

**The adaptation of complex associational systems:
Coordination and lobbying strategies of business associations
in the context of globalization, and Europeanization**

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Abstract: This paper develops a new, complex systems perspective for the study of business associations. Whereas established theories have attempted to identify a single logic driving the associational system and its adaptation to changing environmental circumstances, our approach generates a more differentiated picture of multi-layered and multiplex relations. Data representing the organization of ICT business associations in Germany, Japan, Spain, the UK and the U.S. is examined. The data reveals several surprising structures that cannot be explained with earlier theories but which are compatible with our theoretical approach.

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1 Introduction

During the last few decades the environment of political systems in advanced industrial society has changed dramatically. Growing international expansion of economic transaction (to a large part driven by a revolution in communication technologies) led to an unprecedented degree of mobility in capital, goods and services as well as an increasing dependence of national polities from political and economic processes that are beyond their immediate control. Although this did not lead to the end of the nation state as some alarmist accounts have predicted, it undoubtedly led to a change of the power structures in political systems. A growing strand of literature argues that more and more control is transferred to the international level and private actors (such as trade associations, multinational corporations, social movements, etc.) get increasing importance in political processes.

An important question is how this deep structural change has affected the political subsystem of associational interest intermediation, i.e. the capacity of formally organized interest groups to coordinate non-market relations in their relevant sectors, and to advance their members' interests by lobbying and other forms of interactions with political actors (above all governments) in national and international polities. Several important research questions arise: How are associational systems in business representation affected by these changes? Did the supposedly weakened position of the state strengthen or weaken their position? Has the emergence of large firms as political actors undermined the role of business associations or is it only a complementary channel of political participation? How do they respond and eventually adapt to these global transformations? Has this led to changes in lobbying and coordination strategies, for instance to an increasing importance of inter- and transnational actors as lobbying targets? How do

structural changes in associational systems relate to these transformations? Are some national associational systems more successful to cope with these challenges?

We seek to answer these and related questions by applying a modernized systems theory to the evolution of associational systems. This approach goes beyond traditional “single logic” approaches, which assume that there are “silver bullets” which magically explain complex societal phenomena by few organizing principles. Complex systems approaches in contrast suppose that societies are multi-layered and involve a variety of components and multiplex relations (Bauer 2004). This has profound consequences for theorizing adaptation. Empirically we apply this perspective to a business sector that was particularly exposed to this political, economic, and technical transformation. Our object of study is the ICT sector in five advanced industrial countries – the U.S., Japan, Germany, UK and Spain. We are dealing thus with a quasi-experimental situation where an identical technical shock (e.g., digitization, advances in microelectronics) is absorbed and processed quite differently through differently structured associational systems and varying political, economic, and cultural macro structures.

In the following sections we begin with an outline of the complex systems approach and its implications in associational research. The complexity perspective then will be applied in a systematic structural description of the five national systems. Based on this synchronous perspective we analyze how the various systems responded and adapted to the various challenges. Detailed data on the ICT business associations of the five countries was collected via structured questionnaires in 2002 and 2003. The paper builds on earlier publications by members of the research group (Grote and Lang 2003; Grote and Schneider 2005; Lang 2006; Lang and Schneider 2005; Schaumayer 2003). The research upon which the paper draws was funded by the

Deutsche Forschungsgemeinschaft. We end the paper summarizing the major findings and presenting some implications for further research.

2 A complex systems perspective in associational research

In this paper we use systems theory to conceptualize associational interest representation and intermediation in political subsystems and its adaptation towards critical challenges at the political and economic level. Many political scientists meet such an announcement with considerable skepticism. Isn't systems theory a relic from past and forgotten ages of theory development that has turned out as a dead end?

Indeed, holistic political system theory in the light of Parsons, Easton and Almond (Almond 1974; Easton 1967; Parsons 1951) has been successfully be crowded out by structuralists during the 1970s, and by individualistic and institutionalist approaches during the 80s and 90s. Only in Germany and some European countries system theory in Luhmann's version still has some purchasing power (Luhmann 1995). At the global scale, the dominant theories in political sciences have in general become more conflict-oriented and actor-centered during the last decades. However, parallel to these theoretical shifts some new approaches have evolved. These incorporate basic ideas of systems theory (i.e. actors, events and processes are embedded in *necessary* relations among themselves and with respect to their respective environment) but, at the same time these macro and meso level structures relate to interactions and interdependencies at the micro-level. In some of these approaches embeddedness and interrelatedness of micro processes within macro environments become so central that they could be called "crypto systemic".

At least three contemporary approaches may be mentioned in this respect. They are located in quite different subdisciplines:

- Neo-institutionalism in political science and economics, emphasizing the role of institutional environments in enabling, restricting and shaping individual action on the one hand (Thelen 1999), as well as the systemic character of institutionalized rules. This is, for example, expressed in the concept of “cross-subsystem complementarity” used in the varieties of capitalism debate (Hall and Soskice 2001), or the concept of “institutional matrices” (North 1991).
- Ecological approaches in the sociology of organizations (population ecology and organizational ecology) are in essence applying the “ecosystem” approach to social reality. They emphasize the dynamic character of interdependencies and the multiplexity of relations between the constituent entities of these systems and their changing environments (Baum 1996; Hannan and Freeman 1989).
- Complexity theory in sociology and political science emphasizes emergence from local interaction and complex evolution and adaptation patterns that vary across time, space, and level. This theory movement is strongly influenced by system theoretic reasoning in the natural sciences (Anderson 1999; Kappelhoff 2000; Kauffman 1995; McKelvey 1997; Mitleton-Kelly 2003).

A common feature of these approaches is a multilevel and multisectional perspective on society in which social processes cannot be reduced to a few basic principles that shape action and social evolution at the micro or macro level. Rather, explanations have to take into account that social processes are nested and differentiated, leading to multiple mechanisms and forces that shape social action. For instance, associations are not just clusters of socio-political actors pursuing common objectives. As soon as they are established as formal organizations they create a division of labor, communication channels and enable various coordination mechanisms. Once those

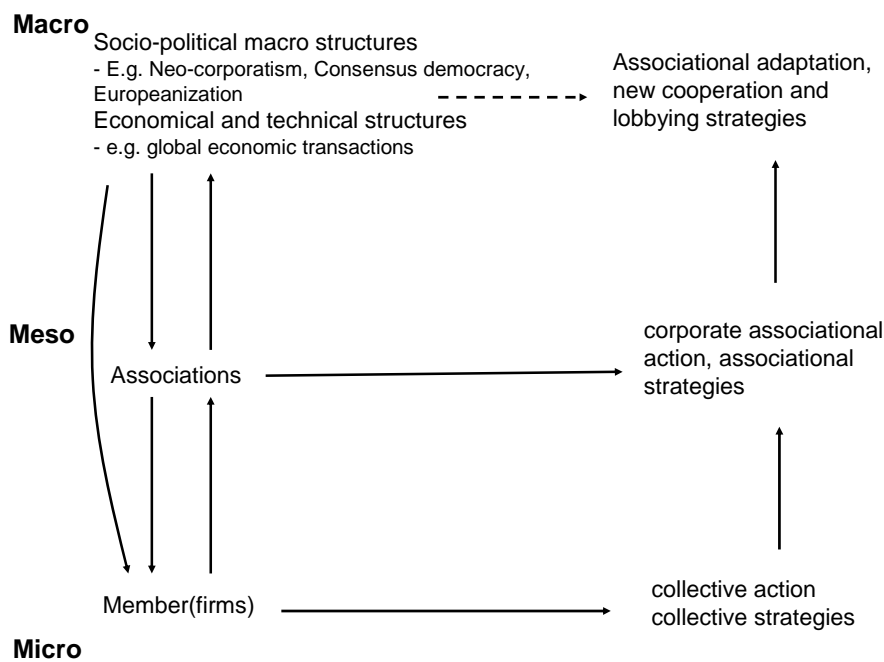
collectives become corporate actors, new social qualities (at least new interests towards organizational maintenance) emerge. In addition, interests do not only reflect economic concerns but are shaped by the respective political and cultural environments. In many associations, the motives to join and support this form of collective action cannot be reduced to mere economic utility maximization.

A useful integration and systematization of this complex system perspective has been provided by the CESM model of the Canadian philosopher of science Mario Bunge (Bunge 1996, 1999, 2000). In his perspective the most elementary description of a system is the identification of its various components *C*, its differentiation and embeddedness in an environment *E*, multiple structures *S* including various relations among components (endostructure) and between components and their environment (exostructure). However, a description of a system based on components, environment and structures would still be incomplete if the various mechanisms *M* and processes that make a system “tick” are not singled out. A further important point is that every system is nested in other systems of high order, and composed of systems at lower level - only the universe has no supersystem. Systems thus vary in their compositional, structural, ecological and “mechanismic” complexity.

A systemic explanation of associational change thus also implies a vertical differentiation in macro, meso and micro levels which may be conveniently depicted by the *Boudon-Coleman-Diagram*. Based on the analytical approach of the French sociologist Raymond Boudon and its American counterpart James Coleman macro phenomena have to be explained by the interaction of micro and macro levels of social reality (Boudon 1979; Bunge 1996; Coleman 1990). In our perspective, associations are meso level components of associational systems which are – at the macro level – embedded in political systems that imply specific features in the integration of in-

terest groups into the political process. Preexisting associational structures shape individual action and strategies at the firm level. Changing political and economic macro structures induce adaptation strategies at the micro and meso level.

Figure 1: Associational systems in a Boudon-Coleman-Diagram



As we will show in the subsequent paragraphs, theory development in associational research has also lead to concepts and approaches that incorporate elements of systems theory and, consequently, some of these might be called “crypto systemic”.

An early holistic account certainly was class theory in a Marxist perspective. In such a view individuals have objective interests based on their economic positions. Similar positions then induce - more or less automatically - collective action among individuals with common or identical interests. A similar holistic view is supported by the pluralist perspective of Arthur Bentley and David Truman, the founding fathers of American interest group research. Unlike

class theory, however, pluralism relates collective interests to subjective motives and driving forces. Not only economic relations but also ideas, religion, emotions, etc. may be the basis of interests that are pursued in a collective manner.

Holistic variants of interest group theory have been most pervasively criticized by Mancur Olson, whose arguments founded the individualistic tradition of interest group research (Olson 1965). This approach emphasizes that even when there are common interests, these do not necessarily translate into collective action. The political pursuit of common objectives depends on a number of structural and situational conditions, and is – based on the individualistic and rationalistic behavioral assumptions – in many cases (e.g. for large groups) rather unlikely. In applying micro economic concepts to the formation of interest groups, Olson was more or less reformulating and systematizing the individualistic exchange theory of collective action, where individuals only join and support a common cause if their individual returns are greater than their costs.

Framed by its individualistic perspective and the almost exclusive focus on individual motives and calculations, Olson's theory has some serious blind spots:

- It overlooks factors shaping and supporting collective action beyond the micro level. As historical and empirical analyses clearly have shown, political systems differ quite substantially in the way the collective pursuit of political goals by private organizations is supported or discouraged. Some systems have hierarchically structured subsystems of interest intermediation which formally incorporate such organization into the political process, as shown by the research on neo-corporatism (Schmitter and Lehmbruch 1979; Streeck and Kenworthy 2005) or on consensus democracies (Lijphart 1999). The emergence and persistence of associational political action thus cannot be explained by membership exchanges with the associa-

tion alone (logic of membership) but also has to integrate exchanges with government and other supporting or competing organizations in the respective associational field (logic of influence) (Schmitter and Streeck 1999).

- It fails to see that an interest group with the structure of a formal organization is not just a collection of individuals that jointly acts towards a common goal, but a “corporate actor” implying some kind of vertical differentiation and asymmetries in the control of action resources. Individuals or subordinate members of the organization delegate action resources to the “corporate actor”. This creates not only organizational self-interests but also a division of labor and communication and coordination structures, enhancing stability and endurance in the pursuit of collective action. Such resource differentiation and power asymmetries have been strongly emphasized by Lipset and by Coleman (Coleman 1974; Lipset, Trow, and Coleman 1956).
- It implies a reductionist perspective on social structures in which social relations are extremely simplified either as competition or hierarchical integration. But this is only a small fraction of the whole spectrum of social relations. In this respect we can learn a lot from biological studies of eco-systems. During the last two decades this new perspective was utilized by the “population ecology” approach within the sociology of organizations, and rather recently by the “organizational ecology” perspective (Baum 1996; Hannan and Freeman 1989). Whereas the first emphasizes the dynamic interaction of organizations with their selective environment, the latter stresses level differentiation in ecological systems, co-evolution and complex interaction. This implies a systematic distinction between various largely autonomous levels - from membership, to individual organizations, population of organizations and overall ecologies. In addition, both perspectives are open for a multiplex perspective on so-

cial relations, where competition and cooperation may be combined with other forms of complex interaction.

- It implicitly assumes that there is one “single logic” of collective action, one single organizational principle that accounts at all level and in each societal subsystem: for individuals, associations and associational systems, be they trade unions, business associations, and social movements. It also overlooks that business associations may play different roles in a system-wide division of labor and also pursue different strategies dependent on their specific structural and institutional context.

In a complex systems perspective these multiple levels and differentiated sections must be integrated into a single picture. In such a view interest associations are composed by individual members (organizations or individuals) whose incentives, motives, calculations, etc. at the micro level are an important component in the explanation of a societal macro phenomenon. At the same time, however, these associations are embedded into political, economic and cultural macro structures and associational fields composed by other associations with whom they compete or cooperate (Granovetter 1985). This relational structure also may extend to relevant actors in the environment (exostructure), whose action may affect their wellbeing and viability, from whom they depend on and which they try to influence (Bunge 1996). Such associational systems are embedded in national political systems with the specific traditions and institutional entrenchments, which again are components of the global political systems in which nation states compete with various forms of private power.

This complex systems perspective has important implications for the study of change and adaptation. Globalization and Europeanization, the grand transformation of our time, entail radical transformations of the world economy and the emergence of a supra-national political system

which undoubtedly has an impact on the domestic level. But subsystems in a complex system perspective are not just gearwheels in a gigantic societal “mega-machine”, but relatively independent system components. Changes in a supra-system may not immediately be translated into isomorphic transformations at the lower levels of a system’s hierarchy.

If we apply this basic idea to political and associational structures, the political system can be seen as a kind of “political ecology” (Ronit and Schneider 1997) in which governmental systems, parties, and organized interests are not unitary, hierarchically integrated wholes whose structures and functions are determined by the organized ensemble (as it would be in a holistic theory), but relatively independent, loosely coupled subsystems which merely happen to co-evolve. When such a multilayered system is hit and shaken by profound environmental upheavals, the relative autonomy of its system components and levels implies that these do not necessarily change with the same speed and to the same degree. Perhaps it is the case that they do not change at all and develop some capacities to absorb the environmental shocks and upheavals.

In the following section we apply this perspective to associational orders as components of political systems in a complex systems perspective. Our object of study is trade associations in the ICT sector of five advanced industrial countries. Our perspective emphasizes the population level of sectoral business associations, in particular focal organizations that dominate this specialized organizational field, the interaction of associations with political actors and their various strategies to adapt or absorb changes in their environments.

3 Globalization and Europeanization as environmental upheavals

An analysis of political and organizational aspects of organized interests in business sectors is unthinkable without some background knowledge on the political, the economic and tech-

nical constraints that organized business faces, and the deep structural changes by which these contexts have been transformed. Major transformation may be summarized by the global expansion of economic transactions through liberalization, privatization and deregulation (Globalization), and, in the European context the creation of supranational regulatory capacities (Europeanization) (Levi-Faur 2004).

3.1 The political environment

In the U.S., jurisdiction over the ICT industries is assigned in a heterogeneous fashion to the local, state, and federal levels. Most ICT industries are regulated by the Federal Communications Commission (FCC), an agency established in 1934. In addition, 50 state public service commissions and more than 16,000 local authorities have some jurisdiction over the sector. In practice, no sector-specific policies and regulations exist for publishing and information services (however, they are subject to general provisions such as antitrust or contract laws). Although the overall vision and specific measures of ICT policy have changed substantially since the 1930s, the organization of policy towards ICT industries remained largely unchanged. The sector-specific legal basis evolved in parallel with information and communication technologies and the specific problems perceived by stakeholders. The different segments are regulated according to four major legal regimes for information flows (Noam 2001):

- (1) Publishing is based on the constitutional (sometimes “print”) model, which gives the owners fundamental free speech rights and protects them from government regulation. Very limited exceptions exist only for obscene content, defamatory speech, or information that is deemed to jeopardize national security or public safety.

- (2) Telecommunication service providers, defined by law roughly as service provider that transport information without modification, include fixed and mobile voice service providers. They are treated as common carriers, which have to make their services available on a non-discriminatory basis and at reasonable prices. Moreover, common carriers have no editorial control over the information transported on their networks.
- (3) Information service providers, more or less defined as service providers that modify the content transported, include Internet Service Providers, Online Service Providers, and other value-added service suppliers. They are essentially unregulated. Given digitization and convergence, this continuing differentiation raises complex classification issues.
- (4) Cable television and information services are treated as private contract carriers. The owners of such electronic conduits exercise commercial freedoms and can, in general, freely contract with customers and business partners. Likewise, with very limited exceptions, they enjoy editorial control over the content transported over their networks.
- (5) Over-the-air broadcasters are treated as trustees of the public interest, subject to only light regulation of content and certain ownership limits. Broadcasting is regulated by the Federal Communications Commission but, as an inherently interstate service, not by the states.
- (6) Cable television is predominantly regulated by the FCC and local authorities, although some states, such as New Jersey and Massachusetts, have consolidated jurisdiction over cable at the state level to create greater coherence in the policy framework for cable and other telecommunications services.

The intensity of regulation differs widely between segments of the ICT industries. The most detailed regulation exists for common carriers. Within this group, the detail and intensity of regula-

tion is highest for local and lowest for long distance service providers, with mobile service providers in between. Local exchange carriers that offered services at the time of passage of the Telecommunications Act of 1996 are subject to more stringent provisions regarding interconnection, network unbundling and resale than later entrants. While these asymmetries are justified with the specific technological and economic conditions of the industry, they often create conflicts over policy or regulatory issues with strong zero-sum aspects.

In the European Union countries the political framework for the ICT industries is shaped primarily by EU directives and decrees that seek to create a common European market, especially in telecommunications. Until the 1980s broadcasting and telecommunications fell entirely under the jurisdiction of the national governments. However, in 1959 first attempts to loosely coordinate the national posts and telecommunications administrations were made with the establishment of European Conference of Postal and Telecommunications Administrations (CEPT). The liberalization and harmonization process in the European Union was triggered by the Green Book of the Commission (1987) that served as an impulse for further community activities in the entire ICT sector (Schneider, Dang-Nguyen, and Werle 1994).

The further extension of liberalization competencies approved by the European Court of Justice brought about comprehensive EC-parameters and climaxed in the liberalization directive which set the path for the introduction of unrestricted competition in the telecommunications market and the admission of alternative networks as of 1 January 1998. The directive also included provisions on the creation of national regulation authorities, whose arrangement remained at the discretion of the member states however. In the information sector the 1989 EU directive “Television without Frontiers” became the central norm for content transmission across borders. It primarily serves to secure the provision of services beyond borders and the maintenance of

program standards. In the content, print and multimedia area there are no community regulations that go beyond the network infrastructure (Levy 2001). These areas are dominated by national provisions.

Table 1: Political regimes in the ICT sector

Political regime	Broadcasting	Telecom, Data transmission	New Media, Internet
Constitutional- Hierarchical Type	Germany, Japan, Spain	USA	
Regulatory-Market Typ	UK	EU, Germany, UK, Spain	Germany, Spain
Market-Regulatory Typ		Japan	USA, Japan
Market Typ	USA		UK

Source: (Drüke 1999).

The dominance of the European level in shaping the political framework for the ICT industries has not led to a full convergence of regulatory regimes within the EU countries. Germany and Spain reveal similar patterns while the United Kingdom deviates slightly (Table 1). Traditional mass media such as broadcasting are granted constitutional status in Germany and Spain and are thus highly regulated. The same holds also for Japan while Anglo-Saxon countries have a clear preference for market settings. Telecommunication and data transmission is object of regulatory regimes. Germany, Spain and the UK have set up independent regulatory agencies that seek to enforce and maintain market competition. New Media and Internet are treated similar to broadcasting with respect to content and legal protection of children and young persons. In Germany

and Spain this falls under the jurisdiction of the federal states while the UK makes use of business self-regulation.

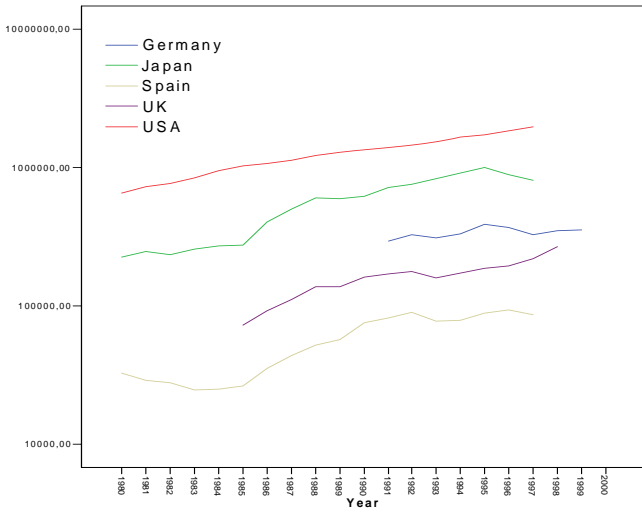
In Japan the political regime for the communications industries shows similarities compared to the EU countries for relying basically on authoritative enforcement of competition and fair trading rules, although in a less restrictive way. In some areas such as tariffs and universal coverage there exist either no regulation or regulation is restricted to NTT only. The broadcasting sector is in contrast to the communications sector, subject to strict supervision and licensing.

3.2 The technological and economic environment

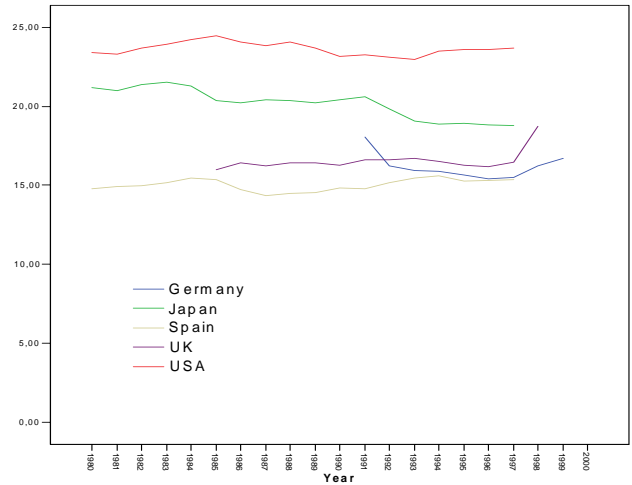
The technological revolution within the *Information and Communications Sector* began at the end of the seventies with the introduction of integrated circuits. Rapid advances in micro-electronic components led to a steady size and cost reduction achieving low energy consumption and higher information storage at the same time. Simultaneously, the process of digitalization set in, allowing for the packing and transmission of larger and larger quantities of information as binary code. This technology permits computers to directly exchange data through the telephone network without having to first convert the information into analogous signals. This "convergence" between telecommunications and computers into a telematic sector paved the path for a multitude of innovations in the services and hardware market. Additionally, the infrastructure for data transmission also improved through the production of newer satellites, the spread of newer materials for cable networks, and the usage of radio frequencies. The radio and printing sectors were not yet affected by this convergence process between telecommunications and computers (Latzer 1998; Sandholtz 1993).

Figure 2: The economic development of the ICT sector

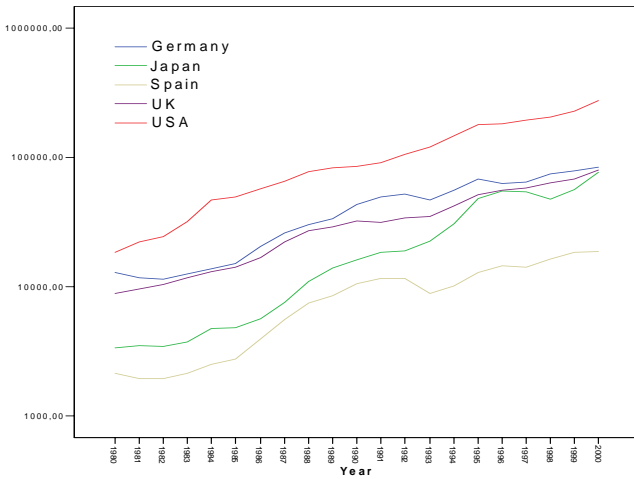
Production (value added) in Mio \$ (log. scale)



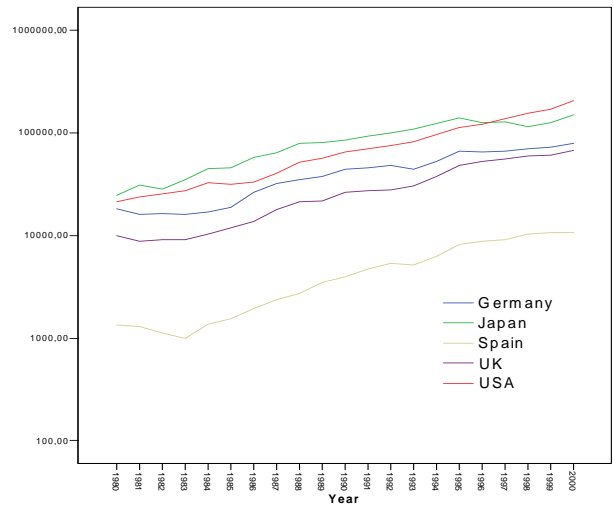
Production as a percentage of GDP



Imports in MN \$ (log. scale)



Exports in MN \$ (log. scale)



Source: OECD STAN Database 2002.

Note: The ICT sector covers (according to the OECD definition) the following ISIC classes: 30 – Office, accounting and computing machinery, 31 – Electrical machinery and apparatus, 32 – Radio, television and communication equipment, 33 – Medical, precision and optical instruments, 50 – 52 Wholesale and retail trade; repairs, 64 – Post and telecommunications, 72 – Computer and related activities, 22 – Publishing, Printing, and reproduction of recorded media.

The further technological fusion between telematics and media into a mediamatic sector has been taking place since the end of the 1980s as a consequence of the increased data transmission capacities and the linkage of different networks. In the process, the interactivity of the infrastructure was enhanced and the restriction to terrestrial networks of the transmission of radio programs was eliminated. The rise of the Internet finally created a platform on which the diverse, and previously incompatibly services could be offered.

High technological innovation rates and market liberalization has led to a steady increase in ICT market volume and production of all five countries (see Figure 2). At the same time foreign trade has grown dramatically and outnumbered production growth. All five countries are similarly exposed to these economic processes and are part of the international division of labor within the ICT sector. All countries - with Japan as the only exception – have a negative foreign trade balance although all countries managed to increase the production of ICT goods and services.

Table 2: Perception of environmental challenges (in %)

	Political factors					Economic Factors					Technological Factors				
	USA	J	D	UK	E	USA	J	D	UK	E	USA	J	D	UK	E
Very important	39	0	53	25	15	61	60	40	58	62	33	50	46	50	31
Important	50	56	40	33	62	17	40	20	25	8	56	40	20	42	23
Less important	11	33	7	25	15	17	0	33	0	15	11	10	27	8	38
Least important	0	11	0	17	8	6	0	7	17	15	0	0	7	0	8
Kruskal-Wallis Test (Chi², p value in parentheses)	12,681 (0,013)					2,532 (0,639)					3,922 (0,417)				

The impact of these exogenous factors on associational behavior is dependent on their perception by representatives of business associations. Therefore we asked them to evaluate the importance

of different environmental challenges to their organization and to locate them at different geographical levels. The results are shown in Table 2 and 3. Not surprisingly, representatives of business associations perceive all three factors as challenges to their associations. Only Japanese representatives rank political factors lower than their U.S. or European equivalents. However, most Japanese representatives still view political factors as important challenges to their associations.

Even less differences in the perception of environmental forces exist with respect to the level from which the challenges originate (Table 3). According to representatives of business association political factors originate at the national (USA, JP) or the EU level (DE, ES, UK). Differences are mainly due to the steady Europeanization of the political framework in the EU countries. Economic challenges originate either at the national or at the global level. In contrast the technological challenges were predominantly perceived as global processes.

Table 3: Perception of the levels of environmental challenges (in %)

Level	Political factors					Economic Factors					Technological Factors				
	USA	J	D	UK	E	USA	J	D	UK	E	USA	J	D	UK	E
National	83	60	1	2	2	56	60	3	7	5	33	10			
Regional/EU	0	40	9	8	8	6	10	4			0	20	5		7
Global	17	0				39	30	3	3	7	67	70	5	4	4
Kruskal-Wallis Test (Chi², p value in parentheses)	6,543 (0,162)					4,803 (0,308)					3,087 (0,543)				

To sum up, all associational systems are exposed to similar environmental constraints and challenges. Moreover, there exist only minor and insignificant differences in the perception of these constraints and challenges. The only exception is the Europeanization of the political process in

the EU countries. All in all, we therefore expected quite similar adaptation processes and comparable associational structures in all five countries.

4 Associational systems in the ICT sector of Germany, Japan, Spain, UK and U.S.

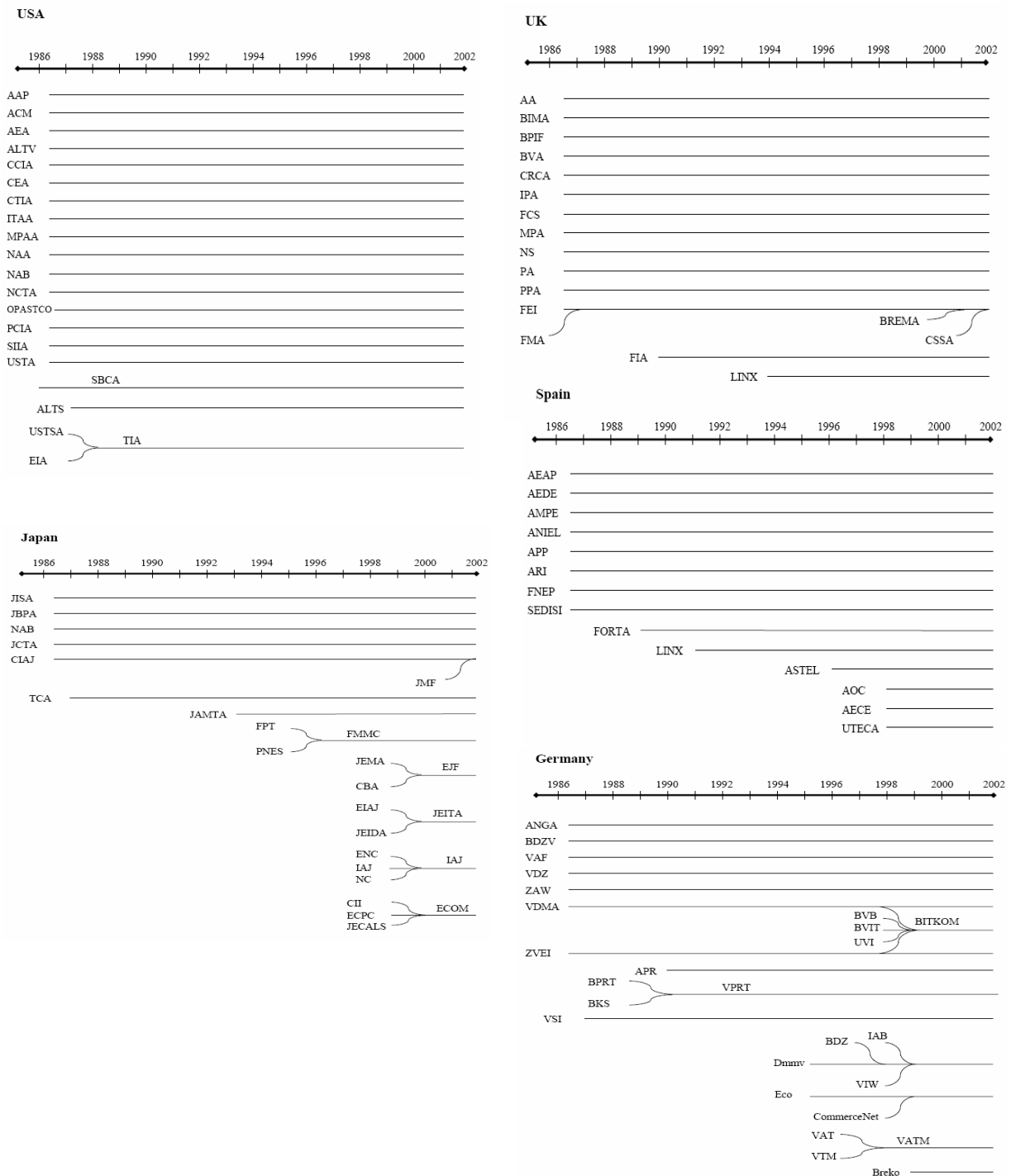
The first step in our analysis is a systematic description of the compositional and relational properties of the various associational systems, their specific linkages to their political, economic and cultural environment, and their interaction profile with political actors in their respective political systems. Since associations are generally much more numerous than, for instance, parties an important analytical procedure is the delineation of the associational system as such and the identification of at least the focal components, their interrelations, and their interaction with their environment.

4.1 Associational systems and their relational structure

Inspired by the methods used in Lauman/Knoke (Laumann and Knoke 1987) we used expert panels in the various countries to identify a focal set of organizations in their respective ICT sectors. Academics and political practitioners thus evaluated long list of business associations to filter out for each country about fifteen to twenty most important organizations. We interviewed these business associations with a standardized questionnaire to collect information on a variety of relational aspects (information exchange, reputation, alliances, etc.) and organizational properties such as institutional structures, perceptions, strategies, etc. Based on data on information exchange, we are able to map the communications structures of the various systems – one aspect of the endostructure of the associational system. This indicates on the one hand how various systems are integrated, and which associations occupy central positions and thus are able to control

and coordinate information exchange. We also collected data on the founding of associations, mergers, and “acquisitions” to get an impression of how the associational systems evolved in the last two decades.

Figure 3: Timelines of associational systems



In contrast to the U.S., the composition of the Japanese focal associational system has recently undergone fundamental changes. No more than 42% of business associations were founded before 1985, but in the year 2000 four major mergers took place. Japanese associational systems are created around important ministries in order to support government. This is why almost all system dynamics are triggered by governmental efforts to consolidate and adapt the associational structures to governmental needs, which in turn are heavily influenced by technological factors, such as convergence, that favor more encompassing business associations.

The European countries are situated in between these two extremes. The British associational system comes closest to the U.S. model while the system dynamics in Spain and especially in Germany are considerably higher. In the UK 80% of all focal associations were established before 1985. The respective numbers for Spain and Germany are 57% and 47%. The German associational system underwent a fundamental restructuring in recent years. Particularly the late 1990s saw intense merger activities that culminated in the creation of the designated ICT peak association BITKOM.

The population dynamics affect information flows within the associational systems. Figure 2 visualizes the result of the social network analysis (Brandes et al. 1999; Wasserman and Faust 1994) in which associations are represented by nodes and information exchange is depicted by links and arrows. The nodes are designed in various shapes according to the respective lobbying strategies which will be explained below. Information exchange links indicate that an actor reported to have information exchange with one or more target actors; solid lines indicate particularly intensive communication. The data was gathered in 2002 and 2003 and thus represents more or less the current situation. The network diagrams are produced by Visone, a specialized

program for network analysis and visualization developed by Ulrik Brandes and his group (Brandes and Wagner 2003).

A first observation is that the communication structures of the five national systems differ quite substantially. This supports our critique of the “single logic” idea in the collective action literature. If associational systems that represent technologically quite similar industries exhibit such great differences the national embeddedness in varying macro structures (specific political institutions and economic structures, etc.) must play an important role.

Based on their communications structure, the various associational systems can be compared with respect to the

- *density* of communications relations (are there few or many actual communication links related to the maximal possible relations?);
- *integration* (are all points interconnected at least through indirect lines or does the systems break down into various components or isolates which indicate fragmentation?);
- *centralization* (do few organizations occupy central and the rest only peripheral positions?).

Our analysis shows some surprising results. The most centralized system – based on the communication structure – is the U.S. system, whereas the least centralized structures can be observed in Japan. With respect to density the top is marked by Spain and German, whereas Japan reveals the most sparse network structure. With respect to fragmentation only the American and the German system are almost completely integrated. The Spanish system shows some similarities to the German (cohesiveness) but is less integrated since it is segmented into two components, largely representing the subsectors. The British system is even less integrated because of its many isolates, although there is a strong component of six to seven associations.

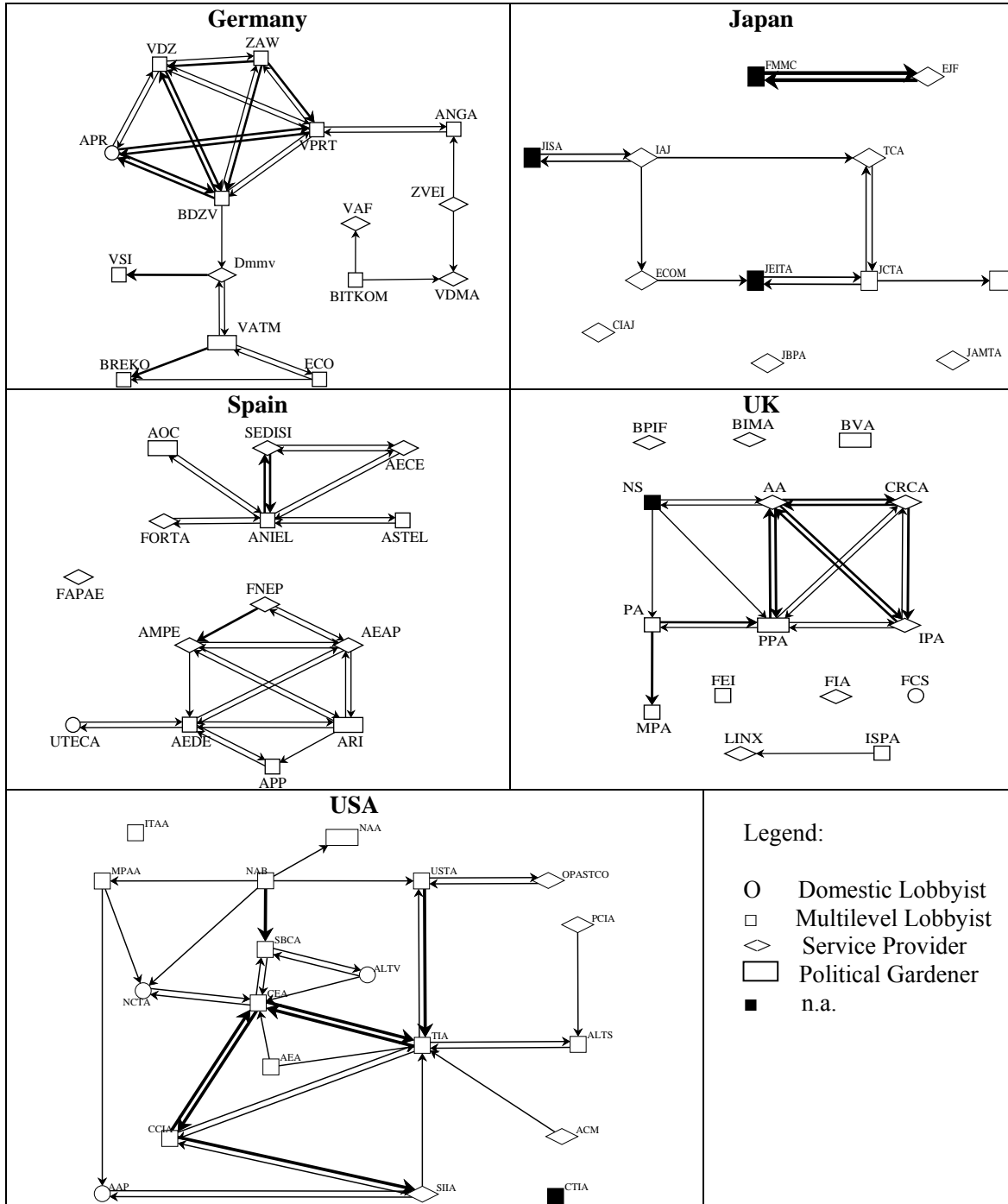
Table 4: Centralization, Density and Fragmentation (in percent)

	D	UK	Spain	USA	Japan
Centrality based on Betweenness	14,0	5,7	10,0	22,1	6,1
Centrality of Indegree	23,6	30,2	25,0	30,3	10,0
Centrality of Outdegree	23,6	22,0	25,0	18,5	19,8
Density	15,2	9,5	17,0	10,2	9,1
Fragmentation (Components :: Isolates)	1 :: 0	2 :: 6	2 :: 1	1 :: 1	2 :: 3

A further observation based on these differences is that the usual holistic categorizations which put associational systems as a whole in pluralist or corporatist boxes are also too simplistic. There is no single organizational principle that can predict how associational orders are structured in a given country. For instance, the German system is not overall corporatist, although in some areas and at some levels it has corporatist features. The system of interest intermediation in the overall German industrial sector (with the BDI as peak) undoubtedly has a corporatist structure. Some subsectoral areas of the ICT sector also can be seen as corporatist spots (e.g. in the traditional media). The organization of the computer and telecoms industries, in contrast show quite pluralist properties.

A good demonstration of complexity in associational systems is provided by the U.S. High centralization, medium density and cohesiveness but complete integration implies pluralist and corporatist facets. For instance, some associations such as CEA and TIA have such prominent positions in this relational network that they play the role of informal subsectoral peak associations, which formally do not exist in the U.S. The central position of CEA may be interpreted as a kind of coordinator or broker between the three subsectors in our set.

Figure 1: Communication structures of associational systems



4.2 Multiplex relations in the associational ecology

The complexity and diversity of associational systems also becomes apparent if we take a closer look at the relational spectrum that is present in the system's "endo-structures". Complex systems of organizations are held together by multiple and sometimes contradictory relationships. In such systems, organizations compete for resources but sometimes cooperate with the intention of combining forces that may help to cope with important environmental constraints. This conceptual differentiation was developed in the sociology of organization which essentially adopted biological concepts. Interestingly there is even an application to the ICT sector. Brittain and Wholey were among the first to use this perspective in the analysis of relations between firms in the semiconductor industry (Brittain and Wholey 1988). They combined competitive, neutral and cooperative behavior into a two-dimensional matrix containing a total of six different relationships between two organizations or two populations of organizations:

- *Mutualism*: Both organizations cooperate with each other.
- *Commensalism*: One organization cooperates, the other one is neutral.
- *Neutrality*: Both organizations are neutral.
- *Partial competition*: One organization competes while the other one is neutral.
- *Full competition*: Both organizations compete against each other.
- *Predatory competition*: One organization competes while the other is cooperating.

Each organization within a population or organizational community has a specific interaction profile to every other organization which indicates its degree of competition or cooperation to its task environment. Measurement and formal representation of such a complex organizational setting is rather difficult. Brittain and Wholey treat business firms with comparable products as

competitors, even though an organization may not realize that there are other firms with similar products “out there”. This is in line with traditional organization theory that downplays direct competition (Perrow 1979). However, we follow the argument that only perceived interactions leads to organizational adaptation and thus focus on perceived competition and cooperation (Pfeffer and Salancik 1978; Thompson 1967).

Table 5: Ecological relations as combinations of competition and cooperation

Trade association A		Trade association B		Relation	Color and Arc
Cooperation	Competition	Cooperation	Competition		
○	○	○	○	No relationship	
○	○	○	●	Partial competition	Red →
○	○	●	○	Commensalism	Green →
○	○	●	●	Neutrality	Lilac —
○	●	○	○	Partial competition	Red →
○	●	○	●	Full competition	Red —
○	●	●	○	Predatory competition	Blue →
○	●	●	●	Partial competition	Red →
●	○	○	○	Commensalism	Green →
●	○	○	●	Predatory competition	Blue →
●	○	●	○	Mutualism	Green —
●	○	●	●	Predatory competition	Blue →
●	●	○	○	Neutrality	Lilac —
●	●	○	●	Partial competition	Red →
●	●	●	○	Commensalism	Green →
●	●	●	●	Neutrality	Lilac —

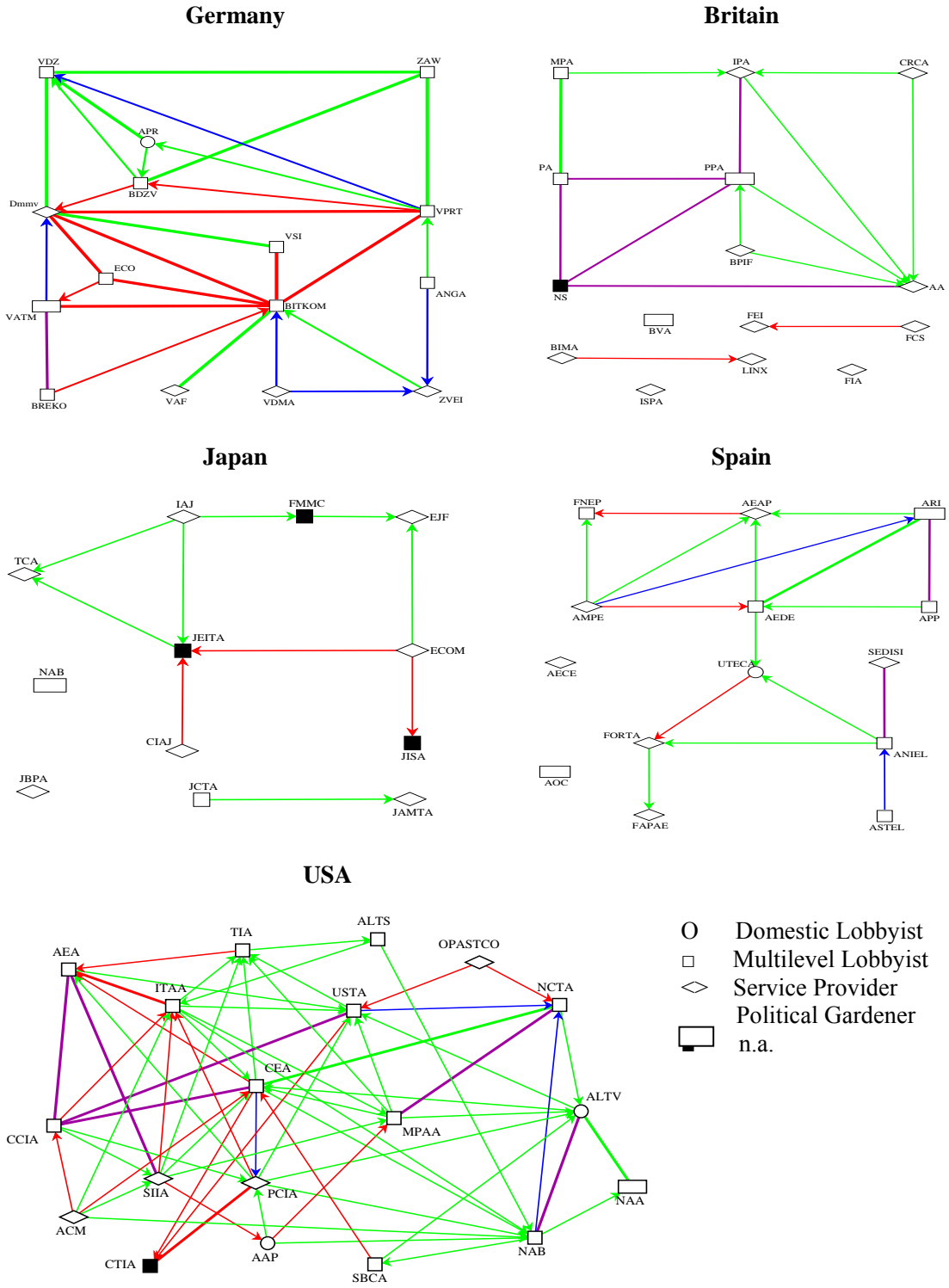
Our ecological relations are thus derived from multiplexing two types of relationships: Firstly, we asked the representatives of trade associations to name all other trade associations that operate within the same interest domain. Secondly, we asked them to name all trade associations with which they have intense relationships. The first question reveals the perceived competitors while

the second question discloses perceived cooperation partners. The responses are arranged in two matrices which were processed by the social networks analysis package UCINET¹(Borgatti, Everett, and Freeman 2002). Table 5 summarizes all possible combinations.

In Figure 2 these relational differentiations are translated into colored lines: Green indicates cooperation. Thick green lines are cooperation with a reciprocal advantage (mutualism), thin green lines indicate asymmetric cooperation, red lines competition (full or partial), blue lines “predatory” conflicts and lilac neutrality. The ecological analysis illustrates the diversity of relationships within every associational system. However, the degree of diversity and the frequencies of competitive, neutral and cooperative relations vary considerably between the five countries. The U.S. associational system is significantly more complex than its Japanese or European equivalents. Surprisingly, cooperative relations by far exceed direct competition, which only prevails between business associations that have rather encompassing interest domains. Examples of associations that face several competitors are the *Cellular Telecommunications & Internet Association* (CTIA), the *Information Technology Association of America* (ITAA) and the *Consumer Electronics Association* (CEA). This result clearly contradicts pluralist accounts of U.S. interest representation that focus on lobbying and pressure tactics but neglects cooperation and coordination strategies to lower competition pressure.

¹ The UCINET procedure MULTIPLEX converts the multirelational binary data into a single multiplex graph. The MULTIPLEX procedure assigns different values to different combinations of the relational data. The computation includes also the transposes of every matrix. Two examples demonstrate the data transformation. A “partial competition” occurs if trade association A reports a competitive behavior towards trade association B which in turn responds to have no relationship to association A. This “partial competition” is frequent between organizations of different size and prestige. The smaller and less prestigious organization often recognizes the larger and more prestigious organization as a direct competitor. However, this needs not to be the case for the larger and more prestigious organization. If both trade associations only report domain-overlaps and no intense relationships we assigned the label “full competition” to this relationship.

Figure 2: Ecological analysis: The multiplexity of relations



The German associational system which we expected to have strong corporatist features is the most competitive one in our sample. Paradoxically, the designated peak association BIT-KOM faces more than half of all competitive relations. This indicates that active enforcement of hierarchical structures may have contradictory effects.

The dominant relation in the British associational system is neutrality. In particular between information industry associations such as printing, publishing and advertising neutrality is predominant. However, some associations also cooperate with one another. Among them are the *Advertising Association (AA)* and its members IPA, CRCA and PPA. The British telecoms and internet associations are sparsely connected. There only exist very few competitive relations between them.

The Spanish and Japanese associational systems in the ICT sector have a low density. In the Japanese case the merger activities have removed existing domain overlaps. The Spanish system is again divided into two clusters. The first cluster contains information and media associations that are densely connected while the second cluster includes communication and broadcasting associations that interact infrequently.

4.3 Associational roles and resource specialization

In Figure 2 we also classified the various associations with respect to functional roles and resource specialization. Each association has a specific profile to assign resources towards a variety of functions and activities. To get this information we asked our respondents to indicate, how their association allocates its expenditures with regard to activities ranging from lobbying, membership information to conference organization. Table 6 clearly shows that political lobbying is

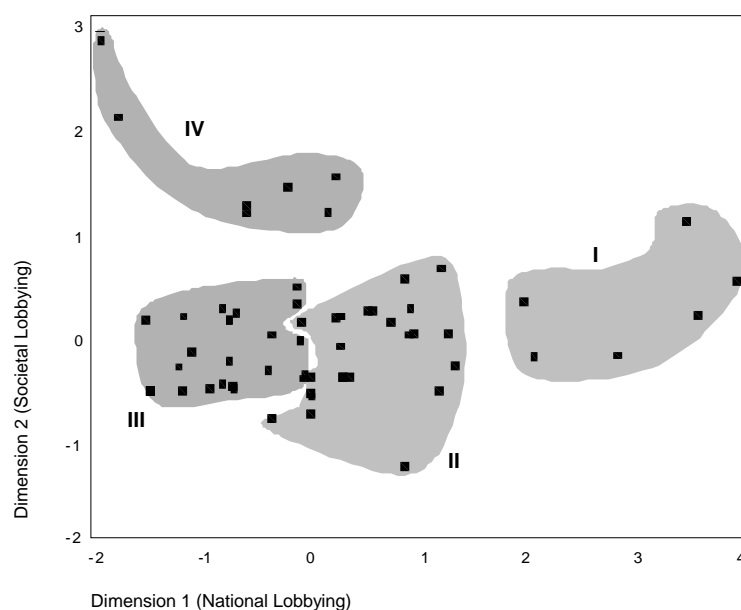
an important function, but not the exclusive one. Most associations also invest a considerable proportion of resources into membership relations.

Table 6: Influence and membership: Resource allocation of business associations

Type of Activity	DE	ES	JP	UK	USA
Lobbying:					
Political lobbying on the national level	26	19	7	20	30
Political lobbying on the international/EU level	12	6	5	6	6
Societal lobbying	8	11	7	6	7
Influence Investments	46	36	19	32	43
Membership Services:					
Consultation of members	12	19	3	13	12
Information for members	12	12	25	14	10
Conferences	15	11	24	13	17
Side benefits	7	6	0	9	4
Training	5	7	5	7	6
Membership Investments	51	55	57	56	49
Other	3	9	24	11	8

Expenditures for international lobbying are on average only 30% of national lobbying costs. Interestingly there are some associations which put significant resources into international and European lobbying, thus adapting to the changes that we have outlined above. Among them are not only British, German or Spanish associations which have upgraded their lobbying activities to the European level but also Japanese and U.S. associations that seek to influence foreign governments and international organizations. However, most business associations still stick to their home countries where they provide services to their members and seek to influence the political process directly or indirectly. Indirect or societal lobbying which includes promotion and media activities ranks higher in almost every country than international and EU lobbying.

Figure 3: Similarities of resource allocation and dominant roles of associations



Note: Non-metrical MDS based on squared Euclidean distances and hierarchical cluster analysis (squared Euclidean distances, WARD algorithm)

In this resource-based perspective, it is also interesting to know, which trade associations have similar profiles of resource allocation. The answer can be given through a similarity analysis that includes multidimensional scaling and hierarchical clustering. Based on these procedures we arrived at a two-dimensional representation displayed in Figure 3. The various trade associations are positioned in a way so that pairwise proximities between different organizations correspond roughly to the similarity of their resource allocation profiles. The two dimensions we interpret as concentration on national political lobbying (x-axis) versus focus on general “societal lobbying”. The latter we conceive as a kind of “gardening the interest domain”. Political gardeners typically do not (only) target specific legislative or regulatory decisions, but try to influence the general public to uphold a positive disposition and sentiment toward business in general, and the specific sector in particular.

Through cluster analysis based on these similarity data the associations were assigned to four groups: Associations concentrating on national lobbying, on multilevel-lobbying (national, international and societal), on service provision with regard to its members, and finally to “political gardening” as explicated above. In Table 7 we classified the various national associations into these categories.

Table 7: Frequency and percentages of lobbying types per country

Country	National Lobbyist	Multilevel Lobbyist	Service Provider	Political Gardener	Total
DE	1 6,7	9 60,0	4 26,7	1 6,7	15 100
ES	1 7,1	4 28,6	7 50,0	2 14,3	14 100
JP	0 0,0	1 11,1	7 77,8	1 11,1	9 100
UK	1 7,1	4 28,6	7 50,0	2 14,3	14 100
USA	3 16,7	9 50,0	5 27,8	1 5,6	18 100
Total	6	27	30	7	70

The various national distributions clearly show that lobbying is not always the prime function of business associations. In Japan more than two thirds and in Spain and UK 50 percent are service providers. Interestingly most associations which concentrate on lobbying have become multi-level lobbyists in the last two decades.

The distribution of associational types indicates that every associational system is subject to diversification and specialization processes. However, the degree to which associations oc-

copy different niches varies across the countries. In the U.S. and Germany specialization is less pronounced than in Spain, in the UK, and especially in Japan. Table 7 and the information exchange and multiplex networks provide evidence for the fact that interaction patterns affect the distribution of associational profiles. The U.S. and Germany have dense communication and multiplex networks which facilitate information flows and imitation of successful strategies and which at the same time increase competitive and adaptive pressures. It is therefore not surprising that in the U.S. and in Germany business associations become more alike than in other countries. Associations located at the center of a network are more likely to become multilevel lobbyist than peripheral associations which in turn are predominantly service providers.

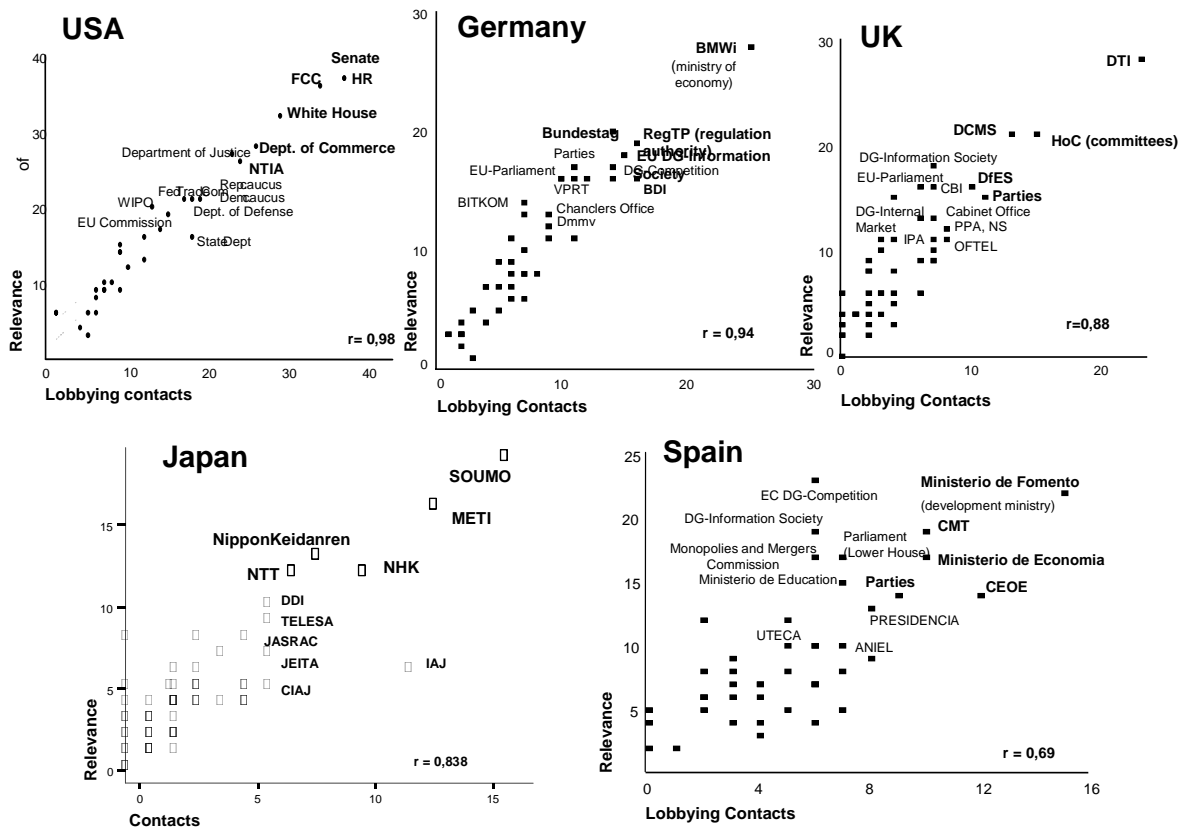
4.4 Political contacts

A major function of trade associations, but not the only and most important one, is interest representation. All associations maintain such contacts to political actors in their respective political systems, and all these polities provide channels through which interest groups can participate in and influence public policy and regulation. A major influence strategy in this respect is information exchange. The data for these kinds of connections were collected in a similar way as outlined above with respect to Figure 2. The only difference is, however, that we have these data only on the associations but not from the political target actors. The various scattergrams in Figure 4 represent these information exchanges in an aggregate way.

As it is shown in Figure 4, the most important influence targets are legislators, regulators, but also the administration and even international organizations such as the European Commission or WIPO. The diagrams display two types of information: On the one hand they sum up the rating of political organizations as influence target at the y-axis (importance/relevance assigned

to various organizations in the political arena), on the other they indicate how often an organization was evaluated as target for information provision at the x-axis (weighted by the intensity of information exchange). For instance, the American Senate and House received the sum of 37 points by the respondents to our questionnaires with respect to their political importance, whereas both received 36 point with respect of being targets for information provision.

Figure 4: Information exchange and lobbying contacts



In order to gain access, associations obviously provide information for influential political actors. The fact that in the American and German system most of the points are almost exactly on the diagonal of this diagram (extremely high correlation between these two variables) may suggest on the one hand that lobbying is a priority function in the national context, but that on the other

hand lobbying is highly professionalized and information resources that are use to get “political access” (c.f. Bouwen 2002) are not “wasted” for unimportant actors.

Before the background of our multi-level and multi-sectional approach we can hypothesize that associations have different influence targets according to the political systems and regulatory regimes in which they are embedded. There are political systems with a clear dominance of the executive on the one hand, and systems with strong legislative actors on the other.

5 Conclusions

Adaptation of business associations to environmental changes is a multidimensional and multi-level phenomenon. Our findings suggest that adaptation processes are neither driven by a “logic of consequentialism” (March and Olsen 1998), which assumes that similar environmental pressures and selection forces ultimately lead to similar adaptational outcomes, nor by an idealistic “logic of appropriateness” which structures capitalist societies according to some fundamental inherited “organizing principles”.

National associational systems in the ICT sector faced and still face comparable challenges and constraints which either originate at the global level, such as technological innovations and global foreign trade, or at the regional level, as for instance the “Supranational Telecommunications Regime“ (Sandholz 1998) in the EU. We therefore expected similar adaptation processes in all observed associational systems. However, our results show that the associational systems evolved in different directions. The U.S. and British system dynamics are low and the associational settings remained stable. In contrast to the U.S. and UK the Japanese and German associational systems show high system dynamics that include the establishment of new associations, mergers and split-ups. Both system dynamics are triggered by national institutions

such as the Japanese ministries that try to shape the surrounding associational system according to their informational needs or by national peak associations as for instance the German BDI that is intent on installing a sector peak association in order gain ground in this emerging sector. As a result of the interference of national institutions the German associational system is highly competitive while the Japanese system is almost unconnected.

The extent of the embeddedness of business associations into an associational system determines the individual adaptation processes and the distribution of associational roles and types within an associational system. In the U.S. and Germany business associations have developed a generalist activity profile that includes multilevel lobbying and service provision. This generalist profile is less pronounced in Spain, in the UK and especially in Japan. A low connectivity of associational systems therefore corresponds with higher specialization and with lower lobbying activities. The U.S. associations with many and multiplex relations are more likely to become multilevel lobbyist than peripheral associations which in turn are predominantly service providers.

Our results and theoretical framework are in line with recent findings that associational behavior is actually niche behavior (McFarland 2004) and that population density has an effect on associational strategies (Gray and Lowery 1996)(Lowery and Gray 2004). However, our findings suggest that selection does not operate uniformly across the entire associational system but rather as a mosaic (Mayr 2001) or patchwork according to the level of connectivity.

Annex: Associations's names and abbreviations

Arbeitsgemeinschaft Privater Rundfunk	APR
Bundesverband der Deutschen Zeitungsverleger	BDZV
Bundesverband der Informationswirtschaft, Telekommunikation und neue Medien	BITKOM
Bundesverband der regionalen und lokalen Telekommunikationsgesellschaften	Breko
Bundesverband Telekommunikation	VAF
Deutscher Multimediaverband	Dmmv
Electronic Commerce Forum -- Verband der deutschen Internetwirtschaft	Eco
Verband der Anbieter von Telekommunikations- und Mehrwertdiensten	VATM
Verband der Softwareindustrie Deutschlands	VSI
Verband Deutscher Maschinen- und Anlagenbau	VDMA
Verband Deutscher Zeitschriftenverleger	VDZ
Verband privater Kabelnetzbetreiber	ANGA
Verband Privater Rundfunk und Telekommunikation	VPRT
Zentralverband der deutschen Werbewirtschaft	ZAW
Zentralverband Elektrotechnik- und Elektroindustrie	ZVEI
Internet Services Providers Association	ISPA
British Printing Industries Federation	BPIF
British Video Association	BVA
Federation of Communication Services Ltd	FCS
Federation of the Electronics Industry	FEI
Fibreoptic Industry Association	FIA
Music Publishers Association Ltd	MPA
Periodical Publishers Association	PPA
Publishers Association	PA
Advertising Association	AA
Commercial Radio Companies Association	CRCA
British Interactive Multimedia Association	BIMA
London Internet Exchange	LINX
The Newspaper Society	NS
Institute of Practitioners in Advertising	IPA
Cellular Telecommunications & Internet Association	CTIA
Consumer Electronics Association	CEA
United States Telecom Association	USTA
The Associations of Local Television Stations	ALTV
National Cable & Telecommunications Association	NCTA
American Electronics Association	AEA
Telecommunications Industry Association	TIA
Motion Picture Association of America	MPAA
National Association of Broadcasters	NAB
Personnel Communications Industry Association	PCIA
Organization for the Promoting and Advancement of Small Telecommunication	OPASTCO
Newspaper Association of America	NAA
Association of American Publishers	AAP
Association for Local Television Stations	ALTS
Satellite Broadcasting & Communications Association	SBCA
Computer & Communications Industry Association	CCIA

Information Technology Association of America	ITAA
Software & Information Industry Association	SIIA
Association for Computing Machinery	ACM
Asociación Española de Agencias de Publicidad	AEAP
Asociación Española de Comercio Electronico	AECE
Asociación de Editores de Diarios Españoles	AEDE
Asociación de Medios Publicitarios de España	AMPE
Asociación Nacional de Industrias Electronicas y de Telecomunicaciones	ANIEL
Agrupación de Operadores de Cable	AOC
Asociación de Prensa Profesional	APP
Asociación de Revistas de Información	ARI
Asociación de Empresas Operadoras y de Servicios de Telecomunicaciones	ASTEL
Federación de Asociaciones de Productores Audiovisuales Españoles	FAPAE
Federación Nacional de Empresas de Publicidad	FNEP
Federación de Organismos de Radio y Televisión Autonómicos	FORTA
Asociación Española de Empresas de Tecnología de la Información	SEDISI
Unión de Televisiones Comerciales en Abierto	UTECA
Communications and Information network Association of Japan	CIAJ
Telecommunications Carriers Association	TCA
Internet Association Japan	IAJ
The Japan Electronics and Information Technology Industries Association	JEITA
Japan Mobile Telecommunication system Association	JAMTA
Japan Information Technology Services Industry Association	JISA
National Association of Commercial Broadcasters	NAB
Japan Book Publisher Association	JBPA
Foundation for MultiMedia Communications	FMMC
E-Japan Forum	EJF
Electronic Commerce Promotion Council of Japan	ECOM
Japan Cabel Television Association	JCTA

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