advantages by in-house resources or by network resources? Hence, the idea of clarifying different sources of advantages may contribute to explain from which the hospital's benefits is generated.

Previous scholars distinguished advantages into firm-source and network-source advantages (Gomes-Casseres, 1994; Gulati, 1999). In this paper, the author proposed an integrated concept of resource-based view and network perspective and classified resource advantages as hospital-source and network-source advantages. Both of these advantages are firm-level advantages but the former means that the hospital's advantages are inherent from the hospital and reside within the hospital's boundary and are cultivated and accumulated on its own. The latter means that the hospital's advantages are acquired through exchange and sharing from the network and reside within the interorganizational ties that a hospital is embedded in.

Taking a closer look at the network-source advantages, is it true that each network member can benefit from the network-source advantages? Apparently not! Some hospitals participated in healthcare networks or systems but did not result in significant economies (Bazzoli, LoSasso, Arnould, and Shalowitz, 2002; Burns, Gimm, Nicholson, and Muller, 2005; Dranove, 1998; LeTourneau, 2004). Although the network-source advantages result from the entire network relationships, there are only some specific members in this network can acquire and benefit from those network-source advantages, which are not available to all members in the network.

According to the network perspective, network resources (Gulati, 1999) are not public goods (i.e. all of the network members can acquire) (Coleman, 1990) but private goods. The most important issue is: Who can acquire the network-source advantages? Roberts and O'Reilly (1979) indicated that the unit's position of a group will affect the resources it can observe. From the network perspective, occupying central position facilitates a firm to access information and other resources (Burt, 1992). The control benefits actors can generate by being advantageously positioned within a social network (Gulati, 1998). Centrality refers to the position or status of an individual actor in the network, denotes the extent to which the focal actor occupies a strategic position in the network by virtue of being involved in many significant ties (Wasserman and Faust, 1994; Gnyawali and Madhavan, 2001). Thus, although there are two sources of advantages (i.e. hospital-source and network-source), only the hospital who occupied the central position in network can acquire the network-source advantages. In summary, the author expected that the network perspective could be a supplementary explanation to the resources-based view while examining the sources of competitive advantages.

The remaining questions are: Does the structurally central position combined with different sources of advantages affect the hospital performance? Do hospitals really obtain so much valuable advantages that could yield to better performance from a network as they expected? These questions deserve more attention in the future research.

This paper aims at understanding not only where do advantages come from but also how the central position can contribute to gaining the network advantages. By integrating the resource-based view and the network perspective, the purposes of this research are: First,

drawing from the resource-based view, this research unpacks two different sources of advantages and clarifies the difference between hospital-source advantages and network-source advantages, to examine their effects on the hospital performance. Second, the author observed the supplementary explanation of network centrality when acquiring the network-source advantages.

To address the issue of different sources of advantages and the supplementary explanation of centrality, the author structure the study as follows. After reviewed relevant literature on resource-based view and network perspective above, the next section describes the research methodology, data, and case analyses method. The third section discusses the results and findings of case analyses. The author concluded with concluding remarks and proposed future research directions.

2. Methods

2.1 Research Setting

Health networks or systems play important role in healthcare industry. For example, according to Cleverley and Baserman's (2005) study, the ten large health systems account for more than 10% of the total revenue in the United States acute care hospital industry. Currently, like in US, hospitals in Taiwan are increasingly being engaged in various interorganizational networks. Since the "Taiwanese healthcare network plan" was launched by Taiwanese central government in 1985, there have been many formal and informal healthcare networks nation-wide. Following the directions of this plan, hospitals were mandated to cooperate in a vertical network led by a designated medical center. Healthcare networks are now proliferating than past. More and more hospital networks are formed voluntarily based on strategic considerations rather than on government mandatory.

Researchers in the healthcare sector start to pay more attention on the importance of qualitative case study (Israr and Islam, 2006; Pettersen and Nyland, 2006; Witter and Adjei, 2007). As Shortell (1999: 1084) claimed: "we should draw attention to the growing role played by qualitative methods in healthcare industry research...with the developments in the social and policy sciences at large, reflecting the need for a more in-depth understanding of naturalistic settings, the importance of understanding context, and the complexity of implementing social change."

Practically, In Taiwan, hospitals will participate in different networks. Most of the important network relationships are not enforced by government but built up by hospitals themselves. As a result, if data are collected via the government databases, the author could not deeply examine the most important strategic networks the hospitals involved. Moreover, the rapid pace of changes occurring within the healthcare sector makes it increasingly difficult to use existing data sets to address the issues at hand. Quantitative examination of these rapidly occurring changes offers a fruitful approach for shedding light on these emerging forces. By providing detailed explanations that survey methods miss, case studies offer the prospect of new insights into the connections among different constructs (Eisenhardt, 1989; Yin, 1984). To explore the theoretical relationship more deeply, this research conducted by case method of carrying out five in-depth case studies including one medical center, two regional hospitals, and two district hospitals to examine the research questions proposed via literature review.

2.2 Data Collection

The author employed multiple sources for data collection which include: in-depth interviews, observation, and company archives, with both qualitative and quantitative analysis (Eisenhardt, 1989). The main source was semi-structured individual interviews with individual respondents. In each case, the author asked respondents some open-ended questions that let them related their stories of how this networks works. The author asked probing questions to establish details (e.g. the role of a hospital plays in this network). The interview guide is composed of the following sections: The first part of the interview includes

backgrounds of the respondents and hospitals. The second part of the interview focused on advantage issues, and the third part concentrated on sources of advantages, centrality, and performance.

The unit of analyses in this research was the hospital, which participates in healthcare networks. The author interviewed with key representatives who determine hospital's network strategies or practitioners (president or vice-president of those hospitals). The interviews were conducted by following a pre-designed interview protocol. Each interview lasted an average of three hours and some informants were interviewed more than once. All of the interviews were tape-recorded and transcribed. To assure the accuracy of the interview data, the author mailed the tape-recorded to all of the interviewees and asked them to conducted double checks.

2.3 Case Analyses Method

In the case selection, the author followed the Yin's replication logic (both literal replication and theoretical replication) which is essential to multiple case analyses (Yin, 1984). The author also continued comparisons of data and theory, analysis beginning with data collection and emphasizes both the emergence of theoretical categories mainly from evidence and an incremental approach to case selection and data gathering (Glaser and Strauss, 1967). Instead of conducting propositions first, the author started with formulating two research problems (i.e. the difference between hospital-source advantages and network-source advantages; and supplementary explanation of centrality) and specified some potentially important variables from extant literature (Eisenhardt, 1989).

The qualitative design involves five in-depth case studies. According to three Taiwanese hospital accreditation levels, namely, medical center, regional hospitals, and district hospitals, the different levels will lead to the variety of hospital size and resources. To control the effect of hospital size, our samples included one medical center, two regional hospitals, and two district hospitals. The backgrounds of these five hospitals are described in Table 1.

Table 1: Hospital's background in case studies

Hospital	Hospital accreditation level	Founded since	Ownership	Bed size	Product line	No. of Employees
A	Medical center	1896	Non-profit	1434	26	3621
B	Regional hospital	1932	Private	321	23	1520
C	Regional hospital	1980	Private	648	21	1387
D	District hospital	1997	Private	307	17	351
E	District hospital	1978	Private	30	2	28

After constructing the case histories, the author conducted within-case analysis. After finding this unique pattern within each case, the author pushed to generalize patterns across cases (Eisenhardt, 1989). Cross-case analysis produced our main results.

3. Results

3.1 Hospital A

Hospital A is a medical center over 100 years old and has more than 1400 beds. In order to expand its market scope, Hospital A is connected with several small-scale hospitals and clinics, which are geographically close to Hospital A for the future market share in the central area of Taiwan. Those actors tied together as a radiate-shaped network. In this network, except for the connections with Hospital A, there exist no connected ties between any other two partners. The communication and relationships are like a wheel communication networks. Hospital A has been recognized as a high quality and highly-reputed hospital for a long time.

As a leader in the network, Hospital A contributed her advantages to the network and shared them with her partners. The vice president, who has been working in this hospital for 30 years, said: "Our hospital is a non-profit organization with a long history, good image and reputation, I would say all of the advantages have long-term been cultivated and accumulated by our own, we didn't get much from the network for now. On the contrary, we contribute and offer our advantages to the network and our partners, for example, sharing our managerial knowledge, providing our medical manpower, organizing co-procurement, those may enable our partners to lower their cost and increase their facilities turn-over rate. Our hospital is the contributor, and our partners are the beneficiaries." Apparently, Hospital A occupied the absolute central position. Source of advantages came from hospital-source rather than from network-source. Since Hospital A is the only medical center nearby, the vice president said: "I could say our performance in central Taiwan is outstanding, not only in performance such as occupancy-rate, number of inpatients, outpatients, and emergency visits, but also in many quality or financial performance indicators..... Although we are very satisfied with what we have done and what we are doing now, we are investing more efforts to our future commitments."

In this case, the hospital-source advantages increase the network centrality of the Hospital A and also boost this hospital's performance. However, the network-source advantages are not so obvious. This can be explained that, by the time the interview was taken, the network formation was in its initiative stage, the long-term benefit such as market share cannot be reached in the short time, therefore, Hospital A did not benefit from the network at early stage. For deeply explore the effect of the network-source advantages, this paper continue conduct a literal replication and select following two cases, in which the context are similar to this case.

3.2 Hospital B

Hospital B is a private-owned regional hospital with 321 beds. Although the hospital participated in several healthcare associations in Taiwan, the most important network for Hospital B is the one that formulated by her own and connected by equity-ties with one regional hospital, six district hospitals and one clinic. Most of the advantages were accumulated by the hospital except for some advantages required from the network, such as knowledge of new markets, opportunities, potential partners, and competitors. In general, source of advantages came from hospital-source rather than from network-source. Meanwhile, as the network founder, Hospital B regarded itself as the central position in network. The vice president of Hospital B said: "Our hospital plays a very important role in this network, being representative of the network to announce information, control the benefits, make decisions, and resolve conflicts, we are more powerful than others the governing center of the entire network, which is responsible for planning and controlling network-related activities, is set in our hospital." The performance was also evaluated as "good". As said by the vice president: "Comparing with other private-owned hospitals, our performance particularly in finance is pretty good."

Same as in the case of Hospital A, the case in Hospital B also showed that the more the hospital-source advantages the more centrality the hospital occupied. The hospital-source advantages also increase hospital performance. The results of these two cases demonstrated that providing hospital-source advantages to the network enables hospital to locate in the central position. However, hospital occupied central position in the network may not guarantee to acquire network-source advantages.

3.3 Hospital C

Hospital C is also a private-owned regional hospital with 648 beds. The major network for this hospital is composed of other five hospitals that are geographically dispersed into north,

south, and middle Taiwan. Of these five hospitals, two are connected with Hospital C by equity-ties, and three are government-owned hospitals operated by “management contract.” In this case, the major source of advantages is not from network-source but from hospital-source. Like Hospital A, Hospital C contributed its advantages to the network and share to its partners because it has long-term been cultivated and accumulated the advantages by her own. According to the vice president: “... the advantages benefited from our network partners were very limited.” As regarding to the centrality issue, Hospital C considered itself neither in a central nor in a non-central position. The vice president said: “Despite we control some information that other partner hospitals do not all the hospitals in this network share the same power on decision-making. Information exchange and tasks or benefits allocation were reached by multiple negotiations. In this network, we even take turns in representing the network to announce information.” On the performance aspect, Hospital C was satisfied with the performance on customer and employee satisfactions, medical service quality, turnover rates, but was unsatisfied with other performances on profit and the cost controls. Overall, Hospital C evaluated its performance between moderate and high.

Hospital C contributed more advantages to the network than benefited from the network (i.e. network-source advantages). Although Hospital C is the initiator of this network, decentralization of the network governance relatively lowered the centrality of Hospital C to the medium level. The result of hospital C is different from that of hospitals A and B who possessed higher centrality, implying that centrality might be also influenced by the network governance structure.

3.4 Hospital D

As a six-year-old hospital, Hospital D is a private-owned district with 307 beds. The major network of Hospital D is led by a parent hospital, who possessed not only majority ownership of Hospital D but also some ownership of other network hospitals. Therefore, Hospital D is connected with other network partners through its parent hospital. The most important hospital-source advantages that Hospital D provided for the network is “location.” While in its infant stage, Hospital D was feed with most of the resources by the parent hospital. Till now, resource coming from the network is still the major source of advantages. The president said: “Keeping the membership of this network is very important for us. We acquired so many resources from this network. For example, the assistance of constructing the information system enables us to operate well since the opening of the hospital.” In general, Hospital D considered itself a non-central role in the network. The advantages come from the network-source but not the hospital-source. The president said: “Relatively, we barely have power to control the information pertaining to the other network partners. Neither, we can hardly influence other partner hospitals in this network.” On the performance issue, except for the, Hospital D considered satisfactory performance only on customer and employee satisfaction, but unsatisfied performance on the number of inpatients, outpatients, and operation patients; and even “very unsatisfactory” performance on occupancy rate and the number of emergency patients. The other financial performance such as profits, revenue, and cost-control were regarded as fair.

In this case, in spite of locating in the peripheral position, Hospital D still benefit a lot from network-source advantages. This reflects our previous conclusions on cases A, B, and C that centrality does not guarantee to gain the network-source advantages. Hospitals with higher centrality will contribute their hospital-source advantages to the network whereas hospitals with lower centrality will gain more network-source advantages from the network.

3.5 Hospital E

Comparing to the above-mentioned hospitals, Hospital E is the least small-scale hospital with only 30 beds. Instead of formulating the network of its own, Hospital E is a member of the

Chinese District Hospital Association (CDHA), which incorporates around 160 district-hospital members. Hospital E is one of the most dedicated members in CDHA, for example, the president of Hospital E serves as a board member of CDHA. The president said: “Although we have simultaneously participated in many hospital associations in Taiwan, CDHA is the most important network to us. We did play the dominating role and holds the power of planning, coordinating, organizing, and controlling most of the association-related activities. Particularly, under the current healthcare policy and National Health Insurance Program, in order to protect the benefits of all the district hospitals, my hospital is willing and is able to represent the entire network to lobby, meanwhile, my hospital is frequently representative of the association to announce information” “..... Comparing to equity-ties or contract-ties, the membership-linkages are loose in CDHA, each member hospital operated independently, but sometimes, around one third of CDHA members seek for our assistance.” Overall, Hospital E occupied central position in CDHA. In this case, although most of the advantages were cultivated and accumulated by its own, Hospital E also acquired some advantages from CDHA. The president pointed out: “because of the loose linkage in CDHA, we can not expect so many advantages coming from association. But as a small-scale hospital, we did share the benefits from association, for example, bonding the interpersonal and inter-organizational ties as a whole enables us to lobby collectively rather than individually.” As for performance, the president said: “I can only say that the overall performance is fair. We did pretty well, but there is a lot to be improved such as efforts on the number of inpatients, emergency, or operations, occupancy rate, bed turnover rate, facility utilization rate, the rate of deduction of outpatient expenditures of the National Health Insurance.”

From the result of Hospital E the author found out that not only the large-scale hospitals can occupy the central position, so do the small-scale hospitals occupy the central position and therefore acquiring network-source advantages, as long as they controlled some key hospital-source advantages, such as interpersonal connections, inter-hospital relationships, and other external relationships with governments or associations.

4. Discussions

Table 2 summarized the results of these five cases, in which the author found some evidence to explain the associations among hospital-source advantages, network-source advantages, centrality, and performance.

As can be seen, Hospitals A and B showed that the source of advantages comes more from the hospital-source than from network-source, high centrality results in high performance. Moreover, the source of advantage of Hospital C comes more from hospital-source but less from network-source, yet the sub-central position leads to a moderate-high performance. On the contrary, Hospital D demonstrated that the source of advantages comes less from hospital-source and centrality but more from network-source, the resulting performance is low. The last case, Hospital E presented relatively moderate hospital-source advantages, moderate network-source advantages, and high centrality, resulting in moderate performance.

Table 2: Results of the case analysis

Hospital	Hospital-source advantages	Network-source advantages	Centrality	Performance
A	high	low	high	high
B	high	low	high	high
C	high	low	moderate	moderate-high
D	low	high	low	low
E	moderate	moderate	high	moderate

4.1 Hospital-Source Advantages, Centrality, and Performance

The results from Hospitals A, B, and D indicate that the more the hospital-source advantages and the higher the centrality, the better the hospital performance. This result is consistent with theoretical perspective. In addition, the results also imply that centrality might interact with hospital-source advantages to affect performance. By comparing case C with cases A and B, the author found that A, B and C shared the same characteristics of high hospital-source but low network-source advantages, however, hospitals A and B occupied the central positions and generated high performance, but hospital C occupied the sub-central position and generated moderate performance, demonstrating that even though these three hospitals reveal high extent to which advantages come from hospital-source, yet, centrality might interact with hospital-source advantages to affect performance. This conclusion could be also supported by comparing case E with cases A and B, from which the author observed that despite they all occupied high centrality, hospitals A and B with high hospital-source advantages showed high performance but hospital E with moderate hospital-source advantages showed moderate performance, demonstrating that even though these three hospitals occupy high central positions, centrality might interact with hospital-source advantages to affect performance.

Our findings are consistent with prior research that hospitals with high centrality rather than with peripheral position are much more able to take the advantage of hospital-source advantages to enhance performance (Eiriz, Barbosa, and Figueiredo, 2010; Gulati, 1999; Gnyawali and Madhavan, 2001; McEvily and Zaheer, 1999; Rogers, 1995; Su, Lai, and Huang, 2009; Valente, 1995; Wasserman and Faust, 1994). Thus, this study provides the evidence supporting that hospital-source advantages and centrality interactively affect performance.

4.2 Network-Source Advantages, Centrality and Performance

Regarding the issue of how network-source advantage and centrality affect performance, the author found a negative relationship between network-source advantages and centrality and particularly, a negative relationship between network-source advantages and performance. This is supported by the evidence from cases A, B, and D, revealing that despite hospitals A and B occupied high central positions but gained low extent of network-source advantages, they generated high performance; On the contrary, hospital D showed low centrality but high network-source advantages, yet, it perceived low performance.

Practically, the development of Taiwanese healthcare strategic network is still in its early stage, most of the hospitals still wait and see. This might be the reason leading to the hospitals which are not willing to dedicate many advantages to networks. Adversely, this may cause hospitals acquiring little advantages from networks. Furthermore, the more advantages that a hospital acquires from the network, the more extent to which the hospital depends on network. This might cause that the hospital is less interested in cultivating its own advantages. This may further weaken the capabilities to yield better performance. This is particularly true for those hospitals locate in the non-central positions, since the more dependent on others, the more difficult to occupy the central position in network.

More specifically, networks of Hospitals A, B, and C were formulated and led by the large-scale hospitals which owned high hospital-source advantages and shared with other partners. On the contrary, those large-scale hospitals consistently indicated that they did not get a lot of advantages from networks even though they were in the central role. In short, qualitative data demonstrated the surprising negative relation between network-source advantages and centrality as well as the negative relation between network-source advantages and performance, the opposite relationship is contradictory to theoretical expectations.

The above-mentioned discrepancy between theoretical induction and case phenomena can be further explained by looking into what is the content of network-source advantages. First, although the hospitals with higher centrality claimed that they did not benefit from networks, in terms of market coverage or market share, however, they did gain some network-source

advantages that they did not recognize as benefits, also see the future market share, and patient referral from other partners. These advantages are also the motivation for those hospitals forming or participating in networks. However, to gain advantages from networks costs more efforts. The resource-based view focuses on the benefit side (the value of the advantages, such as the patient referral or the increase of the market share) but the practitioners consider the not only benefits but also and costs (e.g., coordination costs, relationship building costs, or personal interaction costs). If the author compare the cost and benefit simultaneously, the benefits from occupying central position may outweigh the costs. This could be the reason why those hospitals with higher centrality perceived lower network-source advantages. Second, some of the network-source advantages are the long-term benefits, which are not easy to be acquired and even to be perceived in a short time. In this study, the author found that the central hospitals look for more long-term rather than short-term advantages, such as future market share. On the contrary, the non-central hospitals need more short-term resources rather than long-term advantages, such as medical techniques, equipments, information technology, or human resources transferring from network partners. This might explain why central hospitals perceived gaining less network-source advantages but non-central hospitals perceived gaining more advantages from the network.

5. Conclusions

Healthcare practices called for the importance of the research about health networks or alliances (Stefl and Bontempo, 2008; Cleverley and Baserman, 2005). Astely and Zajac (1990) suggested that future research should use the centrality concept on interorganizational relationships. Sparrowe, Liden, Wayne, and Kraimer (2001) also recognized the importance of how centrality predicts performance at the firm level. Thus, this study focused on organizational level rather than individual level. Drawing from resource-based view and network perspective, the author answered the question: where do advantages come from? Whether they come from hospital-source, network-source, or centrality? and how do these sources of advantages affect performance?

The major finding of this study is consistent with the resource-based view and the structural position in a network, concluding that (1) hospital-source advantages positively affect performance; (2) centrality has positive effect on performance; (3) hospital-source advantages may interact with centrality to affect performance; but (4) network-source advantages do not contribute to performance, nor does it interact with centrality to predict performance.

Several inevitable limitations exist and should be noticed. First, this research focuses on a relatively small health market. Caution must be exercised in generalizing to other industries or market in other countries. Different healthcare policies and systems might lead to various behaviors for a hospital coping with its environmental uncertainties and enacting different strategies in participating healthcare network. Therefore, future research may further examine the conceptual associations between network-source advantages, centrality, and performance by other samples in different countries or industries. Second, the main concern of the resource-based view is the benefit side rather than the cost side, and takes costs as constant variables. Participated in the healthcare alignments should consider the benefit and costs at the same time (McKay and Duffield, 1998). Burt (1997) and Lin (1999) stated that the social capital also involved in cost issue. The establishment of the personal social capital will also induce many costs (Kostova and Roth, 2003). Although the costs may be covered when the profit grows up, future research could take the cost side into account.

For future research, the question remains, how do those constructs change and evolve over time? If the author looked at the formulation and evolution process of a network, some may argue that while in the initial stage, the hospital with more hospital-source advantages or higher performance may soon become the leader and occupies the central position. As time goes by, the central position might enable the hospital to acquire more network-source advantages that may in turn strengthen the hospital-source advantages and improve the hospital's performance. However, this dynamic changing process is caused by the multiple

stages of the network (Zajac and Olsen, 1993; Zajac, D'Aunno, and Burns, 2000). The relationship among hospital-source advantages, network-source advantages, centrality, and performance should be further examined by longitudinal design.

Although hospitals in Taiwan offer high-quality medical services similar to that of in western countries. Healthcare service providers in Taiwan are now facing different environmental circumstances. How does western managerial knowledge, such as strategic networks, apply to Taiwanese healthcare industry? What are the differences and what should the author modify between the western setting and Taiwanese setting? As the proliferation of strategic networks in Taiwan (e.g. Chen and Ku, 2002), no matter whether in healthcare industry or not, paying more attention on Taiwanese phenomena would be absolutely necessary and valuable for observing the practices in strategic networks. This would contribute to strategic and management theories.

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