Changing Structures of SME Networks: Lessons from the Publishing Industry in Taiwan

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This study uses the publishing industry to illustrate how Taiwan's small-and-medium enterprises (SMEs) modified their network structures to meet the requirements of the changing environment in the past 20 years. Based on interviews with 21 high-level managers in the top publishers and three network experts, six patterns of network structures were observed and the nature of network structural change was uncovered. By moving from 'Centre-Satellite Structure' to 'Co-opetition Structure' and then to 'Spider-Web Structure', the networks became more strategic, aggressive and flexible. The study suggests that for SMEs in a fiercely competitive industry the best way to survive is to form a network at the strategic level, while keeping relative independence at the operational level. This study also suggests that scholars and practitioners need to understand networking behaviours from multiple perspectives of economic, social, cultural and industrial factors.

In 1996, three small publishers in Taiwan were on the brink of bankruptcy. To find a way out, they turned to their common friend, Mr. Chan, who wove his own aspiration of becoming the biggest Chinese language publisher into the blueprint that he proposed to the three publishers. One publisher, which was in comparatively better shape than the other two, did not see any future in that proposal and dropped out. The remaining two took the risk. In the next four years they formed a 10-member network with Mr. Chan. Through further networking they became stronger and by 2004 the network had increased to five groups with about 100 companies and had gained international recognition as possibly the biggest Chinese language publishing entity.

Introduction

In an era characterised by speed, flexibility and innovation, organisational networking plays a vital role. Organisations that seek to reduce costs, respond speedily to market demands and build competitive advantages around their core competencies cannot execute strategies without drawing on the skills and resources of other organisations or individuals.[1] We can learn a lot by studying the networking of the small and medium enterprises (SMEs). Taiwan is renowned for the outstanding performance of its SMEs; about 98 per cent of the enterprises in Taiwan are small or medium in size. They have nurtured the country's economic growth and have played a vital role in integrating its economy into the global one.

Evolutionary economists assert that to survive, companies must develop some features to meet the new requirements of the changed environment.[2] Organisational studies have also showed that the degree of fit between the business environment and organisational design affects a company's performance.[3] Although studies have recognised network dynamic change as an important topic, the literature is still very thin. Our study of the change of network structures provides insights into how the new competitive environment requires flexibility, speed and innovation from SMEs and how these organisations have adopted new network strategies in response.

From field data collected on Taiwan's publishing industry, we will describe the form and content of network structures, why the relationships were generated, what was exchanged and how the relationships influenced economic performance. From this we will explain how SMEs in Taiwan's publishing industry leverage their specific core competencies to gain competitive advantages through network resources. More critically, we will explain how these actions provide a model for researchers and business people to improve their networking.

There are several rationales for believing that we can learn from Taiwan's publishing industry. First, publishing is a knowledge-generating industry, which is particularly critical in today's knowledge-based economy. Second, we are likely to observe active networking in this industry. Publishing companies are known for their short product lifecycle, knowledge-intensiveness and high demands to exchange knowledge in quick response to changing market conditions and technological development. Hence they are more active in networking.

This study suggests that a successful network must fit the dynamic requirements of the economic, social, cultural and industrial conditions

The paper proceeds as follows. In the literature review section we introduce key studies on network structure and its change and present a framework of analysis for mapping network structures. Then we briefly introduce the background of Taiwan's publishing industry before presenting research methodology. In the research finding and discussion section, we first portray six patterns of network structures observed in the publishing industry; then we articulate a generic three-stage-model of network structural change in Taiwan SMEs. Finally we discuss the network structural changes in Taiwan's publishing industry by linking the specific network patterns in the industry with the generic three-stage model. We end with implications and a brief conclusion. This study suggests that a successful network must fit the dynamic requirements of the economic, social, cultural and industrial conditions. To survive the fierce competition, SMEs need to adjust their networking activities with more strategic, aggressive and flexible considerations.

Literature on network structure and its change

In the broadest term, we define a network as a set of actors together with a set of linkages between the actors[4]. The actor may be an organisation, a subsidiary unit of a holding company or an individual as an independent economic entity. The linkage embraces a diversity of collaborative forms. The activities involve contractual agreements (eg supplier-buyer partnerships, outsourcing agreements) and ownership links (eg cross-equity holdings, joint ventures and partial ownership between a holding company and its subsidiaries)[5] These relationships have been referred to as 'partnerships', 'networks', or 'strategic alliances', but they all describe how the role of a tightly integrated hierarchy is supplanted by 'loosely coupled' networks of organisational actors[6] In this study, we use the term 'network' to encompass various forms of collaboration and emphasise the action of connecting.

The network structure is used to analyse the way that the actor, e.g. focal company in this study, is situated in the structure of its contacts[7] Network structure analysis includes two levels: global and egocentric. The former requires complete network data, eg, tapping the relationships of all companies in a region or an industry, whereas the latter only enumerates the local linkages surrounding focal companies[8] We take the egocentric approach in this study. Organisational studies have viewed network structures as a strategic 'lever'[9] Different structural properties may lead to different types of benefits to focal companies and eventually affect their competitive behaviour and performance. Managers, therefore, are able to restructure company networks to their advantage if they can analyse

the overall network structure and their position in it. For instance, dense networks with many connections linking to a focal company's contacts are found to help transfer tacit and fine-grained information and thus improve innovation output. An open structure may create brokerage opportunities to focal companies, in that it can use the multiple disconnected clusters to obtain information and control advantages over others.[10]

Although there has been an enormous upsurge of interest in network structure analysis in the past two decades, most literature has focused on economic influences of one dimension of network structure, either closed/open structure, or network density or centrality.[11] We still lack the knowledge of patterns of network structure, and subsequently lack the understanding of forces shaping them.

As far as we know, only Miles and Snow's and Liu and Brookfield's work have mapped the network structural patterns.[12] Miles and Snow proposed three types of general network structure: stable, internal and dynamic.

1. A 'stable' network structure features a core company surrounded by a limited number of carefully selected partners which perform different functions along the value chain. Upstream stable networks linking suppliers to a core company are common in the car industry. Downstream networks often link computer hardware manufacturers and value-added retailers.

2. An 'internal' network system develops in the disaggregation process of large multinational matrix organisations, which are made up of various design, manufacturing and distribution units. Replacing centrally-determined transfer prices, units keep genuine buying and selling relationship outside of the matrix system as well as within.

3. A 'dynamic' system is composed of members along the value chain, which are coupled contractually for perhaps a single project or product and then decouple to be part of a new value chain for the next business venture.

The three-pattern model provides a clear picture of network structural variation. However, Miles and Snow's model is static, so we do not know if the different patterns emerge and develop simultaneously and, if not, the order of their emergence.

Liu and Brookfield uncovered three types of supplier network structural patterns in Taiwan's machine tool industry: dispersed, concentrated and multi-centred. Dispersed and concentrated networks represent different configurations of lead-company supplier networks. Dispersed networks can take a star-like or ring-like structure. In a star structure, the orders for parts are organised by the lead company and parts routinely flow back to the lead company before additional processing; while in ring structure, parts flow directly from one subcontractor to the next. Concentrated networks involve a smaller number of larger companies, each of which tends to undertake a more extensive set of task. It results in a tiered shape. Multi-centred networks are collections of small companies without a stable lead company. For a given part and order, a particular company will co-ordinate production, and the lead company will change for different products. Using three companies in Taiwan's machine tool industry as examples, Liu and Brookfield analysed the evolutionary process of their network structures and identified key factors that led to the changes. However, since this study is at the company level, it did not tell us the change of the whole industry. Moreover, this study's findings need modification when applied to knowledge industries. For example, the main finding that economies of scale are fundamental to network structural change seems unlikely to be true in the publishing industry.

The main difference between the structural patterns reported by the above two studies is *general* network structures of large multinational organisations (Miles and Snows) vs. *supplier* network structures of small and medium-sized companies (Liu and Brookfield). The former covers a whole spectrum of the value chain, whereas the latter depicts relationships mainly in a manufacturing context.

With a clear relationship of 'lead company-supplier', the 'dispersed' and 'concentrated' structures can be categorised as a 'stable' network in Miles and Snow's typology. The 'multicentred' structure is akin to a 'dynamic' structure; yet, the 'multi-centred' structure is limited to the production arena; whereas the 'dynamic' structure covers relationships in a much broader scope with a large variation in company size.

Before exploring the change of the structures, we need a framework to delineate the features of network structures of SMEs in Taiwan's publishing industry. In this study, we concentrate on three issues: motives of partnering, contents of exchange and types of partners.

Combining transaction-cost, strategic interdependence and resource-based views, we investigate the motives for network formation from three perspectives:

(1) efficiency (to reduce or share risk, reduce production cost, increase flexibility, speed up organisational learning);
(2) competition (to avoid direct competition, affect the structure of competition, sustain competitive advantages); and
(3) resources (to expand existing resources, obtain external resources).[13]

The *content of exchange* explains what is traded or what binds the partners together. According to the literature, we identify six types of exchange contents: technology, time, knowledge, social, economic and legal.[14]

The *type of partner* of a focal company can be another publishing company, a division or an individual. The variety of types indicates the increasing flexibility of company networking behaviour.

Background of the publishing industry in Taiwan

Publishing in Chinese has a huge market. Statistics for 1999 indicated that Mandarin-speaking people represented the largest language group in the world, 874m, followed by Hindi with 366m.[15] The publishing industry in Taiwan is hyper-competitive and huge. The statistics exhibited in Appendix 1 reveal its basic characteristics. First, yearly output and market value show the scale of the industry. Second, there are a large number of companies and the majorities are SMEs. Third, the industry has a low entry barrier (just $10,000 is sufficient to publish a book in Taiwan), and competition is high. Networking strategies have been constantly adapted and modified in this industry to obtain competitive advantage.

Networking strategies have been constantly adapted and modified in this industry to obtain competitive advantage

Figure 1 depicts the publishing process. It includes four phases: publishing plan (Phase 1), procurement (Phase 2), editing and production (Phase 3), and marketing and promotion (Phase 4).

Methods

After an industrial background review, we performed the study in five phases. First, the framework of analysis was formed from a review of the literature. Second, pilot interviews enabled us to generate questions in the formal interviews. Third, in 2000 21 in-depth interviews with high-ranking managers in the publishing industry were conducted. Meanwhile, triangular information company brochures, industry reports and interviewees' comments on associated companies' network activities e was

collected. Fourth, three network experts were interviewed to explore the general trend of network structural change in Taiwanese SMEs. Finally, in 2004 follow-up interviews with two senior managers were employed to confirm our findings and link them to the general network structural change and that of the publishing industry unveiled in this research. For more details, see Appendix 2.
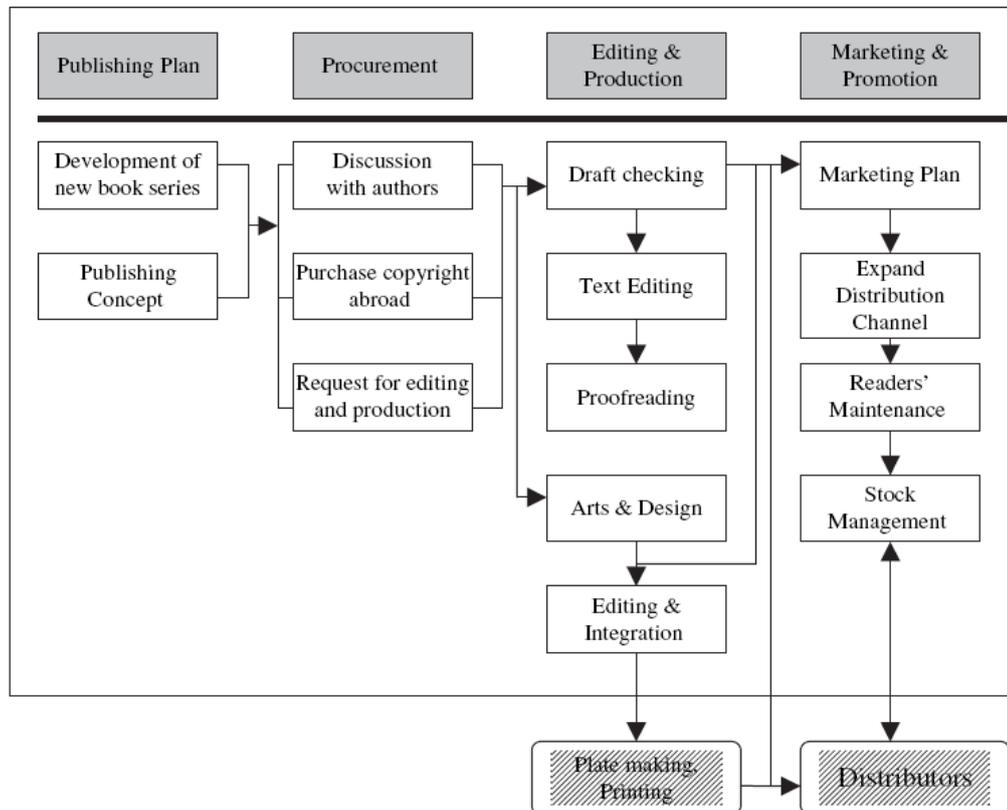
Figure 1. Publishing Process Flow Chart

Patterns of network structure

The profiles of the companies studied are shown in Table 1. Company A is a conglomerate, consisting of company B through J. The others are independent companies, playing the lead company role in their networks. Most companies were founded in 1980s and 1990s, and experienced restructuring in 1998 or 1999. There was a major change of the business environment in the late 1990s, which led to an industry-wide organisational structure adjustment.

Six patterns of network structure

From the 21 interviews, we discerned six network structure patterns in the publishing industry in Taiwan, as shown in Figure 2. The ovals represent focal companies; the squares inside the oval are the functions performed by the focal companies, and the circles are the functions performed by their partners. The partner can be an individual (small circle), a division (medium circle), or a company (large circle).

Patterns 1, 4 and 5 are similar in a sense that these companies are full-fledged publishers with

capabilities of handling the functions along the four stages of the value chain. Keeping core competencies internally, they network in some functions to achieve better efficiency, competition or resource targets.

Table 1. Profiles of the Companies under Observation

Company	Year of establishing	Year of restructuring	Capital in million US$	Publishing Focus	Phases with alliance	Network pattern
L	1981	1999	1.56	All kinds of books and magazines	Editing & production	#1
M	1985	1999	7.76	All kinds of books and magazines		
N	1988	-	0.03	All kinds of books and magazines		
Q	1997	-	0.16	Business	Editing & production; marketing	#2
S	1997	1999	0.03	Literature, Recreation, Business		
T	1994	-	0.15	Business		
P	1978	1998	7.81	Business	All 4 phases	#3
U	1997	1998	0.19	Recreation		
X	1988	1998	0.19	Year book of its own company		
K	1996	1999	0.52	All kinds of books and magazines	Plan; procuring	#4
V	1998	1999	3.12	Business trends		
O	1993	-	0.16	Business	Procuring	#5
R	1963	1998	0.16	Literature, Recreation		
W	1990	1999	0.31	Business, Management		
A*	1996	-	6.25	Sum of B — J	All 4 phases	#6
B	1987	1999	2.25	Management & Finance, Biography		
C	1992	1999	0.71	Literature, Military, History		
D	1998	-	0.31	Reasoning novels, Sports, Business Administration		
E	1991	1997	0.94	Year book, Encyclopedia		
F	1998	-	0.03	Magazine, Tool books, Popular Literature		
G	1997	-	n/a	High-pricing travel literature		
H	1998	-	0.31	Living, Women, Popular Literature		
I	1998	-	n/a	Chinese Literature		
J	1998	-	0.31	Business and Financial Management Tool books		

Remark: The definition of SME in Taiwan is a company with the capital of less than US$2.5m (exchange rate NT$32 = US$1) or employee numbers under 200 (May 3, 2000, Ministry of Economic Affairs, Taiwan). Companies M, P and V have gone through restructuring. After the restructuring, the increased capitals were supported by a big newspaper company, a bank and a high-tech company respectively.

*A is a conglomerate, consisting of companies B through J.
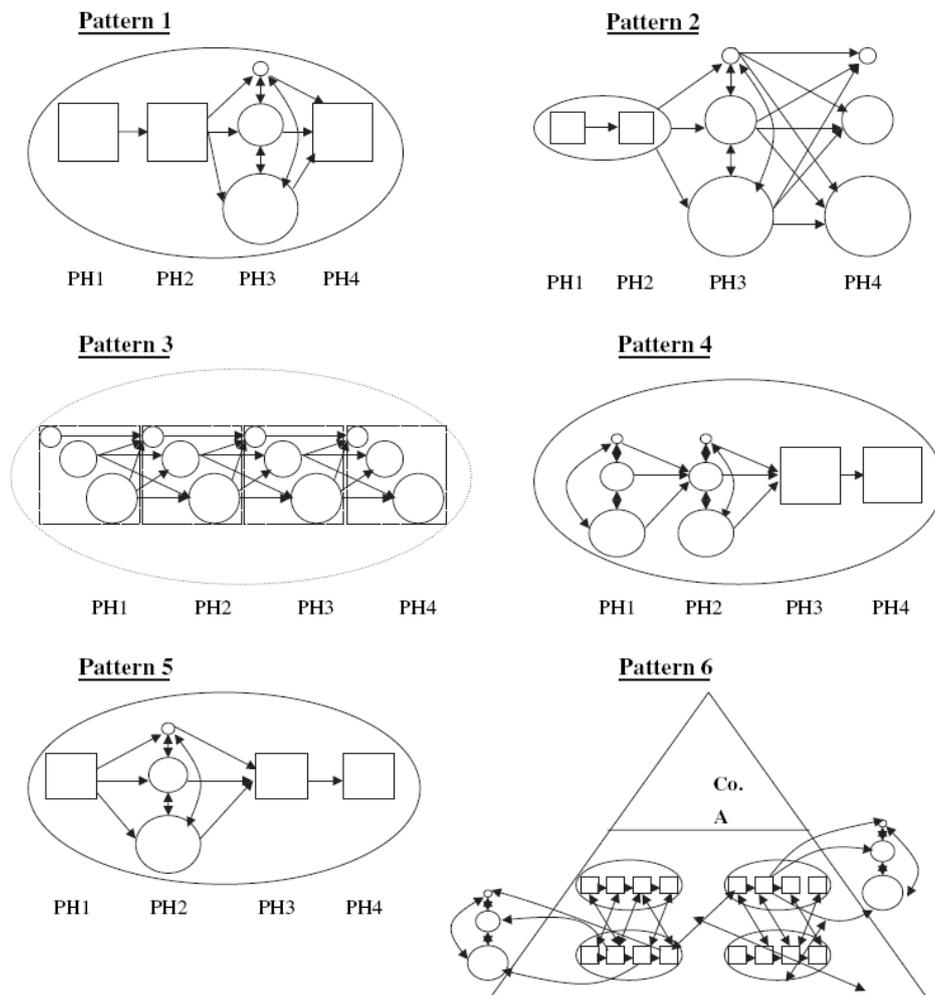
Figure 2. Network structure of the publishing industry in Taiwan

Pattern 2 manifests the strategies of very small companies with only two to four employees. Faced with resource constraints, they maximise their plan and procurement competencies by working with downstream partners.

Companies in Pattern 3 subcontract all of the four-phase activities; their operation is virtual in nature (dotted line in Figure 2). They have discrete publishing needs, such as a single book for a particular person or event. They own the copyright and distribute the book to the market for sale. Partners vary depending on the features of each publishing project. This pattern evolves from internal publishing, mainly for the purpose of promoting a corporate image or socializing employees.

Pattern 6 is a unique network structure, which comprises several members (Companies B through J) and one strategic centre (company A). Members are independent publishers with fully-fledged publishing activities; they network at various stages internally and externally. The lead company does not engage in any specific publishing activity.

Table 2 displays the characteristics of the above six network patterns along the framework of analysis mentioned earlier, namely motives, contents of exchange and type of partners. In addition, we add the partnering outcomes at the time of our interviews to display the effects of their networking. Appendix

3 explains how Table 2 was constructed.

Factors affecting networking decisions

Our interviews in Taiwan's publishing industry revealed that *competitive environment, company competency and partnering goals are the key factors that affect networking decisions.* Competition for survival and excellence were the main driving forces for networking. Companies of all patterns explored networking opportunities based on their own competencies as well as their partnering goals. For instance, companies in patterns 1, 4 and 5 have capabilities in carrying out full functions along the value chain; but they forgo some functions as a response to customers' increasing demands and keen competition. Their major partnering goal was to expand existing capacities to obtain resources within a defined business scope. Companies in patterns 2 and 3 must rely on partners for a complete publishing process. Pattern 2 depicts the contractual behaviour of 'be my own boss' small business owners, who wish to remain in control of their businesses. Pattern 3 companies basically develop their virtual internal publishing capabilities to reach external customers with the aim of boosting their corporate image and socialising their employees. Their partnering behaviour was rather innovative and inspiring. Pattern 6 is the most distinctive and deserves a separate section to describe its formation, features and functions.

Competition for survival and excellence were the main driving forces for networking

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Features of the pattern 6 network structure

Pattern 6 is the most comprehensive network pattern. It covers all three types of motives and all six types of exchange contents. The formation of this integrated organisation in 1996 was described at the beginning of this paper. Recognising the value of an organisational network, the companies spun off more book streams and formed a 10-company network within four years. Each company has its own general manager and was independent in operation, finance and human resource management. In 2000, member companies exchanged their stocks for Company A's stock in order to build a more unified corporation. In 2003, this network evolved into a 28-company group. One Hong Kong group evaluated its potential as the world's biggest Chinese language publisher and acquired the largest share.

The network structure of pattern 6 enables members to collaborate to the greatest extent under the strategic guidance of a lead company. As Table 1 shows, each of the companies B through J had its specialisation in publishing and established its name in the market. Within a network they tend to complement one another to provide comprehensive publishing lines. Although member companies run their businesses independently, a set of administrative mechanisms integrate their operations effectively. For example, management meetings are scheduled every Tuesday and marketing meetings every Thursday. Company A's services include bookkeeping, negotiation, inventory control, co-ordinating marketing (eg exhibitions, advertising, promotion), financial support and overseas expansion (the corporation had set up overseas offices in Hong Kong and Malaysia by 2000) and so on. These mechanisms work in what Gulati and Singh, Human and Proven, and Lorenzoni and Baden-Fuller proposed as 'a network administrative structure' or 'a strategic centre' to manage a web of partners.[16]

Table 2. Characteristics of the six patterns of network structure in the Publishing Industry in Taiwan

Pattern/Co.	Motives	Contents of exchange	Types of partners	Outcomes (*outcomes fully realized, @not yet fully realised)
(1) L, M, N	Efficiency	Time, Technology	Co.+Ind./Co.	*Reduce headcount *Multi-production @Cost reduction
(2) Q, S, T	Efficiency	Time, Technology	Co.+Ind./Co.	*Reduce headcount *Multi-production @Cost reduction
	Resources	Technology, Knowledge		*Specialisation in production
(3) P, U, X	Efficiency	Time, Technology	Co.+Ind.	*Reduce headcount *Speedy production @Cost reduction
	Resources	Social		*Integrate external resources @Reduce risks
(4) K, V	Efficiency	Knowledge	Co.+Co.	*Accelerate book development @Reduce risks
	Resources			*Enhance planning capability of speciality publishing
(5) O, R, W	Efficiency	Legal, Economic	Co.+Ind./Co.	*Obtain existing product *Share the risks of publishing
	Resources			*Obtain copyright of certain products *Exchange of copyright and business
	Competition			*Increase annual production
(6) A (Incl. B thru J)	Efficiency	Technology, Time, Social, Knowledge, Economic	Co.+Co. Division +Division	*Increase negotiation power *Share benefits *Remain flexible *Spin-off some book series *Cross-learning within the group @Share decision making, @reduce the risks of making decisions
	Competition	Technology, Time, Social		*Both co-operation and competition among the competitors *Become the market leader *Co-operation within the group *Grow faster *Members are increasing *Maintain individual development @Have better opportunity to enter new markets
	Resource	Technology, Time, Social, Economic, Legal		*Enhance copyright negotiation power *Enhance market channel negotiating power *Enlarge the pool of authors *Enhance the integration of marketing resources *Exchange existing internal resources *Exchange existing external resources @Enlarge the sources of editors @Internalise each member's external resources @Sharing external resources

This pattern is probably the best form to balance competition and co-operation. Although faced with potential competition due to some overlapping publishing lines, network members exchange resources, information and assistance. Network boosted Company A's and other member companies' standing in the community, and expanded their total market share. This unique pattern also satisfies a partner's need to be independent while exploiting the advantage of economies of scale.

The Chinese saying 'better to be a rooster's head than a bull's tail' explains why small companies are so prevalent. Networks enable members to take on the qualities of '3M Post-it' e sticky enough to glue together and obtain synergic strength yet not too sticky to become a burden on each other.

Change of network structures

Based on our in-depth interviews with three network experts in Taiwan as well as relevant government archives and literature - basically Miles and Snow's and Liu and Brookfield's studies – we uncovered three stages of network structural change in Taiwanese SMEs. The generic threestage- model was later discussed and confirmed by two of the most senior interviewees in the industry, who assisted us in linking it with the six patterns of network structure.

Generic three-stage-model of network structural change in Taiwan's SMEs

Taiwan is known to have weak SMEs linked by strong networks.[17] According to the three network experts, the traditional network in Taiwan originated from family businesses. Partnership is most likely to be built among the companies owned by family members, relatives or friends based on personal trust. It was largely centred on production-related activities. A centre company, having obtained a purchase order, would typically seek out small companies (often owned by relatives or friends), and occasionally large companies to share in the production process. Networks of this kind are a primary Centre-Satellite Structure, the first stage in the three-stage-model we are going to discuss below.

By and large company networking behaviour is becoming more strategic, aggressive and flexible. Our industrial interviews indicate that in addition to former production-orientated networks, cooperation has been expanded into all phases of the business process. Companies start to examine their business processes, identify core competencies and actively seek out ideal network partners, irrespective of whether they are relatives or friends. Even networking among competitors has become accepted and formalised. Large and dominant companies are no longer as apparent as they used to be. The types of partners can be company-to-company, company-to-individual, company-to-division or division-to-division. On the whole, new network behaviours become so fluid that basically any kind of partnership at any phase of the business process is possible. Such a flexible network enhanced companies' capabilities to survive and grow in the increasingly severe competitive environment.

Figure 3 illustrates *the generic three-stage-model of network structural change in Taiwan, namely the 'Centre-Satellite Structure', 'Co-opetition Structure' and the 'Spider-Web Structure'*. The first stage, 'Centre-Satellite Structure' prevailed in the early 1980s to 1995. It includes two types of structures e 'Up-flow type' and 'Down-flow type'. To some extent, it is similar to the 'Dispersed Structure' or 'Concentrated Structure' in Liu and Brookfield's study and the 'Stable Network' in Miles and Snow's study. The 'Up-flow type' was believed to have greatly forged the competitiveness of the traditionally loosely-run SMEs and have been the engine of Taiwan's rapid economic development. The size of circles in Figure 3 represents the size of companies. Satellite companies could be smaller or larger than the centre company; that is, some satellite companies depended entirely on the patronage of the centre company while others did not. Some companies processed part production like a 'Star' or a 'Ring', and some had their own satellites and formed a structure like the 'Tiered Network' in Liu and Brookfield's study. Chen reported that the C-S System in Taiwan was quite different from that in Japan, where satellite companies were generally smaller than the centre company and depended

heavily on its orders.[18] The 'Down-flow type' described a long-term relationship in which a large centre company supplied raw materials to satellite companies.

The second stage, 'Co-opetition structure', describes how companies could be involved in a relationship that simultaneously contained co-operation and competition.[19] This structure began to surface around 1995 in response to aggressive exporting and increasingly global competition. The success of the centre-satellite network structure has greatly enhanced the competitiveness of manufacturers in Taiwan. However, as SMEs globalised, they had to unite against foreign competitors. As a result, the Co-opetition network structure was formed. It includes 'Agent type' and 'Leader type'. The 'Agent type' describes the co-operation of local companies in the global market under the guidance of a trade agent. For example, five players in the same industry competed in both overseas and local markets. The price war greatly shrank the profits of a major trade agent. The agent then took the lead in persuading the five companies to form a network for mutual benefits. Ever since, they have jointly set market prices and have supported one another when necessary. The 'Leader type' delineates similar competition cases, except that the leader also produces similar goods to those of its partners. This pattern seems like the 'Internal Network' in Miles and Snow's study, in a sense that network members occupy a position within a pyramid that follows the lead company. However, the 'Internal Network' is mainly composed of members operating at different stages along the value chain, which reflects a supplier-buyer relationship, while the 'Co-opetition structure' comprises members at similar positions along the value chain, which stresses a co-operative relationship among former competitors.

The third stage, 'Spider-Web Structure', was observed since the late 1990s. The structure is characterised by a more fluid partnership, akin to a spider's web. In the web, members support one another for reasons more than a supplier-buyer exchange. The centre company is no longer as distinct as it used to be. The formation of the 'Spider-Web Structure' is mainly the result of the strategic needs of member companies to pursue more flexible project planning with external partners, which are changeable according to the features of each project. It is a response to fierce global competition. The improved network management skills of the member companies also support the network structural transition. The 'Spider-Web Structure' shares the main feature of the 'Multi-centred Structure' in Liu and Brookfield's study in that there is no lead company. However, the 'Spider-Web Structure' can be composed of relatively large companies which are not included in the 'Multi-centred Structure'. In essence, it is more like the 'Dynamic Network' in Miles and Snow's study, because it emphasises that members shift their partners according to the demands of each project or product, even though they may have the capabilities to carry out the outsourced functions.

According to the expert interviewees, the structural change is more of progression than of replacement. In other words, the Co-opetition Structure was practised in Taiwan in addition to the C-S Structure, and the Spider-Web Structure was practised in addition to the Co-opetition Structure and C-S Structure. All five types of structures coexist in Taiwan today.

Stage I: Centre-Satellite Structure
A. Up-flow Type   B. Down-flow Type
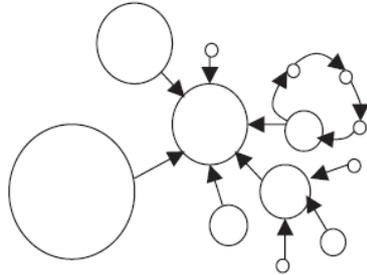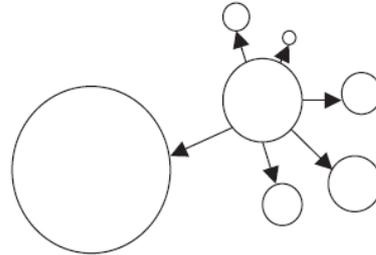
Stage II: Co-opetition Structure
B. Agent Type   B. Leader Type
Trade
Leader
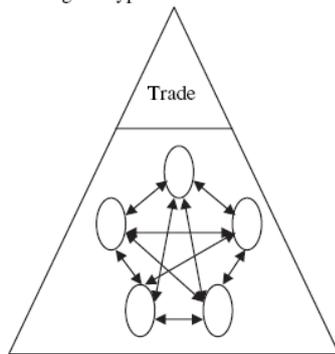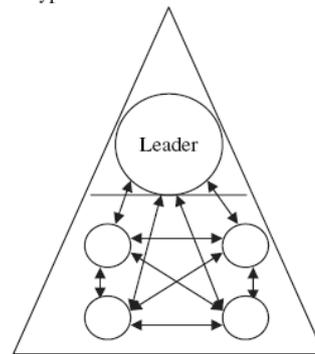
Stage III: Spider-web Structure
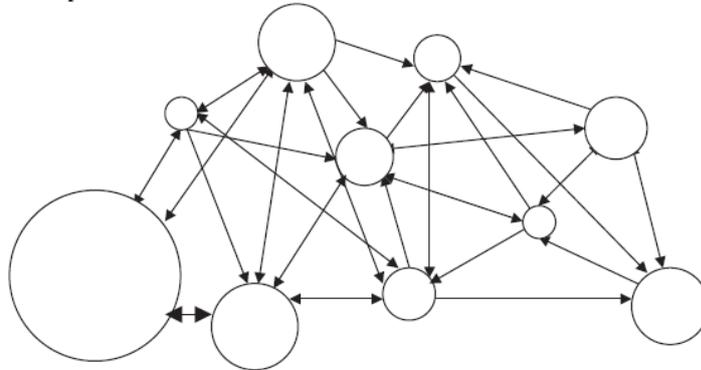
Figure 3. The Progression of Network Structure of Taiwanese SMEs

Specific network structural change in the publishing industry in Taiwan

The generic three-stage-model of network structural change in Taiwan SMEs that we discussed above is confirmed by the case of publishing industry.

The six patterns of network structure in the publishing industry showed in Figure 2 suggested that by year 2000 when we collected the data, publishers have experienced all of the Centre-Satellite, Co-opetition and Spider-Web structures showed in Figure 3. Essentially, pattern 1, 2, 4, and 5 companies were still in the C-S structure, the first stage of network development. To some extent these companies played the role of a hub company in their networks, and leveraged their core

competencies by organising satellite companies to perform any of the functions in the four phases. Pattern 6 is clearly a 'Co-opetition structure', where company A took on the role of a leader and all of the 10 members were full-fledged publishers who might once have been competitors. Pattern 3 is a new format evolving with the concept of virtual organisation and virtual team. In nature, the relationship of players in the four phases is like the 'Spider-Web Structure', since their partnerships in general terminate after finishing one particular project or product. Overall, the six patterns found in the publishing industry confirmed the presence of the three-stage model of general network structural change in Taiwan SMEs.

Relevant industrial studies and our follow-up interviews with two senior publishing practitioners further confirmed the emergence order of the three stages in Figure 3. When investigating the evolution of the publishing industry in Taiwan, Liu found that since 1982 publishers have begun to partner with editing studios, design studios and external printing houses, which portrayed probably the earliest 'Up-flow Type' of C-S structure.[20] In a different study, Hsia reported a successful internationalisation story of a publisher who established his 10-employee company in 1992 and kept the organisation lean for 10 more years.[21] The company kept both Up-flow and Down-flow types of networks. In another study, Chou also reported the prevalence of pattern 2 companies in Taiwan since 1990.[22] He gave one example: a centre company in Taiwan is mainly responsible for planning and theme choice, while a partner in China takes care of production, and another partner in Hong Kong takes charge of printing and packaging. It is a typical Up-flow type of C-S structure. Pattern 6 was formed with the establishment of Company A in 1996, which confirmed the comments by the experts that the second stage 'Co-opetition Structure' emerged in around 1995.

The third stage 'Spider-Web' network in Taiwan's publishing industry has gradually taken shape from the end of 1990s. As evidence, Company A has been changing towards this new format since 2000. In the follow-up interview in 2004, Mr Chan of Company A said:

> 'Company A is no longer a strategic centre. We have developed into a holding company, consisting of five groups, one integrated sales centre, and one operation services centre. The Company A you recorded in 2000 has been expanded to 28 members and is now only one of our five groups. I do not watch over their strategies now. All five groups, three publishing groups and two media groups are on their own. What I do now is only 'number management', to see whether each group delivers its promised results with the support of our integrated sales and services centres. They still help each other, such as a division of a media group helps the art design of a publishing division.'

The most remarkable change of its organisational structure is the disappearance of the distinct strategic centre. It is perhaps due to the fact that the members became stronger to operate independently, and their developed business demanded a more flexible structure. In this holding company the relationships of the five member groups are like what the third stage 'Spider-Web Structure' depicts. Since the five groups operate at different stages along the industrial value chain, each pursues its own development and has its own turf with its own external partners; meanwhile they support each other with fast and quality service when necessary. The fluid partnering across the publishing process is effective in increasing the competitiveness of each member as well as the holding company.

Theoretical implications

The three-stage network structure model in this study is consistent with the network structures presented in Miles and Snow's work based on US industries. Our 'Centre-Satellite Structure' is similar to their 'Stable network'; the 'Co-opetition' structure shares the feature of their 'Internal network'; and the 'Spider-Web Structure' is like their 'Dynamic network'. It indicates that the economic-embedded nature of company networking behaviour is universal across national borders.

Companies pursue a more aggressive and flexible network structure in coping with the more competitive environment. However, our study also emphasised the importance of analyzing company networking behaviour from the social-embedded perspective.[23] As the network has become a dominant organisational form, effective network structures may vary in different social contexts. Pattern 6 in this study is clearly a successful model in Taiwanese society. It satisfies the Chinese psychological need to be a business owner while collaboratively gaining the competitive advantages of scale. Likewise, Lazerson presented a different type of network structure effective in the Modena knitwear industry in Italy, which is based mainly on the social structure of artisan firms.[24] Overall, our study stresses that *in a global economy scholars surveying the best network patterns need to take both economic, social, cultural and industrial factors into consideration.*

As the network has become a dominant organisational form, effective network structures may vary in different social contexts

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Our generic three-stage network structure model, particularly the evolution of Company A from 'Co-opetition Structure' to 'Spider-Web Structure', *indicates the diminishing role of a leading company in networks as a strategic centre.* It may suggest that companies become more skillful and autonomous in managing their partnerships through networking practices. Literature has identified a number of factors that contribute to partnership failure e the inherent conflict resulting from goal divergence, partner opportunism, cultural differences, learning race and so on.[25] The success of Company A shows that trust, which was established during prior positive partner experience, can reduce these failure risks. Moreover, it indicates that *a co-operative competency is a company-specific and valuable resource, and has become a competitive advantage.*[26]

This study revealed several types of partnering behaviour in Taiwanese SMEs. Unlike what the literature reported about the reluctance of entering into alliance for fear of losing ground and control, *Taiwanese companies have been conditioned to searching out every possible opportunity for survival due to severe competition and resource constraints.*[27] Their first concern is 'adapting' in order to secure their standing rather than to control and combat. This characteristic is exhibited by the great volatility of networking activities along the value chain. It is particularly notable in the third stage 'Spider-Web Structure'. Furthermore, it implies that the organisational practices the SMEs adapt were more often than not the result of 'effectuation'.[28] Instead of having the choice of various means in achieving a specific goal, these companies usually have to 'make do' with the limited resources they have to attain the best outcomes they can get.

Managerial implications

Our research suggests that *for a group of SMEs in a fiercely competitive industry the best way to survive is to form a close network at the strategic level, while keeping relative independence at the operational level.* It is an impressive accomplishment that Company A started from scratch but became the star of Chinese language publishers in only seven years. This network seems to master the art of balancing 'dependent' and 'independent', 'let go' and 'control' to its greatest advantage both for the initial member partnership and the recent alliance with the Hong Kong group.

Another implication for managers is that partnering may not guarantee market share, time or cost advantage, yet knowledge and capability can be enhanced along the way when the partnering attitude and behaviour are carefully planned. Generally, pursuing efficiency, competitiveness and scarce resources are the main motivation for networking, especially in an era competing for speed, technology and flexibility. However, Table 2 shows that the outcomes are not always satisfactory. *A network needs to be managed and nurtured and requires time for it to become mature.* Many networks

broke down because they did not deliver the expected tangible results in a timeframe.   However, too much emphasis on the tangible results may underestimate the value of intangible results, such as tacit knowledge and capability building. In our interview, a well-established publisher reported that producing and marketing a book series for a competitor using their idle capacity has enabled his staff to learn how to link planning, procurement and editing. As positive attitude breeds positive results, a more feasible anticipation of networking may be 'intangible gains precede tangible gains'.

In addition, *transforming a foe into a friend has the most value in networking.* Collaboration with ex-competitors can create 'win-win' results for both sides. An interviewee reported that with the network relationship he collaborated rather than competed with his competitor-partner as they fed each other with critical information. It greatly enhanced both companies' positions in the market. On the other hand, this type of partnership is also shaky if the trust is thin. A Chinese way of cementing the relationship is by developing a family-like partnership in the network.

Collaboration with ex-competitors can create 'win-win' results for both sides

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Finally, the framework of analysis proposed in this research provides a scheme to improve the effectiveness of networking. Since appropriate governance mechanisms have an important influence on alliance success, network performance needs to be periodically reviewed.[29] By using the dimensions delineated in Table 2, a review can be conducted on whether the expected network outcomes have been realised. It was common that organisations were trapped by resolving daily events at the expense of losing original visions. Visiting actual network outcomes from time to time helps an organisation re-evaluate its original expectation, and allows it to take corrective action if necessary. Table 2 provides a tool of pre-networking and in-process governance.

Conclusion

In this era of hyper-competition, an organisation's survival and growth largely depends upon its linkages to other organisations. The network structure manifests partnering philosophy and provides a good platform to examine the features of business environments and companies' response to environmental requirements. Through mapping specific network patterns in the publishing industry, this study uncovered a general trend of network structural change that has occurred in the past two decades among Taiwanese SMEs e from 'Centre-Satellite Structure' to 'Co-opetition structure' to 'Spider-Web Structure'. Network, as an evolutionary organizational form, became more strategic, aggressive and flexible. Using Taiwan's publishing industry as the research context; this study suggests that scholars and practitioners need to understand company networking behaviours from the perspectives of economic, social, cultural and industrial factors. A successful network must fit the dynamic requirements of these contingencies.

Appendix 1. Basic statistics of Taiwan's publishing industry (US$)

1.	Number of registered publishing companies:	5,400
2.	Number of publishing companies with sales records:	2,075
3.	Number of companies with publishing activity:	1,534
4.	Estimated yearly output:	314,300,000 books
5.	Estimated annual book return rate:	20%
6.	New books/total volume published:	35%
7.	New books — new issues	71.8%
	— reprints	24.6%
	— re-edited	3.6%
8.	Average price per book:	$7.22
9.	Total market value:	$1.82bn
10.	Total value of trade volume:	$943.13m
	(between publishers and wholesalers)	
	Average sales per company (#10/#2):	$455,000
11.	Capital investment:	
	$9,375 to $31,250	58%
	$31,251 to $312,500	32%
	More than $312,501	10%
12.	Minimum investment to publish a book:	$10,000
13.	Estimated inventory:	20-50%
14.	Average annual purchase of each consumer:	18 books

Source: 1999 Market Report of the Publishing Industry in Taiwan (Exchange rate NT$32:US$1)

Appendix 2. Characteristics of research methods in this study

Methods:
Multiple case interviews, guided by semi-structured open-ended questions listed in Appendix 3.

Interviewees:
21 influential 'pacesetters' of Taiwan's publishing industry with an average work experience of 15 years, including board of directors, vice-president, publisher, general manager, chief editor, publishing manager, marketing manager, controller and selected officers.

Procedures:
1. We first interviewed the key person(s) of the top 10 publishers.
2. They helped identify the ensuing interviewees who were known for active networking.
3. Each in-depth interview lasted one to three hours. All interviews were recorded and transcribed. In the interviews, the respondents were requested to identify their phase(s) of partnering, namely publishing plan, procurement, editing and production, and marketing and promotion. Then they illustrated their network activities relating to the motives of partnering, contents of exchange and the types of partnering.
4. In data analysis, we recoded the interview transcripts using the symbols such as 'faster', 'costly', 'knowledge', and filled in a sheet of various dimensions as shown in Table 2.

5. Three network experts who have been involved in designing and promoting organisational networks in Taiwan and first-hand witnesses of its evolution were interviewed. One expert is an Operations Management professor with 40 years' teaching and consulting experience. The other two are the assistant vice-president and the director of the 'Corporate Synergy Development Centre' (CSD) — a centre designated by Taiwan government in 1984 to facilitate the formation of 'Centre-Satellite (C-S) System'. The average network consulting experience of the three experts is 24 years.
6. In 2004, follow-up interviews with two most senior interviewees in the industry were employed to confirm further our research findings.

Appendix 3. Questions of semi-structured interviews

1. Time of establishment and restructuring
2. Scope of publishing
3. Organisational design and organisational chart
4. Does your company have any external network? How does this network function? What do you exchange?
5. How will you describe the relationship? What are each member's rights and responsibilities? What is the strength of the linkage?
6. Do you think the relationship is efficiency, competition, and/or resource orientated? What are the influencing factors of such an orientation(s)?
7. Why did your company adopt such an orientation(s)? Is there any strategy or background connected with it?
8. How does your company cope with the changes resulting from the network?
9. Have you observed any benefit from the network? Do you expect any future benefits?
10. In publishing industry, under what situations will company adopt efficiency, competition, and/or resources orientation?
11. Is there other unique network activity in this industry?

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