Performances and Roles of Local Trade Fairs in Japan: Case Study on the Suwa Area Industrial Messe, Nagano Prefecture

與倉, 豊
東京大学大学院総合文化研究科人文地理学教室

出版情報：Komaba Studies in Human Geography. 21, pp.85-100, 2014. 東京大学大学院総合文化研究科・教養学部人文地理学教室
バージョン：
権利関係：

Komaba Studies in Human Geography
Vol.21 85-100 2014

Performances and Roles of Local Trade Fairs in Japan: Case Study on the Suwa Area Industrial Messe, Nagano Prefecture

YOKURA Yutaka
(Department of Human Geography, the University of Tokyo)

Ⅰ Introduction
Ⅱ Development of Japanese Trade Fairs
Ⅲ Economic Context of the Suwa Area
Ⅳ Building Relationships at the Suwa Area Industrial Messe
Ⅴ Conclusion

Key words: temporary cluster, trade fair, R&D collaboration, social network analysis, Suwa area

Ⅰ Introduction

Recent studies on innovation and knowledge creation emphasize the role of temporary geographical proximity (Maskell et al. 2004, 2006; Bathelt and Schuldt 2008, 2010; Wickham and Vecchi 2008; Rallet and Torre 2009). These studies suggest that temporary F2F (Face-to-Face) communication such as business travels, professional gatherings, and industry events enable the actors to acquire the same or similar information in permanent clusters. Trade fairs are regarded as temporary clusters in that these are economic phenomena where actors concentrate at a specific place, non-ordinarily, for a limited duration, and for specific purposes.

The temporary cluster's characteristic of extraordinary is an important element for economic performance. For trade fairs' purposes, Hansen (2004: 3–4) proposed improvement in motivation of employees and customers in addition to corporate image building and marketing activity. Participants are sensitive to stimulation and they tend to create new ideas through diverse relationships during trade fairs. In addition, Rallet and Torre (2009: 17) noted that the participants are removed from daily relations and routines to easily make initial contact with others during the fair.

From the perspective of knowledge base theory (Asheim et al. 2007), trade fairs can be classified into two categories. The design-intensive type requires symbolic knowledge and artistry or creativity, such as furniture and cultural industries' trade fairs. The technology-intensive type is based on analytical or synthetic knowledge and attaches special importance to personal

meetings because it is difficult to evaluate technical properties from exhibitions (Bathelt and Schuldt 2010: 1964).

Focusing on the comic book industry as a design-intensive type, Norcliffe and Rendace (2003: 258–259) argued that networking among creators and publishers at major conventions is rather significant for comic book production. Yoon and Malecki (2010: 255–256) draw attention to global production networks in the animation industry, and they mentioned that professional gatherings contribute to knowledge sharing and collaborating among geographically dispersed animation artisans.

Other investigations focused on trade fairs of the Swedish furniture industry (Ramírez-Pasillas 2008, 2010; Power and Jansson 2008). Using social network analysis, it was found that novel knowledge spillover into firms that are not participating at the fairs, through their channels of local personal networking and partnerships with exhibitors (Ramírez-Pasillas 2008, 2010). Power and Jansson (2008: 425–426) stated that trade fairs must be seen as cyclical clusters because fairs are continuous and innovative spaces in the schedule of the global trade-fair circuits.

In studies related to technology-intensive fairs, Chen (2009) demonstrated the importance of informal networks in overseas knowledge sourcing. International trade fairs can support those informal networks among exhibitors and visitors to acquire information on markets and technological know-how.

Although these earlier findings suggest several roles of trade fairs, there is a need to better understand the interactions and learning process in temporary clusters. Some empirical research has explicitly examined how temporary clusters affect actors' activities in industrial agglomerations (or permanent clusters), and vice versa. This study focuses on Japanese local trade fairs held in industrial agglomerations, specifically the Suwa Area Industrial Messe, and investigates the development of various relationships among actors, such as exhibitors and visitors. The Suwa Area Industrial Messe, a trade fair of high-precision technology, has expanded its scale substantially and is now recognized as an important event for firms in the Suwa area (Okaya City, Suwa City, Chino City, Shimosuwa Town, Fujimi Town, Hara Village), Nagano prefecture. Exhibitors are confined to the firms in or near the Suwa area because the fair is intended to promote the local economy. Compared with other local trade fairs, the Suwa Area Industrial Messe has attracted many domestic exhibitors and visitors.

I conducted an interview with the Executive Committee Chairperson of the Suwa Area Industrial Messe in November 2010, and collected data and lists of exhibitors and visitors for the previous fairs. The data used for this study were derived from the survey questionnaires conducted by the executive committee and the Nagano Economic Research Institute in 2003 and 2009. The questionnaires were distributed to all exhibitors of the Suwa Area Industrial Messe, and used the same questions about the purposes of exhibitions and the number of business transactions during and after the fairs. Of 178 questionnaires sent to the exhibitors, 126 were returned in 2003, and 188 of 252 questionnaires were returned in 2009. Section 2 shows the development of the Japanese trade fairs. Section 3 introduces the outline of

Suwa area and presents the manufacturing industry of the Suwa area on the basis of statistical data. Section 4 explains the outline of Japanese trade fairs and describes the role of the Suwa Area Industrial Messe as example of local trade fairs. Section 5 presents concluding remarks.

Ⅱ Development of Japanese Trade Fairs

Major Japanese trade fairs concentrate in the metropolitan areas such as Tokyo, Osaka, Nagoya, and Fukuoka. The Tokyo Big Sight which is located near Odaiba area in Tokyo has the largest facility for exhibitions and holds the largest number of events in Japan (Figure 1). In addition, the Makuhari Messe in Chiba and the INTEX Osaka have exhibition areas of over 70,000 square meters. The seven largest exhibition facilities account for more than three quarters of total number of exhibitions in Japan.

The typology of trade fairs should be taken into consideration in order to clarify the various roles of trade fairs. Japanese trade fairs can be classified into two types of exhibition. The "technology-intensive type" exhibitions display production goods such as industrial machines, measuring equipment, and basic technology. The "design-intensive type" displays consumption goods for industries such as furniture, advertising, and entertainment and cultural industry.

Figure 2 presents the distribution of trade fairs in Japan by the above classification. The ratios of technology-intensive and design-intensive trade fairs are almost equal in Tokyo. However, the ratio of design-intensive trade fairs is larger than that of technology-intensive in Osaka, Aichi, and Fukuoka. In the Kanto region, design-intensive fairs such as jewelry and housing feature local firms. In addition, Hokkaido and Shizuoka, famous as major production areas of furniture and wood

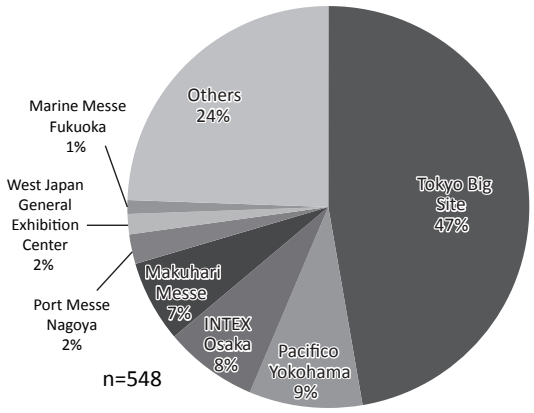

Figure 1. Facilities of exhibitions held in Japan

Source: JETRO's online trade fair database and Mihonnichi tenjikai sougou handbook 2011 (Handbook of Events and Exhibitions 2011). Tokyo: POP Inc.

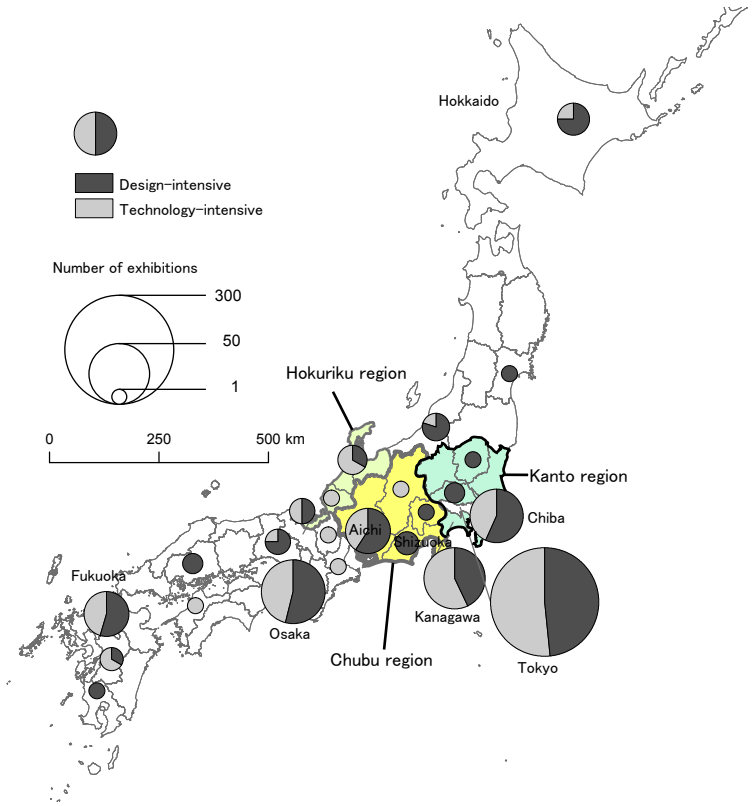

Figure2. Geographical distributions of exhibitions by category

Source: JETRO's online trade fair database and Mihonnichi tenjikai sougou handbook 2011 (Handbook of Events and Exhibitions 2011). Tokyo: POP Inc.

processing, lead in design-intensive fairs. In contrast, technology-intensive fairs are prominent in the Hokuriku region and Nagano prefecture, known for the precision machinery industry.

Table 1 shows the major Japanese trade fairs by type of knowledge base (technology- versus design-intensive) and the location (metropolitan versus local). As we can see from the table, the number of foreign visitors has not been published at many trade fairs, and the number of foreign exhibitors is also small. The main purpose of almost all of the Japanese trade fairs was cultivation of domestic market. The situations of Japanese trade fairs are very different from those of other Asian countries such as China, Korea and Singapore where the states have tried to target strategically overseas market. However, the Japan Tourism Agency, which is under the Ministry of Land, Infrastructure, Transport and Tourism, has been recently focusing on international tourism and promotion of Japanese trade fairs. The Japan Tourism Agency defined 2010 as "Japan MICE Year" and has tried to improve the number of inbound tourists of meetings, incentive tours, conventions, and exhibitions (MICE). Therefore, the number of foreign exhibitors and foreign visitors

Table 1. Major trade fairs in Japan(Year 2010)

Trade Fair	Exhibitors	foreign	Visitors	foreign	Location	Type
Cloud Computing Expo Japan	1,241	n.a.	124,056	n.a.	Tokyo Big Site	TM
Eco-Products	745	4	183,140	n.a.	Tokyo Big Site	TM
CEATEC JAPAN	616	196	181,417	n.a.	Makuhari Messe	TM
Tokyo Pack	551	91	170,859	2,516	Tokyo Big Site	TM
FOOMA JAPAN	406	26	140,576	1,968	Tokyo Big Site	TM
Shiga Environmental Business Exhibition	313	5	36,580	n.a.	Nagahama Dome	TL
Suwa Area Industrial Messe	255	n.a.	24,180	n.a.	Lake Suwa Event Hall	TL
BARI-SHIP IMABARI MARITIME FAIR	179	14	13,985	n.a.	Texport Imabari	TL
Techno Fair in Hokuriku	163	n.a.	17,621	n.a.	Fukui Industrial Hall	TL
MEX Kanazawa	103	n.a.	50,068	n.a.	Ishikawa Industrial Exhibition Hall	TL
Tokyo International Gift Show	2,506	255	201,245	1,354	Tokyo Big Site	DM
International Jewellery Tokyo	1,257	402	35,763	n.a.	Tokyo Big Site	DM
Osaka Automesse	251	n.a.	210,118	n.a.	INTEX Osaka	DM
Tokyo Game Show	194	91	207,647	n.a.	Makuhari Messe	DM
Tokyo Motor Show	113	14	614,400	21,504	Makuhari Messe	DM
Shizuoka Hobby Show	79	n.a.	80,000	n.a.	Twin Messe Shizuoka	DL
Food Service Industry Exhibition in Hokuriku	75	n.a.	28,100	n.a.	Ishikawa Industrial Exhibition Hall	DL
Kofu Jewelry Fair	73	n.a.	2,223	n.a.	I Messe Yamanashi	DL
SHIZUOKA KAGU MESSE	67	n.a.	7,500	n.a.	Twin Messe Shizuoka	DL
Tochigi Housing Fair	53	n.a.	10,000	n.a.	Marronnier Plaza	DL

Note: TM: Technology-intensive and Metropolitan, TL: Technology-intensive and Local
DM: Design-intensive and Metropolitan, DL: Design-intensive and Local
Source: JETRO's online trade fair database and Mihonnichi tenjikai sougou handbook 2011 (Handbook of Events and Exhibitions 2011). Tokyo: POP Inc.

listed in Table1 may increase in the future.

Ⅲ Economic Context of the Suwa Area

The Suwa area in Nagano prefecture is located in central Japan. The area is well known as an industrial district of high-precision technology, and is called the "Switzerland of the East." The headquarters and branch plants of Seiko Epson Corp. and Nidec Sankyo are located in the Suwa area, and leading Japanese semiconductor and optical device firms such as Kyocera and Olympus place subsidiaries nearby. Many small- and medium-sized enterprises populate the industrial agglomeration area. The central government of Japan has supported the Suwa area with regional innovation policies such as the "Industrial Cluster" and "Knowledge Cluster" programs[1] in the 2000s.

Focusing on manufacturing, the Suwa area has recently experienced severe industrial restructuring. The establishment and enterprise census of Japan reveals that the number of manufacturing employees and firms have been decreasing overall since the mids-1980s (Figure 3). The Suwa area has significantly high proportion of firms and employees in the mechanical industries,

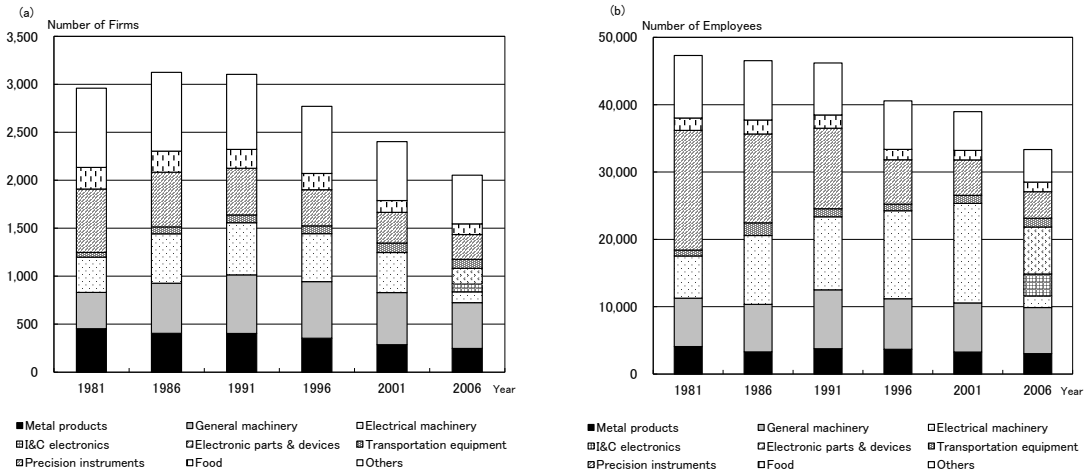

Figure 3. Number of industrial establishments (a) and employees (b) in Suwa

Source: Establishment and enterprise census of Japan

such as general machinery, electrical machinery, and precision instruments.

However, because of shifting production overseas in the latter half of the 1980s, the precision instruments industry was converted into electrical machinery or electronic parts and devices (Yamamoto and Matsuhashi 1999: 93).

In such a socio-economic environment, several methods of industrial revival were pursued in the Suwa area by taking advantage of historical and institutional thickness in high-precision technology. One such method was the local trade fair that was proposed by the Suwa Chamber of Commerce and Industry to support local industry to create regional brands.

Ⅳ Building Relationships at the Suwa Area Industrial Messe

The Suwa Area Industrial Messe began in 2002 with 174 exhibitors and over 12,000 visitors. Although the Suwa Area Industrial Messe cannot attract as many visitors and exhibitors as the fairs held in the Tokyo Big Sight and Makuhari Messe, it is rather famous and comparably favorable with other local trade fairs (Table 1).

The price for hosting the Suwa Area Industrial Messe was approximately 40 million yen in 2002. The half of total expense was covered by the subsidies of local governments of Suwa area, Nagano prefecture, and the central government. The Suwa Chamber of Commerce and Industry also contributed their share of a one-quarter of the expense. The rest of the expense was covered by the exhibitors. According to the interview with the Executive Committee Chairperson of the Suwa Area Industrial Messe, the budget for hosting has been increased to 60 million yen in 2010.

Though the central government abolished subsidies for the Suwa Area Industrial Messe, local governments and Nagano prefecture continued to support and the subsidy totaled about 20 million

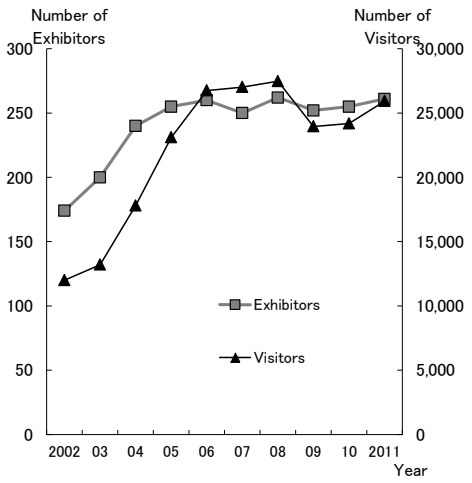

Figure 4. Change of the number of exhibitors and visitors

Source: Based on data from the executive committee of the Suwa Area Industrial Messe

yen. An amount to be borne by corporate sponsors and exhibitors accounted for more than half of the total budget because the number of exhibitors has increased.

The number of visitors had been increasing steadily until the 2009 global recession (Figure 4). The number of exhibitors remained unchanged since 2004 because the Japanese Fire Service Act prohibits expanding the number of booths within the exhibition hall's special limitations. Therefore, the fair uses a screening system whereby the executive committee enforces qualifications for exhibition. Priorities for exhibitions are given to actors located in the Suwa area or nearby. Among all the exhibitor applicants, nearly 20 percent were excluded from the 2010 exhibit.

1. Geographical distributions of exhibitors

Spaces for exhibitors' booths are separated into four zones according to the following categories: (1) Processing and Engineering (cutting, pressing, optics, die casting); (2) Machinery and Finished Products (jigs and tools, molds, machine tools); (3) Industrial-Academic Research (universities, research institutes); and (4) Solutions (software, telecommunications, finance). Figure 5 reveals that the ratio of exhibitors in the Suwa area is the largest in all categories, except Industrial-Academic Research. This result implies that institutional R&D support from outside of Suwa area was required because the area had no science-based university until 2002.

Figure 6 illustrates the geographical distributions of exhibitors in the Suwa area. Exhibitors totaled 145 in 2002, of which 74 exhibited again in 2009. The repeater ratio exceeds 50 percent between 2002 and 2009, suggesting that the Suwa Area Industrial Messe satisfied the needs of most exhibitors. In 2002, 44 exhibitors were located in the densely inhabited districts (DID). In 2009, however, 84 exhibitors were concentrated in north of Lake Suwa. Large enterprises with more than 300 employees, particularly exhibitors of Machinery and Finished Product as well as small- and medium-sized firms were located in urban areas (Figure 7). All of this indicates the growing local basis of Suwa Area Industrial Messe.

2. Performance of trade fair

The analysis for this study is based on the questionnaire survey conducted by the executive committee and the Nagano Economic Research Institute in 2003 and 2009 to demonstrate the Suwa Area Industrial Messe's performance. Focusing on the exhibition's purpose, the 2009

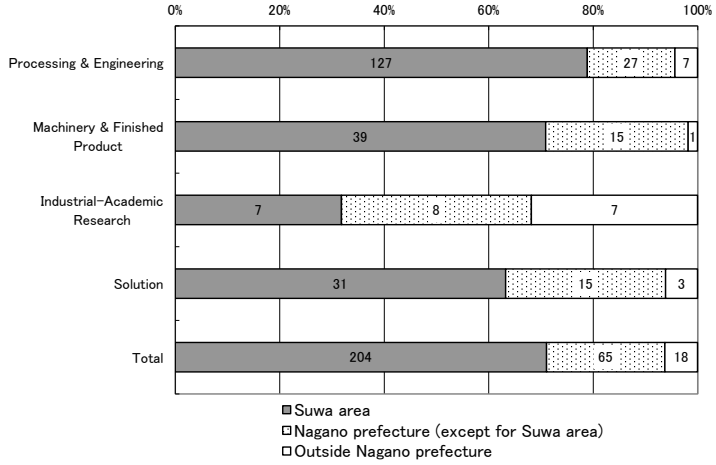

Figure 5. Ratio of exhibitors by area in each category, 2009

Note: Numbers in the graph are the number of exhibitors
Source: Based on data from the executive committee of the Suwa Area Industrial Messe

survey reveals that the acquisition of new orders was the most important (multiple answers allowed: rated important by 135 (72.2 %) of 187 exhibitors). The achievement of name recognition (49.7%) and the exchange of information between exhibitors and visitors (32.6%) were also important purposes.

Although the average number of business conversations per exhibitor was 6.4, only 15 firms (12.4 percent of the 121 respondents) acquired new orders during the fair. However, a follow-up survey one year after the fair shows that the number of firms acquiring new orders increased (38 firms of 107 respondents).

According to the interview with the Executive Committee Chairperson of the Suwa Area Industrial Messe, building transactional relationships during the fair was not recommended, and he explained the reason as follows:

Even if exhibitors immediately find new business partners during the fair, it may be too unprofitable or too difficult for exhibitors to follow through on a deal. Those relationships are often not sustainable.

The executive committee of the Suwa Area Industrial Messe stressed that the role of the fair was to offer an opportunity for exposure to potential customers who might be unfamiliar with exhibitors. The Chairperson considered that the first step of building long-term relationships was exchanging of business cards and information during the fair.

There are distinctive institutional supports for facilitating interactions between exhibitors and visitors during the Suwa Area Industrial Messe. One is the "on-site business meeting plan" that involves inviting and guiding visitors interested in the exhibition to the exhibitors' factories. In 2009, approximately 20 exhibitors used the plan to build

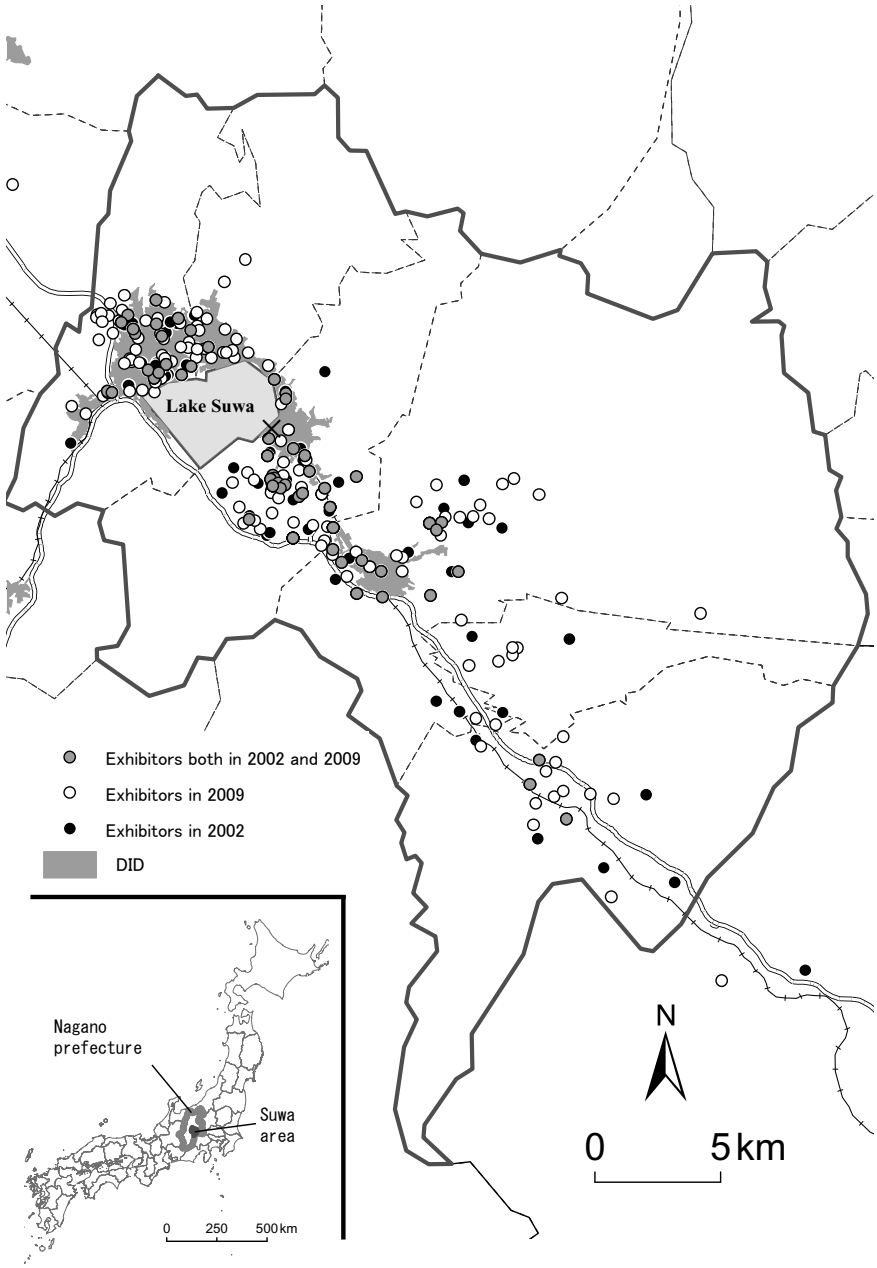

Figure 6. Geographical distributions of exhibitors in the Suwa area

Source: Based on data from the executive committee of the Suwa Area Industrial Messe and corporate websites

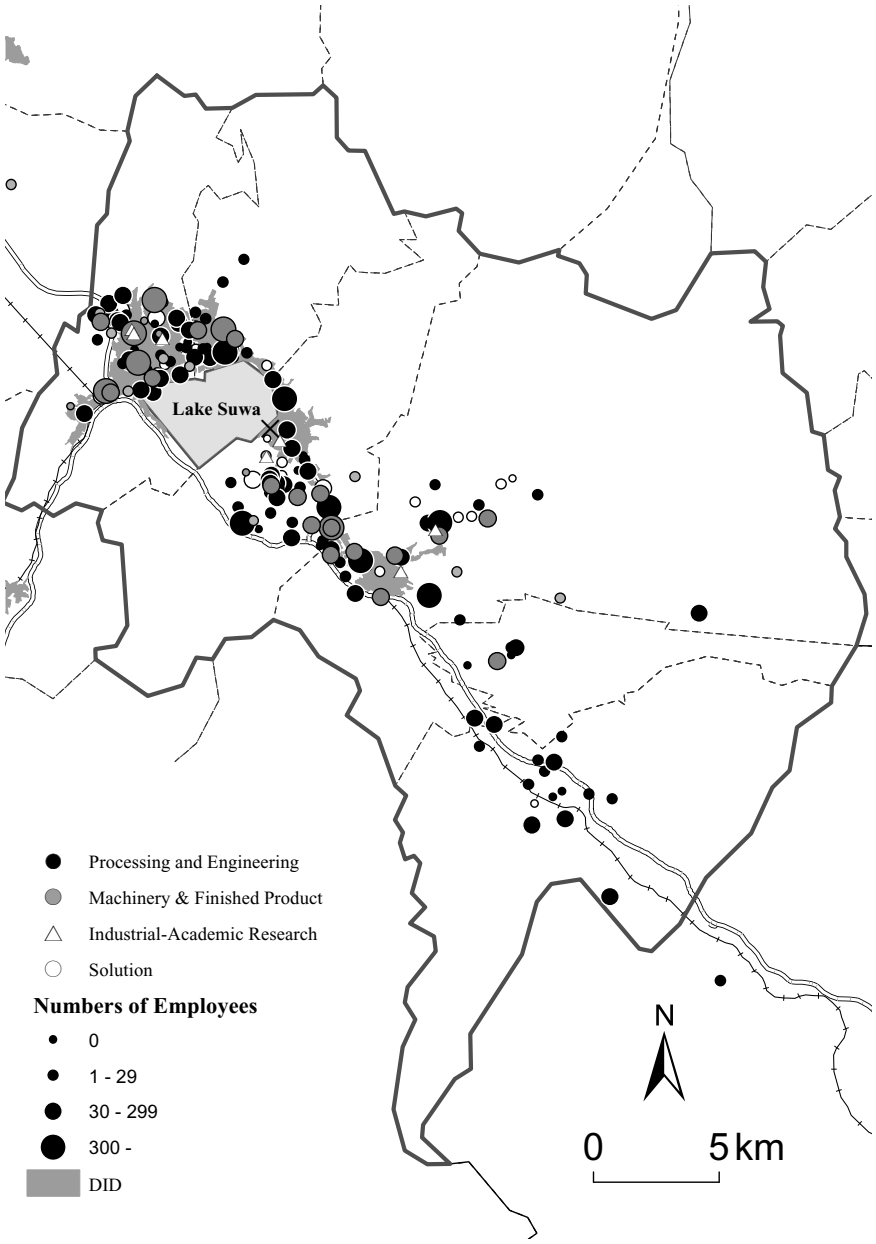

Figure 7. Geographical distributions of exhibitors depending by category in 2009

Source: Based on data from the executive committee of the Suwa Area Industrial Messe and corporate websites

trust by having visitors observe their facilities and equipment. It is impossible to hold on-site business meetings at the metropolitan trade fairs.

The other support is "private consultation meetings for opening new markets" held by the Suwa trade fair non-profit organization (NPO). The NPO was established by the Suwa area firms in 2005 for administrative and clerical support of the Suwa Area Industrial Messe, coordination of the industry-academic collaboration, and development of human resources. The NPO collects the firms' registration data and technical information in advance of the fair, and supports business matching. In 2009, 30 firms registered for such support, and 17 firms acquired new orders.

3. Local R&D collaborations in Suwa area

The Suwa Area Industrial Messe offers not only opportunities for business meetings, but also promotes R&D liaison and matching during the fair. The Suwa area is well known for developing cross-industrial associations such as study meetings and research workshops (Yamamoto and Matsuhashi 1999, 2000; Yamamoto 2002). These organizations comprise local and non-local university researchers, and firms' engineers in Suwa area. To exhibit at the fair, they frequently gather in groups and collaborate in researching and developing new technologies and products. The fair thus reinforces and strengthens the existing collaborative R&D relationships as the partners demonstrate the performance of technological capabilities.

The network drawing program NetDraw produced Figure 8, illustrating the structure of collaborative R&D networks in Suwa area. Social network analysis (SNA), now well established in the empirical research of networks, investigates and illustrates the development of relationships among actors. These networks consist of 120 nodes that participated in the 15 R&D projects conducted by the Japanese government and local R&D associates in the 2000s[2].

In Figure 8, approximately one-third of the actors exhibited at the Suwa Area Industrial Messe. The size of each node is proportional to the betweenness degree, and each linkage width is proportional to the number of participations in same research projects or groups. Of 120 actors, 18 are located outside Nagano prefecture, with more than half located in the Suwa area (Figure 9). We observe specific nodes uniting many actors. Such nodes bridge structural holes (Burt 1992) and participate at the fair. Nearly all the bridging nodes are located in the Suwa area.

Table 2 presents the results of the nonparametric Mann-Whitney U test for betweenness centrality and degree centrality of actors between exhibitors and non-exhibitors in collaborative R&D networks. Although the betweenness degrees of exhibitors at the fair are significantly high ($p<0.01$), the centrality degrees do not reach an acceptable level of significance. This finding indicates that specific vital and outstanding firms participate at the fair, and they play a key role in the spillover of scientific knowledge and information in formal R&D networks.

4. Building relationships with non-local firms.

In 2002, the fair obtained full support from Toyota Motor Corp.; for example, the call for visitors to the fair went to related firms and

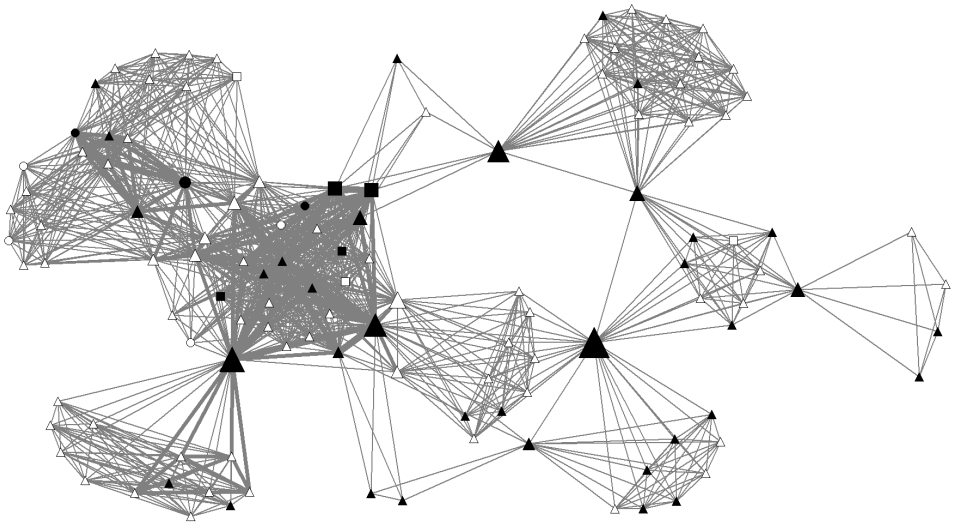

Figure 8. Structure of collaborative R&D networks

Note: Black: participated in exhibition, White: not participated in exhibition
Source: METI and MEXT data for joint research for each R&D project (Industrial Cluster and Knowledge Cluster programs, and Consortium R&D project for Regional Revitalization etc.)

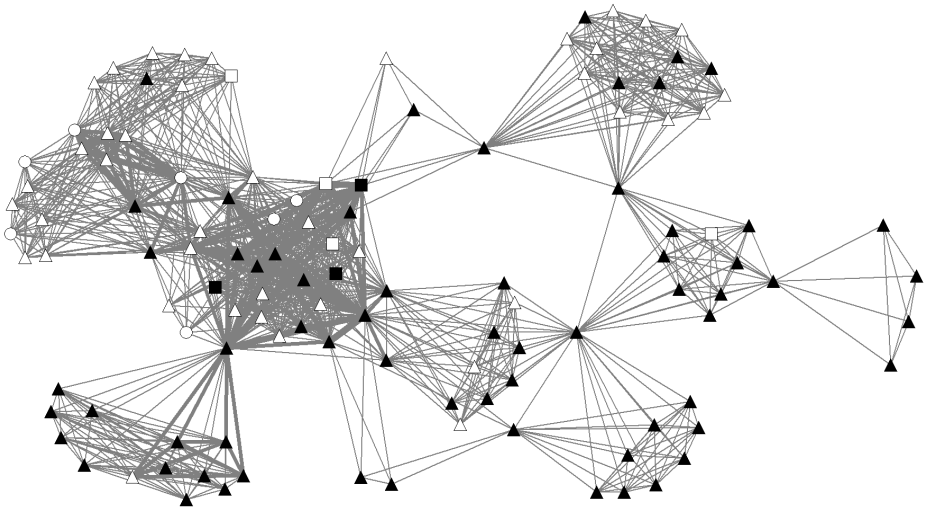

Figure 9 Structure of collaborative R&D networks depending on the locations

Note: Black: located in Suwa area, White: not located in Suwa area
Source: METI and MEXT data for joint research for each R&D project (Industrial Cluster and Knowledge Cluster programs, and Consortium R&D project for Regional Revitalization etc.)

Table 2. Mann-Whitney U test for betweenness centrality and degree centrality of actors

	Betweeness	Degree
Exhibitors at the fair		
Number of actors	42	42
Average rank	72.44	60.62
Non-participants at the fair		
Number of actors	78	78
Average rank	54.07	60.44
Mann-Whitney U	1136.5	1633
Two sided p-value	0.000	0.978

subcontractors, resulting in many visitors from the Chubu region and Aichi prefecture where Toyota is headquartered. However, recently visitors from the Kanto region have been increasing. According to the 2009 questionnaires for visitors (577 respondents), approximately 28% of visitors from outside Nagano prefecture are from Tokyo, and 36% are from Kanto region (outside Tokyo), and only 11% are from Chubu region. Local financial institutions and the local government arrange chartered buses and invite non-local firms to the fair.

One of trade fairs' primary purposes is to provide opportunities for local exhibitors to build long-term business relationships and mutual trust with non-local existing customers by inviting them to attend the fairs. According to the 2009 questionnaires, more than half of exhibitors advertised the exhibitions in advance, and sent out invitations to existing customers. Exhibitors not only guide the facility tours at the fair, but also take visitors sightseeing around Suwa area. They try to build up business contacts with each other through private receptions at restaurants and hotels outside the fair.

The executive committee vigorously creates overseas markets in cooperation with national and local institutions. The JETRO invites foreign firms interested in marketing and conducts business meetings during the fair. In 2009, the JETRO invited automobile parts firms from Switzerland, France, the United States, and Canada, and covered the visitors' travel expenses such as airfare and accommodation fees. In advance of the fair, the local NPO recommended firms in Suwa area as potential partners. In 2009, 50 firms participated in the JETRO's business meetings, and two local firms acquired overseas orders during the fair. In addition, another local support organization invited foreign firms related to the machine tool industry and conducted business meetings.

Focusing on creating overseas markets during the fair, manufacturing wholesalers play a significant role in acquiring information about the needs of non-local markets. The executive committee had rejected manufacturing wholesalers' exhibitions since the fair's introduction in 2002, because the purpose of the fair was building relationships between local firms and potential customers by F2F communication during the fair. However, the executive committee reconsidered the role of wholesalers as providers of overseas markets information in 2005, and the number of manufacturing wholesaler exhibitors increased to 10 in 2010. Those wholesalers' reliable in advertising Suwa firms' high-precision products also support the building of regional brands.

V Conclusion

This study attempts to investigate of the development of various relationships among

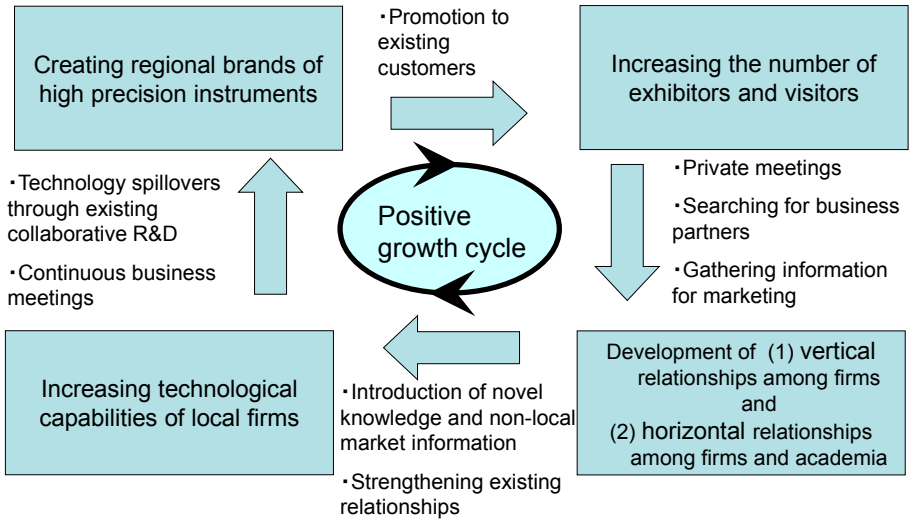

Figure 10 Upgrading industrial agglomerations through local trade fairs

actors at local trade fairs. The findings of this study offer important implications for methods of upgrading industrial agglomerations through local trade fairs as temporary clusters. We can discuss the relationships development at the Suwa Area Industrial Messe as follows by dividing the duration of trade fairs into three stages (before, during and after) (Figure10).

The Suwa Area Industrial Messe offers not only opportunities for business meetings, but also promotes R&D liaison and matching during the fair. The Suwa area is well known for developing cross-industrial associations such as study meetings and research workshops. These organizations comprise university researchers and firms' engineers in Suwa area. To exhibit at the fair, they frequently gather in groups and collaborate in researching and developing new technologies and products prior to the fairs. The Suwa Area Industrial Messe thus reinforces and strengthens the existing collaborative R&D relationships as the partners demonstrate the performance of technological capabilities. In addition, it is one of the critical business activities for small and medium-sized local firms, to promote the fairs in advance and send letters for invitations to existing customers.

During the trade fairs, visitors and exhibitors exchange information about industrial trends, and observe other exhibitors' levels of technology. The Suwa Area Industrial Messe thus works as the place of acquiring of novel information and knowledge. It is very important for local firms to build relationships with non-local potential partners by exchanging name cards. Some firms have tried to create continual trust and order relationships by private receptions at neighboring restaurants and hotels outside the

Suwa Area Industrial Messe. Though it is difficult to build up business contacts during the fair, lots of exhibitors are able to acquire new orders by continual business meetings after the fair.

Manufacturing wholesalers and exhibitors that have created overseas markets play an important role in sharing information concerning the needs of non-local markets. The fair increases the generally weak marketing capability of small- and medium-sized firms in the Suwa area. The fair stimulates not only vertical relationships among exhibitors and visitors, but also reinforces horizontal relationships such as study meetings and research workshops in industrial agglomerations, which improve exhibitors' technological skills. Through existing horizontal relationships, new information and technology introduced during the fair spillover to non-participating firms. These indirect spillover effects improve the industrial agglomerations and support the building regional brand. The regional brand as a Mecca of high precision technology firms also motivates firms to participate in the fair, creating a positive growth cycle.

Acknowledgements

An earlier version of this paper was presented at the Asia-Pacific Conference on Trade Fair Ecologies, Shanghai, China, May 2012. This work was supported by JSPS KAKENHI Grant Number 23720399.

Notes

1) Suwa area was selected under the Industrial cluster program, whereas all of Nagano prefecture was selected under the Knowledge Cluster program. Both cluster programs have supported to promote smart devices industry and assigned Nagano Techno Foundation as a core organization.
2) The primary aim of Japanese regional innovation policies is to develop R&D networks among industry, academia, and the public sector that should support start-ups as a result of collaborative research. Researchers of public institutes, universities, and firms perform joint research for each R&D project (Industrial Cluster and Knowledge Cluster programs, and Consortium R&D Project for Regional Revitalization etc.). In this study, the collaborative R&D networks are created by linking joint researchers.

References

Asheim, B., Coenen, L. and Vang, J. 2007. Face-to-face, buzz, and knowledge bases: Sociospatial implications for learning, innovation, and innovation policy." *Environment and Planning C: Government and Policy* 25: 655–670.

Bathelt, H. and Schuldt, N. 2008. Between luminaires and meat grinders: International trade fairs as temporary clusters. *Regional Studies* 42: 853-868.

Bathelt, H. and Schuldt, N. 2010. International trade fairs and global buzz, part I: Ecology of global buzz. *European Planning Studies* 18: 1957–1974.

Burt, R.S. 1992. *Structural holes: The social structure of competition*. Cambridge: Harvard University Press.

Chen, L.C. 2009. Learning through informal local and global linkages: The case of Taiwan's machine tool industry. *Research Policy* 38: 527–535.

Hansen, K. 2004. Measuring performance at trade shows scale development and validation. *Journal of Business Research* 57: 1–13.

Maskell, P., Bathelt, H. and Malmberg, A. 2004. Temporary clusters and knowledge creation: The effects of international trade fairs, conventions and other professional gatherings. *SPACES Online* (2004–04): 1–34.

Maskell, P., Bathelt, H. and Malmberg, A. 2006. Building global knowledge pipelines: The role of temporary clusters. *European Planning Studies* 14: 997–1013.

Norcliffe, G. and Rendace, O. 2003. New geographies of comic book production in North America: The new artisan, distancing, and the periodic social economy. *Economic Geography* 79: 241–263.

Power, D. and Jansson, J. 2008. Cyclical clusters in global circuits: Overlapping spaces in furniture trade fairs. *Economic Geography* 84: 423–448.

Rallet, A. and Torre, A. 2009. Temporary geographical

proximity for business and work coordination: When, how and where?. *SPACES Online* (2009–02): 1–25.

Ramírez-Pasillas, M. 2008. Resituating proximity and knowledge cross-fertilization in clusters by means of international trade fairs. *European Planning Studies* 16: 643–663.

Ramírez-Pasillas, M. 2010. International trade fairs as amplifiers of permanent and temporary proximities in clusters. *Entrepreneurship & Regional Development* 22: 155–187.

Wickham, J. and Vecchi, A. 2008. Local firms and global reach: Business air travel and the Irish software cluster. *European Planning Studies* 16: 693–710.

Yamamoto, K. 2002. The Suwa-Okaya district of Japan as a learning region: Learning and innovation in technology and machine and metal manufacturing skills. *Keizaishirin* 69(4): 271-302. (JE)

Yamamoto, K. and Matsuhashi, K. 1999. Networking in an industrial area characterized by agglomeration of SMEs. *Keizaishirin* 66(3・4): 85-182. (J)

Yamamoto, K. and Matsuhashi, K. 2000. Innovation and learning in an industrial district in Japan: A Case study on SMEs in Suwa-Okaya. *Keizaishirin* 68(1): 269-322. (J)

Yoon, H. and Malecki, E. J. 2010. Cartoon planet: Worlds of production and global production networks in the animation industry. *Industrial and Corporate Change* 19: 239–271.