*Journal of the Korean Geographical Society*, Vol. 34, No. 5, 1999 (531~542)

# Geographical Development of the Advanced Information Services Industry*

Taehwan Kim**

# 전문정보서비스산업의 지리적 발달에 관한 연구*

김 태 환**

**Abstract :** This paper examines the growth of new and technologically advanced information services sector in the context of global-local dimensions of current industrial restructuring. The locational decision becomes important to competitiveness of the AIS firms due to the paradoxical requirement of both catering for local needs and reaching the global markets simultaneously. It is argued that the global process of the industry is intertwined with an equally influential force of localization at global information cities. It suggests that there is a deepening spatial concentration of the industry, reinforcing the uneven spatial development of global economy.

Key Words : information services industry, globalization, information economy, global cities

**요약 :** 본연구는 경제의 정보화와 기술발달에 의해 등장한 전문정보서비스산업을 사례로 하여 세계화-지방화의 경향하에서 공간적 발달 경향을 고찰하였다. 산업의 세계화가 가속화되고 지역간 경쟁이 심화되는 추세 속에서 전문정보서비스 산업은 특정 장소가 제공하는 입지요소에 더욱 민감하게 될 것임을 시사한다. 유연적 전문화의 가설과는 달리 이 산업이 특정지역에 뿌리내리게 되는 요체는 특정 지역과 세계적 차원의 연결 및 통합의 원활함에 달려있다. 세계도시와 같은 양호한 입지조건을 갖춘 지역은 여타 지역을 배제하고 집중을 지속시켜 나가는 경향을 보여 준다.

주요어 : 전문정보서비스산업, 세계화, 정보화경제, 세계도시

## 1. Introduction

Since the late 1970, there have been dramatic changes in the economy as a whole. Rapid technological change and shifting patterns of international competition have introduced new pressures for all sizes of firms. There is a continuing debate on the spatial and geographical outcomes of the recent process of industrial restructuring. Two interpretations of the relationship between the recent restructuring of the economy and urban and regional development appear to compete: the dominance of global production and networking, and new industrial complexes grounded on local linkages and autonomy (Amin, 1994). Each prevailing approach to the new geographies of the transition from Fordism to post-Fordism proposes a realist picture of regional economic development, drawing on the evidence both of specific industrial sectors and different regions. Some research suggests a paradoxical coexistence of globalization and localization processes (Dunford and Kafkalas, 1992). Therefore further research needs to be undertaken on the nature of the global-local interplay which has a profound importance on the fortune of cities and regions, depending on the heterogeneity of industries and local environments.

The Advanced Information Services (AIS)[1] sector has shown a rapid and sustained growth with a key and expanding role in the increasingly integrated industrial system. It is becoming well noted that information services play a pivotal and integral role

---

* The earlier version of this paper appears in the anthor's Ph.D. thesis.

** Research Fellow, Korea Research Institute for Human Settlements

in technological and structural trends in the wider economy as they provide the source and indicator of technological innovation (CEC, 1994). The information services also contribute to the growth and development of firms by facilitating industrial organizations to respond and adjust to changes in their external environments (Howells, 1988). The advanced information services sector, therefore, has the potential to promote regional growth and provide significant long-term effects on local and regional economic development.

If the economy is becoming centered on information-intensive activities, then new information service provision is central to economic changes. Therefore looking into the development of new information service industry is of significant importance to the understanding of new economic circumstances that are emerging around the information economy. The new service provision is becoming intertwined with other economic activities (CEC, 1994) and in the policy context in the advanced economies, this sector is believed to be a key tool in promoting the competitiveness of industries and regions. But there has been little attention paid to the geographical development of this new sector. Research into its growth and geographical development may be one of the key inputs to the understanding of the spatial ramifications of the transformation into the information society.

This paper investigates the characteristics of the development of this new industry in the context of global-local dimensions of current industrial restructuring. For the purpose of this objectives this study involves an empirical investigation with the use of an extensive survey on the UK-based AIS firms.[2)]

## 2. Theoretical issues: industrial districts and global networks

From a geographical perspective a key issue of recent economic transition is the relationship between the localizing or globalizing tendencies of many business firms and the prospects of local economic development along with the associated organizational and technological changes.

The transition from Fordism to post-Fordism, it is argued, has coincided with changes in the spatial patterns of capitalist economies, to a post-Fordist regime with strong agglomerative tendencies in flexible production sectors (Scott, 1988). The shift towards technically dynamic production systems implies new opportunities for the location of industrial activities. According to this approach, flexible specialization encourages the geographical clustering of specialist firms. Locational proximity is said to offer agglomeration economies such as a reduction in transaction and transportation costs, the pool of skills and know-how, face-to-face contact, social culture of co-operation and trust, and the growth of specialized services and input-output networks (Sable, 1989). It is claimed that the spatial concentration of customers and suppliers is likely to promote efficiencies and specialization and thus enhance the capacity of innovation (Storper, 1992). As a result, the formation or revitalization of regional economies is encouraged, and the reconsolidation of the regions as a locally integrated unit of production (Scott and Storper, 1992).

In the study of this approach, a considerable efforts has been paid, in order to understand the spatial outcome of recent industrial restructuring process, to the detailed and unique characteristics of industrial organization in particular localities (Phelps, 1992). Over the last decades this has formed a new orthodoxy of space economy under capitalist development - endogenous regional development (Lipietz, 1993). This school of thought insists that 'the success and growth of industrial regions are essentially the result of their own internal dynamic' (p.12). Therefore the internal strategies of the 'industrial districts' command the future hierarchy of urban systems worldwide.

In contrast to the approach of industrial districts the literature on contemporary patterns of industrial restructuring suggests the trends for global hierarchies and global networks (Dunning, 1993; Amin, 1994). It is argued that the contemporary transformation is more clearly expressed by the globalization of production and markets. The argument places emphasis on the other aspects of current economic transformations: the growing importance of transnational corporations; the rise of new global business strategies of companies and their increasing influences on local development capabilities. Thus external economic forces influence the trajectory of a region' s development through their effects on local establishments which are networked to global firms (Amin and Thrift, 1992).

Regarding the regional implications of the new forms of production organization which is caused by the trend towards integrated networks at the global scale, Shoenberger (1991) asserts that only a smaller number of places are likely to be favored for more integrated multinational corporate investments. And thus the degree of geographical differentiation in terms of investment and growth tends to increase. More advanced regions are advantaged to attract such new investments founded on the globalized corporate networks because they may be able to offer 'the technical, social and institutional infrastructure for sophisticated and knowledge-intensive production'. A much more real possibility is, it is insisted, that 'regional fortunes are increasingly intertwined with global events that are largely beyond a single community's control' (Glasmeier, 1994, 139). This emphasizes the point that, 'the development of global geographies, rather than local agglomeration, is considered to be a key driving force beyond Fordism' (Amin, 1994, 25).

There is also the other position that is in the middle ground between them. On the one hand the globalization process must be locally fixed in order to take advantage of spatial divergence and uniqueness. On the other hand the local economy must be closely integrated into the global context in order to adapt to the rapid changing nature of technological and organizational development. What is evident for the current regional economic development is not the separation of localization process from the globalization, but the creation of an integrated global-local connection. What has happened in the real world is not a shift towards resurgence of local but an evolving 'global-local nexus' (Robins, 1989). It is the 'global integration of locally embedded activities' that characterizes the key dynamics of the present restructuring process (Robins and Gillespie, 1992).

The Advanced Information Services sector may be included in the new activities which reflect the characteristics of 'post-Fordist' sectors such as high technology and advanced producer services (Albrechts and Swyngedouw, 1989). Following the logic of the globalization and flexible specialization theses, explanation of the internationalization and concentration of the AIS industry begs for an empirical study as to the extent of external linkages, its local dependency, and the characteristics of internationalization.

## 3. Market development of the AIS

Information services are strategically important in the rapid economic change. It is mainly the growing informatization of the economy and the increased global interdependency of economic activities that has led to the intensive use of specialized information services. As firms have adapted to structural change the utilization of external and specialized information services have achieved a strategic importance. As with the advantage of AIS compared to traditional mode of information access demand for AIS has spread out across many manufacturing and service industries with its discerned, speedy, comprehensive and real value-added features.

As both the general public and business users tend to demand easy, ready and reliable access to information services an increased volume of electronic information products and services are emerging on the market. The increasing demand for electronic information is believed to have implications for all of the information industry involved, which has led to increasing number of new participants from various sectors. As a result the industry has sustained a remarkable growth over the past years, and the advanced information services segments are becoming significant in their right and are developing into a separate sector of their own.

The evolution of the AIS market results from the interaction of the supply of and demand for information. As demand for AIS has grown and changed, the market has become more diversified on the one hand and more integrated by way of interconnection on the other. In terms of geographical market development, it was highlighted that, though the AIS market has shown highly uneven development favoring the Triad market over the past few years, international trade of AIS has grown gradually and the market has been becoming international (US DOC, 1994).

Table 1 gives a picture of the geographical market pattern of the surveyed information service firms. The overall structure of market share at different geographical scales indicates, to a considerable extent, the trends of internationalization. Although all the respondent firms depended on the national market to various degrees, most of the firms sold their information products or services abroad. Over 84 percent of the respondent firms export to European or other overseas markets, and one-third of the respondent companies have international market linkages with more than 50 per cent of their total output. It is also notable that only 17.7 percent of the companies were found to have a more than 50 percent dependence on these markets. And yet over 20 per cent of the companies have no local and regional market linkages. The surveyed firms showed the greater propensity to sell their production to the rest of the national market rather than in the local & regional market.

Table 2 provides details on whether the proportion of each geographical market share had changed over the past three years. As a whole, overseas markets had shown the greatest propensity to increase their market share and the least propensity to decrease them. In particular, over half of firms that had exported to other overseas markets claimed to increase their market share. Of particular note are the lower levels of 'increase' in local & regional markets compared with the rest of the national market. 65 percent of firms answered that the local & regional market had been remained the same over the period.

From the evidence of the survey, it can be firstly concluded that within the national market, the importance of the local & regional market has been lessened compared to the rest of national market.

**Table 1. Geographical market share of UK-based firms**

| Market Share | UK Market | | Overseas Market | | |
|---|---|---|---|---|---|
| Percentage | Local & Regional Market | Rest of UK | European Market | Other overseas Market | Overseas Total |
| 0 | 12 (22.2) | 3 ( 5.6) | 20 (24.4) | 22 (26.8) | 13 (15.9) |
| 1-25 | 24 (44.4) | 17 (31.5) | 42 (51.2) | 36 (43.9) | 25 (30.5) |
| 26-50 | 9 (16.7) | 15 (27.8) | 14 (17.1) | 12 (14.6) | 16 (19.5) |
| 51-100 | 9 (16.7) | 19 (35.2) | 6 ( 7.3) | 12 (14.6) | 28 (34.1) |
| Total | 54 (100) | 54 (100) | 82 (100) | 82 (100) | 82 (100) |

Source: Survey Data

**Table 2. Geographical market change of UK based-firms**

| Market | Change of Market Share over 3 years | | | |
|---|---|---|---|---|
| | Increased (%) | Constant (%) | Decreased (%) | Total* |
| Local & Regional | 6 (15.8) | 23 (60.5) | 9 (23.7) | 38 |
| Rest of UK | 15 (37.5) | 17 (42.5) | 8 (20.0) | 40 |
| UK Total | 12 (26.7) | 25 (55.6) | 8 (17.8) | 45 |
| European | 23 (47.9) | 21 (43.8) | 4 ( 8.3) | 48 |
| Other Overseas | 26 (54.2) | 17 (35.4) | 5 (10.4) | 48 |

* Only including cases provides each sub-category data.
Source: Survey Data.

Secondly and more importantly, it seems to be clear that even though the national market had accounted for the larger segment of the output, the overseas market opportunity, for most firms, has become important, which has coincided with the internationalization of AIS industry. It is decisive for AIS firms to revise corporate strategies in order to compete and be on the leading edge under the changing market conditions whether in national or international markets. One of the general trends seems to be more market-oriented. It is believed that this tendency is responsible for placing strategic emphasis on the close interaction between the service supplier and users.

However AIS suppliers are faced with two areas of tension - between penetration of international market and a growing requirement of more close relationship with market and users: in particular high growth is displayed by international AIS markets; as such the manifest spatial configuration is of increasing international market linkages. Nevertheless, it is apparent that there is growing need for proximity to the existing and potential 'information users' especially when increasing emphasis is put on the close interaction between service suppliers and customers as a key input for service innovation, and thus their competitiveness.

The argument of the 'corporate complex' approach which regards direct input-output market relation as one of the main locational factors seems to be misleading at least for the AIS industry. It is likely that to some extent market relationship is an indirect factor in the locational choice of AIS firms. The development of the AIS industry with reference to market development in this study supports the globalization thesis. However, it also needs to be supplemented by the particular emerging imperative for localization of AIS production. In reality, some large firms pursue a global strategy with 'touch-on' end-user approach by establishing offices in major cities. Small and medium sized specialized firms face the challenge of global market growth with the discerning user demand, by agglomerating in the largest cities where possible so they can filter the market change and get up-to-date market information.

## 4. Geography of inter-firm relationships

The nature and change of inter-firm linkages through input-, output-linkages has a significant implication for the geography of industrial production (Holmes, 1986). The increasing global nature of R & D, production, marketing and sales means that it is becoming important for AIS companies to be involved in complex forms of inter-firm relationships within the AIS industry and between AIS firms and other related industries. The globalization of the information market and trends in technological change have influenced the nature of interrelationships between AIS providing companies. The need to globalize and diversify has led the companies to look again the existing value chains of service production. Geographical analysis of these patterns is particularly essential to the understanding of the evolving industrial system of the AIS sector because the changing spatial reorganization of AIS production is considered to be a major indicator of how the industry adapts to forces of structural changes.

With the development of technology and market the trend towards convergence has been intensified.[3] Convergence that takes place in the information industry in general, is particularly centered on the content sector of information service industry (CEC, 1994). The information content is a key requirement and is regarded as a driver for demand in the AIS market. It is anticipated that convergence will be continued together with a increasing level of collaboration between firms in the industry. What is clear is that their inability to adapt the trends towards convergence restricts the opportunities offered by the market forces. It is well acknowledged among information companies that to exploit this opportunity companies need to pursue alliances with technology and/or network (distribution channel) providers.

A narrowed down focus of inter-firm relationship is analyzed using the survey data. The result shows that the interaction between suppliers has been increased.[4] It was also found that increasing reliance on the inter-firm collaboration proves to be becoming complex. A consequence of these increasingly complex inter-firm relationships is a heterogeneous mixture of players and a range of data sources. Of importance is that in reality the production and exchange of AIS is subject to a complex transaction matrix, which is prone to variations within the dynamics of strategic and operational factors of AIS companies.

Regarding spatial patterns of inter-firm relationship, it was found that the inter-firm collaboration and linkages in the AIS sector become increasingly international affairs. Though a majority of firms have concentrated in the South-East regions, inter-firm collaboration networks between local or regional companies were relatively low. Evidence is also found to underpin the growing global trend of production networks. The inter-firm linkage through the subcontracting relationship proved to be more international rather than local or regional.[5] Thus for the AIS industry there would appear to be little support for the localization thesis that agglomeration of business service industries are asserted to be characterized by localized inter-firm networks.

This paper is concerned with the issue such as how these relationships are rooted in place: to what extent is the location important in the formation of collaboration? Does distance matter to the functioning of business networks? The extent to which inter-firm relationship are different according to the location of company, is analyzed.

In order to investigate the preference of the location of subcontractor by the companies, Table 3 measures the location of subcontractors by the location of companies who contract-out. Of particular concern is that there is no difference between companies in London or Southeast and those in the rest of UK in terms of location of subcontractors. Though over 70 percent of AIS firms locate in London and Southeast there is no evidence to show that companies in those regions favor local and/or regional partners. Companies are likely to contract-out work irrespective of subcontractors' locations. It would appear to be the case that the

**Table 3. Location of subcontractors by location of companies**

| Subcontractor / Location | Local and Regional | Rest of UK | Overseas | Total |
|---|---|---|---|---|
| London & South-East | 13 (32.5) | 16 (40.0) | 11 (27.5) | 40 |
| Rest of UK | 5 (31.3) | 5 (31.3) | 6 (37.5) | 16 |
| Total | 18 | 21 | 17 | 56 |

Source: Survey Data ($\chi^2 = 0.609$, P.F = 2) location of subcontractor is not important to the companies' decisions. In the respect of subcontracting relationships, given the sheer concentration of AIS firms in the South East region it seems that local (regional) agglomeration does not have an effect on the formation of local linkages.

The results from the survey data show that although there is a geographical pattern of interrelationship, this is not directly ascribed to the locational factors such as the advantages of proximity and localization economies and so on. This evidence, on the contrary, suggests that the changing nature of inter-firm relationships, especially the increasing degree of international partnerships, is likely to have an influence on the geographical development of inter-firm relationships.

It is further analyzed whether these networks is distinctive to a certain location. Table 4 gives the extent to which company undertakes subcontracting work by the location and the extent to which company depends on external information providers for their database production by location. It is evident from the inward linkage pattern that companies in peripheral regions are more actively involved in subcontracting work for other organizations. It may suggest that the companies in peripheral regions are relatively less vertically disintegrated in structure than their counterparts in the core regions. Thus they can not but be closely integrated into the value chain of AIS production. It seems not to be, however, that they are at disadvantage in term of inter-firm linkages, as there appears to be no localization economies in the core regions. On the other hand, outward linkage pattern reveals that there is no significant difference between companies in core and peripheral regions. This may result from the fact the linkage is not localized but more internationalized.

In sum, the spatial structure of inter-firm relationships in the AIS industry is complex and dynamic. There appears to be a certain geographical pattern of inter-firm relationships in terms of strategic collaboration and subcontracting activities. It is however difficult to ascribe these to locational effects. One clear feature is that such an increasingly internationalized inter-firm linkage pattern is likely to reflect the growing importance of the overseas market. The production space of the AIS industry is already much more international than was believed. There are apparent signs from the evidence that the need for international linkages is one of the crucial factors for the location of AIS firms. The flexible specialization model often claims that the concentration of business service industries, especially one based on information technology, in large metropolitan areas is analogous to the 'industrial district' of manufacturing activities. The evidence, however, provides little indication that the agglomeration of the AIS industry is characterized by vertically disintegrated firms. Rather, it may be the case that given the increasing pressure for convergence of technology and market the likely trend will be more integration within a organization. Even though there are growing needs for inter-firm collaborations more emphasis is likely to be put on international scope.

**Table 4. Inward and outward linkage of AIS company by location of company**

| Location | Inward Linkage | | | Outward linkage | | |
|---|---|---|---|---|---|---|
| | Yes | No | Total | Yes | No | Total |
| London | 15 (28.8) | 37 (71.2) | 52 | 34 (59.6) | 23 (40.4) | 57 |
| Rest of UK | 9 (56.3) | 7 (43.8) | 16 | 9 (47.4) | 10 (52.6) | 19 |
| Total | 24 (35.3) | 44 (64.7) | 68 | 43 (56.6) | 33 (43.4) | 76 |

Source: Survey Data (*: $x^2 = 4.02$, P.F=1); (#: $x^2 = 0.87$, P.F=1)

## 5. Place-embeddedness of the AIS industry and global cities

Localization is one aspect of the globalization strategy of large firms (Cooke *et al.*, 1992). Together with a decentralization of the AIS activities across the regions even the largest firms need to be locally embedded in a way to make the most effective use of local characteristics. As the market expands more globally firms become more sensitive to the advantage of certain locations. As information is becoming provided regardless of the distance, the AIS companies put more importance on the other locational factors. Thus a particular 'site' becomes important as a crucial source of value added.

It has been discussed that there has been a continuing internationalization of market, production and large firms. The industry can be described as being in a state of flux, but in the meantime, this coincides with the concentration and centralization of the AIS industry in large metropolitan areas.[6] The persistence and deepening concentration of the AIS in large cities indicates the existence of strong agglomeration forces prevailing in the realm of (advanced) information services. Various externalities play a role in causing the high concentration of information services: access to staff, market and technology, personal contacts, access to supporting services and so on. All these locational considerations are strongly shaped by conditions of the specific locality.

Therefore 'place' does still matter for the organization of information production and markets. Given the fact that spatial proximity is not a prerequisite of the delivery of advanced information services, the question is then what is the role of place in the better performance of the AIS production and delivery. Though the scope of information becomes increasingly global, the production of information services and products remains local and the character of the particular locality matters to the effective operation of the AIS.

As in other information activities, the AIS are engaged in acquiring, processing, storing and disseminating information of one kind or another. Thus the principle of information flows over space may have implications for the locational development of the AIS industry. It is long been observed that information activities are heavily concentrated in the largest cities (Gottmann, 1961). As Pred (1977) noticed, specialized information which influences the decisions of locational actors is not spatially ubiquitous: the circulation and availability of specialized information varies from place to place. Spatial bias is partly due to the tendency that new information is most likely to be generated in the larger cities where human interaction is greatest. It would be expected therefore that firms and individuals seeking access to this information tend to locate close to the foci of information generation.

The spatial aspects of characteristics of information generation, exchange and diffusion discussed so far, has clear relevance to the localization need of the AIS industry. Information as one of main external location factors associated with agglomeration has been identified to be essentially pertinent to the location of the AIS industry because the industry is more information intensive than others in its role of both information receiver and producer.

In short, in an increasingly globalized economy there is a requirement for production sites of specialist information services, especially in the information-intensive environments of cities. However, the spatial development of the AIS industry is not corresponding to the thesis of 'flexible specialization' strategies which emphasizes the renaissance of locality and regions. Not every city has the basic requirements for development of the AIS industry such as information-richness and the like.

The current status of the AIS industry is compounded by the unique characteristics of global information centers which is crucial to attract the innovative AIS companies: the volume and quality of information circulated which is main source of their products, the wide variety of demand bases especially through the head-quarters and thus the breadth of information handled by them which is the main source for decision making on marketing and sales, the level of high order producer services easily obtained, the types of advanced telecommunications networks available and their global reach, and the global reach of partners and clients and so forth.

The AIS companies continue to feed on these information resources for their next round of innovative products. As well as the strong institutional presence such as financial institutions, large corporations, various kinds of public and private agencies and associations, and service organization, etc., there are plenty of representative (soft type) institutions that are vital to the collective interest of the information sector.

These trends, in turn, underpin the importance of global information centers and are the major contributing force in the formation and consolidation of global cities. The AIS industry may be producing new and enhanced forms of uneven regional development. The emerging spatial configuration of the AIS development is the agglomeration of information companies in a few global cities and dense information networks between them. The established centers of the advanced information services are likely to extend their influences over dispersed markets. As a result, global information cities seem to command much of the world information circulation.

## 6. Conclusions

This paper has focused on the spatial consequences of the development of the AIS industry. It was discussed that the nature of the AIS activities should be understood in the context of the transition from an international to a global economy. In relation to this focus, the study on the AIS industry provides a window into the issue of global-local interfaces. The global organization of the information market and production is closely related to the development of certain territories where the maintenance and reinforcement of the AIS activities play an important part. The information richness in large cities has led to concentration of the AIS industry, that is the reinforcement of information linkages in these cities. This process may help to concentrate skilled, high value-added services in the key cities in the world, producing new rounds of spatial inequality.

There is no doubt that the nature of the industrial activity has a significant influence on the character of corporate restructuring. Contrary to some arguments which suggest that the transition from a Fordist corporate structure to a vertically disintegrated flexible specialization is the universal trend across different types of activities, the evidence of the AIS industry points towards increasing concentration and integration in the particular localities.

The manner in which the increasing trend towards a global economy is associated with the AIS industry has two aspects: the role of global force in the globalization of the AIS industry and the central role of the information service activities in the globalization processes. Globalization does not mean the particularity of place or that the locality is without significance (Massey, 1991). The global process of the AIS activities however is associated with new forms of localization in global information services. It seems to be clear that while the AIS activity is largely determined and limited by global conditions, it is likely to bring about competition between localities for attracting the AIS activities: new intricate relationships between global space and local place. The local does still matter with respect to the optimum sites of location. The most evident example of this process is the central role of world or global cities. These world cities offer the specific production conditions to AIS firms enabling them to extend their global reach without comparable diversification of their locations. Thus the global and local become inextricably entwined.

## Notes

1) The AIS industry is defined as a newly developed information services sector which is based on information technology (IT). IT encompasses three information industry segments: information contents, communication and transaction. The AIS is more closely related to the information content segment. The AIS covers various forms of information delivery channel such as online database services, videotex, audiotex, CD-based interactive information products, multimedia information products, satellite broadcasting of business information, Internet-based information filtering services and so on.

2) The survey was carried out during the period of January 1994. It intended to target all AIS organizations in the UK. A population of 354 individual companies was identified and a total of 102 represents were gained, with a response rate of 28.8 percent. The regional distribution of the AIS companies in UK and survey firms is given in following table.

| Location | Survey Sanple | UK organizations |
|---|---|---|
| Greater London | 41 (40.2) | 188 (53.1) |
| South East | 38 (37.2) | 89 (25.1) |
| Rest of UK | 23 (22.6) | 77 (21.8) |
| Tatal | 102 (100) | 354 (100) |

3) For the AIS industry, strategic alliances, collaboration between firms and contracting-out activity at a international scale have become a business rule, which appear to support the view that these inter-firm relationships are becoming a competitive vehicle in a globalizing economy (Cooke and Wells, 1992).

4) Nearly half percent of the company have experienced strategic collaborations and over 50 percent of the company are involved in contacting-out activities.

5) Survey results showed that whereas less than 20 percent of information providers have local and regional networks, more than 40 percent of those firms have international inter-firm networks.

6) In the UK, half percent of the AIS company is located in London.

## References

Aharoni, Y. (ed.), 1993, *Coalitions and Competition: The Globalisation of Professional Business Services*, Routledge, London.

Aksoy, A., 1992, Mapping the information business: integration for flexibility, in Robins, K. (ed.), *Understanding Information: Business, Technology and Geography*, Belhaven, London.

Albrechts, L. and Swyngedouw, E., 1989, The challenges for regional policy under a flexible regime of accumulation, in Albrechts, L., Moulaert, F., Roberts, P. and Swyngedouw, E. (eds.), *Regional Policy at the Crossroads: European Perspectives*, Jessica Kingsley Publishers, London.

Amin, A. and Robins, K., 1990, The re-emergence of regional economies? The mythical geography of flexible accumulation, *Environment and Planning D: Society and Space*, 8(1), 7-34.

Amin, A. and Thrift, N., 1992, Neo-Marshallian nodes in global networks, *International Journal of Urban and Regional Research*, 16(4), 571-587.

Amin, A. and Thrift, N., 1994, Living in the global, in Amin, A. and Thrift, N. (eds.), *Globalisation, Institutions and Regional Development in Europe*, Oxford University Press, Oxford.

Bakis, H., 1981, Elements for a geography of telecommunications, *Geoforum*, 4, 31-35.

Budd, L., 1995, Globalisation, territory and strategic alliance in different financial centres, *Urban Studies*, 32(2), 345-360.

Castells, M., 1989, *The Informational City: Information Technology, Economic Restructuring, and the*

*Urban-Regional Process*, Blackwell, Oxford.

CEC, 1994, *Report on Main Events and Developments on The Electronic Information Services Markets 1993-1994*, Luxembourg, September 1994, DG XIII/E.

Cooke, P., Moulaert, F., Swyngedouw, E., Weinstein, O. and Wells, P., 1992, *Towards Global Localization: The computing and telecommunications industries in Britain and France*, UCL Press, London.

Cooke, P. and Wells, P., 1992, Globalization and its management in computing and communications, in Cooke, P., Moulaert, F., Swyngedouw, E., Weinstein, O. and Wells, P., *Towards Global Localization: The computing and telecommunications industries in Britain and France*, UCL Press, London.

Dicken, P., 1995, The Roepke lecture in economic geography, global-local tensions: firms and states in the global space-economy, *Economic Geography*, 70(2), 101-128.

Dicken, P. and Thrift, N., 1992, The organization and the production of organization: why business enterprises matter in the study of geographical industrialization, *Transactions, Institute of British Geographers*, NS17, 279-291.

Dunford, M. and Kafkalas, G., 1992, The global-local interplay, corporate geographies and spatial development strategies in Europe, in Dunford, M. and Kafkalas, G. (eds.), *Cities and Regions in the New Europe*, Belhaven, London.

Dunning, J. H., 1993, *The Globalisation of Business: The Challenge of 1990s*, Routledge, London.

Florida, R., 1995, The industrial transformation of the Great Lakes Region, in Cooke, P. (ed.), *The Rise of the Rustbelt*, UCL Press, London.

Glasmeier, A., 1994, Flexible districts, flexible regions? The institutional and cultural limits to districts in an era of globalisation and technological paradigm shifts, in Amin, A. and Thrift, N. (eds.), *Globalisation, Institutions and Regional Development in Europe*, Oxford University Press, Oxford.

Gottman, J., 1961, *Megalopolis: the Urbanised Northeastern Seaboard of the United States*, The Twentieth Century Fund, New York.

Howells, J., 1988, International trade in information services: implications for national and regional development, *Newcastle Studies of The Information Economy, Working Paper No 5*, CURDS, University of Newcastle upon Tyne.

Kellerman, A., 1984, Telecommunications and the geography of metropolitan areas, *Progress in Human Geography*, 8, 222-246.

Kim, T., 1996, The Development of the Advanced Information Services Industry: the Global-Local Paradox, Unpublished Ph.D. thesis. University of Newcastle-Upon-Tyne.

Lipietz, A., 1993, The local and the global: regional individuality or interregionalism?, *Transactions, Institute of British Geographers*, NS18, 8-18.

Marshall, J. N. and Wood P. A., 1995, *Services and Space: key Aspects of Urban and Regional Development*, Longman Scientific & Technical, Harlow.

Massey, D., 1991, A global sence of place, *Marxism Today*, June, 25-9.

Phelps, N., A., 1992, External economies, agglomeration and flexible accumulation, *Transactions, Institute of British Geographers*, NS17, 35-46.

Pred, A. R., 1977, *City Systems in Advanced Economies*, Hutchinson, London.

Robins, K. (ed.), 1992, *Understanding Information: Business Technology and Geography*, Belhaven, London.

————, 1989, Global times, *Marxism Today*, December. 20-27.

———— and Gillespie, A., 1992, Communication, organisation and territory, in Robins, K.

(ed.), *Understanding Information: Business, Technology and Geography*, Belhaven Press, London and New York.

Sable, C., 1989, Flexible specialisation and the re-emergence of regional economies, in Hirst, P. and Zeitlin, J. (eds.), *Reversing Industrial Decline? Industrial Structure and Policy in Britain and Her Competitors*, Berg Publisher, Oxford.

Sassen, S., 1991, *The Global city: New York, London, Tokyo*, Princeton University Press, Princeton.

Schoenberger, E., 1991, Globalization and regionalisation: New problems of time, distance and control in the multinational firm, Paper presented to the Annual Meeting of the Association of American Geographers, Miami.

Scott, A. J., 1988, Flexible production systems and regional development: the rise of new industrial spaces in North America and western Europe, *International Journal of Urban and Regional Research*, 12(2), 171-186.

Scott, A. J. and Storper, M., 1992, Regional development reconsidered, in Ernste, H. and Meier, V. (eds.), *Regional development and Contemporary Industrial Response: Extending Flexible Specialisation*, Belhaven, London.

Storper, M., 1992, The limits to globalisation: technology districts and international trade, *Economic Geography*, 68, 60-93.

US Department of Commerce, 1994, *U.S. Industrial Outlook* 1994.

Wood, P. A., 1991, Flexible accumulation and the rise of business services, *Transactions, the Institute of British Geographers*, NS 16, 160-172.