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## The Internet society and its struggle for recognition and influence

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## **MPIfG Working Paper 99/12, November 1999**

### **The Internet Society and its Struggle for Recognition and Influence**

Raymund Werle and Volker Leib

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#### **1 The Internet Society between changing organizational fields**

With the formation of a private non-profit corporation providing mainly technical coordination and guidance for the global Internet, a new, as yet uncertain, era of the network's governance began in November 1998. The Internet Corporation for Assigned Names and Numbers (ICANN) assumed the responsibility for functions which previously were guaranteed by the US government. Thus ICANN serves as an example of private governance with global significance, in an industry which can neither be completely left to the market nor exclusively be governed by national public authorities or international intergovernmental organizations.

We will touch upon these points in this paper. However, our main focus is on a different question: Given an increasing salience of private organizations in international governance, how must a private organization be equipped, or what determines the opportunities of such an organization to establish itself as an important actor in the new arrangement of private governance? As the answer to the question is based on a single case study, we cannot claim general validity for it. The study, however, does suggest a perspective that places single organizations in the context of a field of organizations and regards them as one player in a policy domain involving many public and private organizations. While these organizations differ with respect to their structure, resources, missions and legitimacy, they create an ecology which may be favorable or unfavorable to an organization with a given structure and a given aspiration to reach its goals.

Our study does not record a success story because it is not focused on ICANN. Rather, the Internet Society (ISOC), which was formed in 1992 to take responsibility for the fast-growing Internet, is at the center of our analysis. From its inception this private non-profit organization tried to establish itself as an international organization. However, the struggle for recognition both in the international realm and at the national level of the USA proved to be a tedious, if not altogether futile, task. This is amazing, given the need for an organization representing the Internet in the arena of international coordination at a time (the early 1990s) when no serious competitors to the ISOC existed. Although the composition of states, private organizations and market elements involved in coordinating the Internet's technology and services has been contentious, this cannot be regarded as the main reason why the ISOC has experienced difficulties in establishing itself.

One way of explaining these difficulties, we suggest, is by combining the corporate-actor approach to organizations with the new institutionalism in organization theory. The corporate-actor approach helps us to understand why the ISOC aspired to position itself at the international level. The institutional perspective on organizations and organizational fields directs our attention to both the changing landscape of organizations involved in regulating and coordinating telecommunications and the emerging Internet complex. The ISOC's location at the interface of these two distinct organizational fields accounts for many of the tensions this corporate actor has been facing.

At the time when the ISOC was set up, the international regime that governed global communication networks was in a state of transition. The core of this regime was the traditional telecommunications regime. In the 1980s it came under pressure as many industrialized countries began a process of deregulation and liberalization. National monopolies were dissolved and competition was introduced. This also affected the international telecommunications regime, which began to transform itself from a predominantly intergovernmental arrangement of self-sufficient technical coordination, interspersed with policies aimed at the protection of national monopolies, into a more open, less centralized cluster of private and public organizations blending many issues of technical coordination with strategic business interests. The International Telecommunications Union (ITU), as the main public actor in the field of international telecommunications coordination, pursues a policy of multilateral coordination, which is characterized by its rather tedious processes and technical debates, which in turn always require a consensus being reached. The ITU has undergone substantial reforms since the beginning of the 1990s. Nevertheless, its tradition as an intergovernmental organization determined by the habits of representatives of sovereign nation states has left its mark on the telecommunications regime.

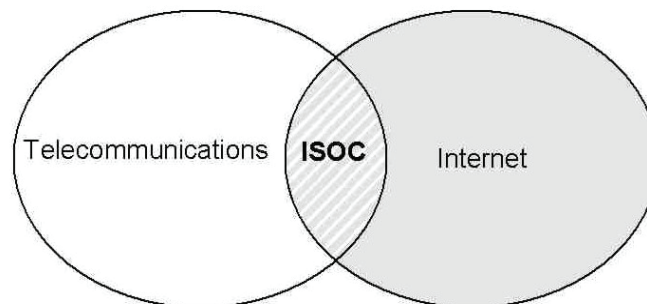
The Internet has developed apart from telecommunications, as a separate organizational field. It is a global data network that initially sprang up in the United States, but was not bounded by national borders. The procedures, norms and membership rules that constitute the Internet complex of organizations differ fundamentally from those in telecommunications. This complex has not wanted to be absorbed by the organizations that traditionally operate, coordinate or regulate networks and services in telecommunications. Internet coordination is characterized by relatively informal procedures, open individual and organizational participation, and technically driven debates aimed at quick, easy-to-implement solutions. Parts of the Internet complex regard themselves as a "community" of individual and collective actors, and they have traditionally been in opposition to the telecommunications regime, including the area of international standardization. However, Internet governance has not yet reached a stable, mature state. The growing commercial viability and the global significance of the

network have induced changes in the governance structure which were influenced by the ISOC.

In 1992, when the ISOC was created, use of the Internet was no longer confined to its original domain of education and research, but had expanded into other sectors such as business and politics, not only in the USA, but increasingly on a global scale. As a result, the Internet complex could not expect the U.S. government to continue subsidizing and sheltering the community. Therefore, leading activists of the Internet community set up the ISOC in order to help consolidate the Internet by taking over some of the governmental functions and by coordinating the Internet complex with other organizational fields, chiefly telecommunications to begin with.

Below we show why this has not worked out in the way some of the founding members of the ISOC hoped it would. We analyze the organization's internal structure and relate it to the development of the two organizational fields or policy domains between which the ISOC was torn: the domain of international telecommunications coordination and the Internet domain (Figure 1). Both fields differ in many respects, but what they have in common is the fact that they are changing rapidly. Before we turn to these two fields we should like to briefly introduce the central theoretical concepts.

**Figure 1: The Internet Society (ISOC) between two organizational fields**



## **2 Corporate actors and organizational fields**

The concept of the *corporate actor* is rooted in institutional economics, which has traditionally regarded corporatization as a specific means of concerting individual action (Commons 1961). In the corporate mode of concerting action, individual actors transfer rights and resources to act (i.e. power) to an organizational entity, which then acts for the members (Coleman 1974; 1990). A basic contract between the members as the sources of power (they are the sovereigns rather than the staff of an organization) and the corporate actor as the wielder of power is meant to ensure a maximum of conformity between the corporate actor's actions and the members' preferences. However, the rules cannot completely determine organizational action. They necessarily provide the corporate actor with some freedom to act. The results of organized action are usually group products, which cannot be received by individual members as separate returns, but are distributed among them according to special rules (Vanberg 1992). The rules are more relevant for business corporations than for labor unions, and they may be least relevant for those voluntary associations which produce public goods. On the other hand, as we know from the theory of collective action, these organizations often have difficulty attracting members unless they are able to provide selective incentives for membership (Olson 1971).

The corporate-actor model approaches organizations from the procedural rules which organized action is based on. Its specific focus on the internal structure of an organization distinguishes this approach from other views of organizations. It has inspired a wealth of literature dealing with internal control as a principal-agent problem. But the consequence of this approach - attributing actor quality to organizations - has often been neglected. The corporate actor's goals, interests and preferences are more than, or different to, the sum of the members' respective features. Corporate actors have what can be called self-interest, i.e. they have goals such as autonomy, organizational survival, growth and domain expansion. Their strategic implications and the resulting internal and external conflicts depend on the institutional environment in which the organizations operate and only to a minor degree on their internal structure (cf. Scharpf 1997: 51-68). We regard the ISOC as such a corporate actor. Since its creation the ISOC has developed an interest not only in promoting the growth of the Internet, but also in establishing itself as a recognized and powerful actor in the arena of global coordination of the Internet.

Research into the interaction of corporate actors in different policy domains has revealed that these actors prefer dealing with other clearly structured actors rather than being confronted with a diffuse conglomerate of fluid constellations of individuals, research projects, workshops, "movements" etc. (cf. Flam 1990; Schneider et al. 1994). Thus, the incumbent corporate actors have an interest in the "corporatization" of new collective actors in their policy domain (Döhler & Manow-Borgwardt 1992; Döhler 1995). This provides new corporate actors, such as the ISOC in 1992, with a good opportunity - though no guarantee - for establishing themselves as recognized partners in a policy domain. To understand the development and behavior of a corporate actor, therefore, requires including the actor's environment in the analysis rather than concentrating solely on the internal structure and processes of a single corporate actor. In our particular case, the ISOC, this means that we should not simply look at its constitution, evolution and strategy from an internal perspective, but include the ISOC's organizational and institutional environment and its specific dynamics as well. The ISOC is but one organization in a population of organizations which regard it as their business to promote and coordinate global information and communication networks.

The organizations constitute what is called an *organizational field* in the new sociological institutionalism of organization theory. DiMaggio and Powell, who introduced this concept, use it to explain why, as they argue, organizations in a specific line of business grow increasingly similar to one another. The authors call this phenomenon *institutional isomorphism*. Borrowing from population ecology, they describe isomorphism as "a constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions" (DiMaggio & Powell 1991b: 66). Whereas population ecology in organization theory emphasizes competition as the selective force that eliminates non-optimal forms and produces organizational similarity in a given population (Hannan & Freeman 1977), the concept of institutional isomorphism includes other (institutional) forces that promote similarity. Unlike competition these mechanisms trigger organizational change without necessarily making organizations more efficient. Organizations, for example, incorporate institutionalized elements of their environment because this increases their legitimacy, thereby strengthening support and securing their survival (Meyer & Rowan 1991).

DiMaggio and Powell distinguish three mechanisms that trigger institutional isomorphic change. The first is external pressure, e.g. legal obligations, towards similarity (*coercive isomorphism*); the second is uncertainty, inducing imitation and copying of successful

organizational models (*mimetic isomorphism*); the third is related to the cognitive and normative base of the professions which shape organizations (*normative isomorphism*). These three mechanisms do not provide a complete picture of how institutions affect organizational structure; other mechanisms need to be included (cf. Scott 1987). The distinction between institutions and organizations, however, allows DiMaggio and Powell (1991a: 14) to draw our attention to rules and norms that structure organizations and the courses of actions of individual and corporate actors (see also Knight 1992: 66 ff.).

DiMaggio and Powell define an organizational field as a set of organizations involved in a common enterprise and mutually aware of each other. Patterns of coalitions and structures of domination between organizations characterize such a field, which includes "the totality of relevant actors" (DiMaggio & Powell 1991b: 64, 65). This understanding of an organizational field is similar to what has been called a *policy domain* in political sociology (see Pappi & Knoke 1991; Kenis & Schneider 1991). The concept of policy domains, however, puts greater emphasis on agency (actors) and interests than does the concept of organizational fields, which is restricted to institutions (cf. DiMaggio 1988).

Two organizational fields provide the focus of our analysis: the relatively new Internet complex and the traditional area of telecommunications. A closer look at the structure of these fields helps us to understand why it has proved difficult for the ISOC to establish itself in both fields at the same time.

### **3 Public and private coordination of global telecommunications**

The Internet is a comparatively new phenomenon. While predecessors can be traced back to the first half of the 1980s, the Internet only started to develop into a global network of networks in the early 1990s. At that time, the telecommunications sector was in a state of transition: from a system of highly regulated, nationally controlled networks, providing telephone and basic data transmission services, to a deregulated competitive system of a growing number of network operators and services providers, offering a wide range of voice and data services. While public administrations (PTTs) originally controlled almost every aspect of telecommunications, the public sphere was pared down to the minimum by the end of the 1990s, with the result that, today, private organizations can be found operating networks and providing services (Schneider 1999). Thus, the new national telecommunications regimes have many features of a market regime, and the governments' capacities to directly control the sector have been reduced considerably. Regulatory agencies have been set up, whose central task involves safeguarding competition, providing open access to networks and ensuring universal provision of basic services. (For Germany, see Werle 1999a.)

The changes at the *national* level have also challenged the *international* telecommunications regime, which in the past resembled a closed shop in which national governments or their PTTs almost exclusively controlled the technical and commercial aspects of international telecommunications (Genschel & Werle 1993). Whenever international coordination was necessary, it was achieved in the context of the International Telecommunications Union (ITU), one of the oldest intergovernmental organizations. The ITU provided technical and operational specifications (standards) as well as commercial regulations, such as accounting principles, rate sharing, prohibition of bypass practices and reciprocal monopoly protection (Aronson & Cowhey 1988). The ITU was the institutional basis for the transnational coordination of international telecommunications and, at the same time, an arena of national interest representation,

which in effect reinforced the traditional regulatory structure to the benefit of the national monopolies (Cowhey 1990). In the wake of deregulation this system has lost much of its legitimacy. Accordingly, other international organizations such as the OECD or the WTO have achieved some leverage in telecommunications as liberalization has become global.

Even technical standardization, a crucial basis of the ITU's legitimacy, is no longer regarded as a "natural" part of its jurisdiction. This relates to the fact that in the past the ITU and, to a lesser degree, other standards organizations, such as the International Standardization Organization (ISO) or the International Electrotechnical Commission (IEC), managed to combine "pure" technical coordination with an element of legitimate *political* control of international standardization (Schmidt/ Werle 1998). While in the era of public monopolies this arrangement appeared essential to the orderly development of the global telecommunications system, today many private network operators and service providers regard it as too rigid and even counterproductive to the promotion of open markets. As a result, some processes of standardization are simply left to the market, whereas others have been taken over by new private associations at the regional or international level. In these consortia and forums the principle of national representation is obsolete and political arguments are avoided. This does not mean, however, that technical standardization is "freed" from all non-technical considerations. In private standardization *business and profit* motives play a significant role.

Multimedia systems, national and global information initiatives and, of course, the Internet have increased the need for technical standards. Many new consortia and forums have been created, while others have extended their domains. It is estimated that their number exceeds 200 in the computer and telecommunications industry. What these new units have in common is that they do not aspire in an "imperialistic" way to provide standards in most areas of telecommunications and information technology. Rather, they restrict themselves to more specific tasks, often in the context of a certain technology or technical solution. The consortia and forums mirror the tendency towards a more market-oriented way of developing and operating technical systems. On the other hand, the new organizations have also copied and only slightly modified the procedural rules, working methods and other features prevalent at the working level of the ITU and the other public or quasi-public standardization organizations. However, the appearance of the new units on the stage of international standardization has put pressure on the incumbents to improve their working procedures, modify their membership rules and rethink the overall organization of standard-setting and standard-distribution (David & Shurmer 1996).

At present the consortia and forums co-exist with the ITU and other intergovernmental or quasi-intergovernmental standardization organizations, which are undergoing institutional reforms in order to cope with the new industry structure and the resulting coordination demands in telecommunications. Taken as a whole, the global landscape of technical coordination and standardization in telecommunications is a mixture of public and private organizations, which combine technical work with either political or commercial considerations. Where the organizations' main focus is on telecommunications, the model of the telephone network, both as a technical system and as a social organization with specialized (and centralized) network operators, service providers and passive users, has left its mark on their structure, goals and strategies.

Originally, the process of restructuring the international telecommunications domain was only marginally affected by the emergence of the Internet. Even though liberalization of telecommunications provided beneficial conditions for the Internet to take off, there was no need to deal with the network and its promoters in the context of international

coordination of telecommunications. The Internet had its own address space and used its own set of technical protocols. For a long time it was viewed as an academic network controlled by the U.S. Government and the Department of Defense. Moreover, no private organization existed which might be addressed as an acceptable partner at the international level. Accordingly, no organization "representing" the Internet was among the stakeholders who played an active role in the process of transformation of the telecommunications regime. The changes in this regime, however, had to be considered by the ISOC and other organizations from the Internet domain if they wanted to be recognized by the incumbent organizations in the telecommunications domain. This recognition was regarded necessary because the Internet depends on the telecommunications infrastructure. In particular private households use the telephone line to connect up to the Internet. The big network operators and service providers who control the global telecommunications infrastructure have an interest in extending their control to the Internet (Werle 1999b).

#### **4 The Internet complex and the Internet society**

What we today call the Internet has different roots. Some go back to the late 1970s and early 1980s when in the USA the ARPANET fascinated its academic users and motivated those academics who had no access to this network to fight to get similar networks funded (Leib & Werle 1998). With the establishment of the NSFNET in the mid-1980s, an academic and research network funded by the National Science Foundation, a crucial step was taken towards setting up a nationwide network of networks. The NSFNET served as a national backbone to which other networks were connected. The connections were made possible using protocols on which the well-known Internet protocol suite TCP/IP came to be based, so that users can now access the Internet as if it were one single network. Already by the end of the 1980s the first commercial segments were linked to the Internet. This marked the beginning of a development that is characterized by commercialization, privatization and internationalization.

Compared with the traditional telephone network, it is evident that the organizational foundation of the Internet is completely different. No central unit operates and controls the Internet. Although the functioning of the whole Internet depends on some parts of the network (the backbone) more than on others (the regional or local networks), its overall organizational structure is genuinely decentralized: the sub-networks, too, are loosely coupled. Thus, the Internet embodies a decentralized mode of provision of networks and services, where few "top-down" and many "bottom-up" elements interact.

The Internet complex as an organizational field and the social and normative order of the Internet community evolved in the years when the U.S. government funded the essential technical and organizational elements required to keep the system going. Stressing the decentralized nature of the Internet does not imply that it has developed in an uncoordinated way. Especially in the area of technical coordination and standardization, a number of committees and groups have evolved that ensure operational stability and direct development. Some vital functions were originally executed by a single, top-level entity, the *Internet Assigned Numbers Authority (IANA)*, which had to make sure, among other things, that every host computer on the Internet had a unique address. Despite its functional importance the IANA was only a small unit in a distributed system relying heavily on delegation.[1] The central unit of standardization is the *Internet Engineering Task Force (IETF)*. The IETF is split into numerous working groups covering eight to ten functional areas. In the middle of 1999, 118 working groups were active in a total of eight



areas. Working groups can be easily created, and most of them are wound up after they have fulfilled their brief. The groups are managed by area directors. In contrast to most of the standardization organizations in telecommunications, participation in the IETF and its working groups is open to virtually anyone. Formal membership is not required, and the latest IETF meetings were attended by more than 2,000 people. As a rule, participants do not represent organizations and they are by no means regarded as delegates of their employer organization or their home country. Much of the work proceeds on-line via mailing lists, and many of the influential committee members are volunteers from public and private research organizations with a strong academic or professional interest. They follow the informal IETF credo "We reject kings, presidents, and voting. We believe in rough consensus and running code", coined by Dave Clark from the Massachusetts Institute of Technology Laboratory for Computer Science.

A steering body, the *Internet Engineering Steering Group (IESG)*, has been formed by the IETF Chair and the area directors. The IESG coordinates the activities of the working groups, assigns group chairs and approves the results of the groups' work. Before standards are adopted, at least two independent implementations must have demonstrated that they really work. Moreover, when a standard is proposed, it is published electronically and at some stage of the standards track it is introduced as a "Request for Comments" (RFC) in the RFC document series. Thus, a broad and unrestricted discussion of the proposal is possible via electronic discussion groups and mailing lists. To be approved as a standard, the draft must be accepted by the IETF and the IESG on the basis of consensus. Every standard is provided free of charge and published as an RFC.

Until 1992/93, when the standardization procedure was reorganized, the *Internet Architecture Board (IAB)* had to give its approval, too. The IAB, an "independent committee of researchers and professionals with a technical interest in the health and evolution of the Internet system", as it defines itself, is the highest committee in the technical or techno-political "hierarchy" of the Internet. Since the 1992/93 reform, it only becomes involved in the standardization process if conflicts at the working level cannot be resolved at this level. Members of the IAB are appointed - by way of cooptation - for a two-year term by an IETF nominating committee. With the network's global expansion, Internet standards have gained international significance similar to, and in some cases higher than, those issued by international organizations.

If we compare Internet coordination and standardization with telecommunications, political considerations - and to a certain degree commercial considerations - appear to be less prevalent in the Internet community than in the telecommunications field. The Internet community is committed in the first place to scientific, educational and, above all, *professional* objectives.[2] It is noticeable that these objectives are not restricted to national confines. Although the Internet activities originated in a national (partly even military) context, many of the relevant actors in the early Internet community had a global vision. Consequently, people from outside the USA participated in the Internet committees from the outset. In 1996, only seven out of twelve members of the IAB were based in the USA. The international shape of organizations which have been very closely linked to the development of the Internet is both a result of and a reinforcing factor in the growing global significance of the network[3]. This development, however, has created challenges for these and other organizations involved in the coordination of the Internet, because the U.S. government no longer sees a need to provide funds and organizational assistance to a network that has attracted thousands of firms and millions of users. The establishment of the *Internet Society (ISOC)* must be seen in this context.

In 1992, the ISOC was formed "by a number of people with long-term involvement in the IETF" (Cerf 1995: 1), who assumed responsibility for the network. This private non-profit organization (formally an incorporated not-for-profit corporation) was set up primarily "to facilitate and support the technical evolution of the Internet as a research and education infrastructure, and to stimulate the involvement of the scientific community, industry, government and others in the evolution of the Internet" (Articles of Incorporation of Internet Society: 3.A, also published as RFC 2134). The ISOC was supposed to take over certain functions of the U.S. government concerning the provision of funds and organizational assistance in areas which still depended on these resources. From its inception the ISOC was not seen as being restricted to the USA (Malamud 1993), although one pressing reason for the creation of the ISOC was to mobilize resources in order to fund the IETF and other parts of the Internet's administrative infrastructure, since the U.S. government agencies had started to reduce financial support. The aim of the ISOC was to *act as an internationally recognized body*. This is mirrored in the board of directors (Board of Trustees, BoT) of the ISOC. Already on the initial board, three out of 14 trustees were from Europe and one from Australia. Later, the number of non-U.S. citizens in the board increased, reaching 50 % in the boards elected in 1997 and in 1999. The ISOC is open to individual and corporate membership. In 1999 the society had about 150 organizational members and more than 8,600 individual members from about 170 countries. The majority of individual members are now from outside the U.S., and despite this broad range of membership the ISOC has been guided by a circle of (elected) activists who were also involved in the IETF, the IAB or other groups functionally significant for the Internet. This network of actors with a high reputation in the Internet community still has considerable de-facto control over those issues which are directly linked to the Internet, especially technical and organizational matters. The activists have in common the conviction that government action is not needed to provide the public good "Internet coordination" (cf. Eisner Gillett & Kapur 1997) This conviction is also shared by the U.S. government, which since 1995 has repeatedly declared in official statements that it is committed to a hands-off policy. If collective rather than market coordination is needed, it should be provided by private organizations and not by American government agencies or intergovernmental organizations. Initial activities of the Internet Society aimed at establishing it in the organizational field of the Internet complex - a precondition for its future goal of also gaining recognition in the organizational field of telecommunications. The role of the ISOC vis-à-vis the IAB, the IETF, the IESG and the Internet standardization process had to be determined. This coincided with a perceived need by these organizations to reorganize standardization. With growing numbers of IETF working groups and participants involved in Internet standardization, organizational, procedural and legal issues arose which threatened to undermine the traditional patterns of standardization and technical coordination. The ISOC chartered the IAB and sponsored its work. As a consequence, the ISOC Board of Trustees (BoT) claimed the right to approve new members of the IAB. In addition, a recall mechanism was planned with the ISOC providing an ombudsman (see RFC 2282). Also, members of the ISOC BoT expressed their concern about legal issues, in particular with regard to the legal liability of the IESG. In the discussions which followed about the role of the ISOC it became evident that the other organizations did not want the ISOC to become involved in technical matters. In their view the ISOC was best suited to the role of a supervisor of formal procedures and a provider of a legal umbrella for the Internet Community. After some time a consensus was reached along these lines.[4] This indicates that the IETF succeeded in preventing the ISOC from interfering with its business. It is important to notice that, during the discussions, the ISOC had to adopt the particular style of debate prevailing within the Internet community: "The ISOC will, like the IETF, use public discussion and

consensus building processes when it wants to develop new policies or regulations that may influence the role of ISOC in the Internet or the Internet technical work" (RFC 2031).

The somewhat intricate process used to define the relation of the ISOC and the IETF exemplifies the ISOC's difficulties in getting established in the Internet complex. Originally, the ISOC was supposed to become a major funding organization for the Internet community, but due to the ISOC's own financial problems this turned out to be unrealistic. Notwithstanding that the ISOC was expected to establish links to external organizations, it was not accepted as a representative speaker for the Internet community as a whole. However, in December 1997, the ISOC's Board of Trustees could report a stable relationship between the IETF and the ISOC, even though this was reached on the IETF's, rather than on the ISOC's, terms. The ISOC's incorporation into the Internet community is confirmed and declared by the fact that the ISOC's articles of incorporation and by-laws have been published in the RFC-Series (see RFC 2134 and 2135 [April 97]).

Compared with its original aspiration, the ISOC only partly succeeded in getting established in the organizational field of the Internet. This was a setback for the ISOC's ambition to play a crucial role in the process of organizing global Internet governance as a distinct set of rules and organizations vis-à-vis the organizational field of telecommunications. Before we examine the ISOC's role at the interface of the two organizational fields, we need to look at the internal structure and resources the organization relies on.

## **5 Internal problems of the Internet society as a global organization**

Corporate actor theory emphasizes the significance of the actor's constitution for its potential to respond to and act on the outside environment. The ISOC's constitution apparently does not provide a consistent structure that legitimates and empowers organizational action effectively. When the ISOC was set up it was supposed to be an organization with individual membership. Only later could corporate entities also become members of the ISOC. However, the role of the individual vis-à-vis the corporate members and the rights of the membership in general were ill-defined. The individual members have the right to elect the Board of Trustees (BoT), the central executive body of the society headed by a President, who is chief executive officer (CEO) at the same time. No other formal means of directly shaping the ISOC's politics are provided in the by-laws. Organizational members may designate a representative to the ISOC Advisory Council, which provides advice and recommendations to the ISOC President and Board of Trustees, but the Council does not seem to play an active role. This may be one reason why the ISOC reports a high annual attrition rate.

Moreover, although the ISOC maintains that it operates not only through its BoT but also through national and local chapters, the relation between the ISOC and these chapters is ambiguous. For individuals and organizations committed to the Internet and to the ISOC it is possible to set up chapters. All members of a chapter are at the same time members of the ISOC, but not vice versa. While the ISOC, on the one hand, appears as an umbrella organization with subordinate chapters, the chapters, on the other hand, define their own purpose, focus on local issues and maintain no formal linkages to the ISOC (apart from annual reports). To act as official chapters of the ISOC these units have to be recognized by the BoT. The ISOC has set up model by-laws - partly with obligatory phrasing - and guidelines for establishing a chapter. Chapters are funded by local membership

(individual or organizational) and for that reason chapters can charge dues additional to the ones paid to the ISOC. The chapter's scope may be local, regional or national, and redundancy should be avoided.

For the time being, 45 chapters have been recognized and some 60 are in formation. Some of them can be regarded as national chapters, for example the Norwegian, the German or the Japanese chapter. The national chapters, however, have committed themselves to different missions. Some see their central role in addressing national political agencies and influencing the national political process; others put more weight on providing services for the members. In Spain the ISOC chapters have emerged as regional organizations in Andalucia, Catalonia etc. Four chapters have already been recognized and another two are in formation.

Especially remarkable from the point of view of international coordination and regulation of the Internet are two local chapters of the ISOC. One is located in Washington DC and the other has its headquarters in Geneva, Switzerland. Setting up a chapter in Geneva was no accident. Many international organizations have their home here. Geneva also hosts European branches or headquarters of many multinational corporations. The Geneva ISOC Chapter created a Special Interest Group on Development in order "to promote Internet connectivity and awareness in developing countries". This group has a membership "drawn from International Organizations such as ITU, WHO, CERN, UNCTAD, ILO, IATA, UN-ECE, UN-DHA as well as from business and consulting backgrounds" (cf. ISOC Forum Vol. 2, No. 11, 26 November 1996). The ISOC chapter in Washington, as we read on its WWW home-page,[5] was formed "to meet unique needs of Washington, DC-area Internet planners, builders, and users, and to help represent the Internet to the U.S. government. The Internet Society itself (headquartered in nearby Reston, VA), as a global organization, has encouraged creation of DC-ISOC to allow the headquarters organization to maintain a global perspective, while the chapter meets the pressing need for Internet representation in the U.S. government's work to define the National Information Infrastructure (NII)."

The last two examples indicate that some kind of division of labor between the national and local chapters and the ISOC is emerging, although this is more haphazard than clearly and intentionally structured. The headquarter organization defines its role as an actor at the global level in the concert of international organizations. However, the headquarter organization is not the peak organization of an ISOC-federation, and the Geneva chapter's Special Interest Group on Development, for example, works on its own right rather than on the basis of competencies delegated from headquarters. It does not formally report to headquarters either. Therefore it comes as no surprise that the ISOC decided to set up an extra office for the permanent presence of the ISOC staff in Geneva.

The ISOC, we can summarize, is characterized by considerable internal ambiguity over its constitution, but particularly its relation to national and local chapters. Some chapters argue that a truly international ISOC would have to be governed by its constituent chapters and therefore a national U.S. chapter should be formed. At INET 1998 (the ISOC's annual conference), representatives of the chapters got together with the ISOC's headquarter management to discuss their relationship and also how chapters in regional areas should cooperate. The issue of regional cooperation came up after the European chapters had met in Brussels with the European Commission. It remained unresolved. While the ISOC enjoys a high degree of autonomy when it acts as a representative of its global membership, its ill-defined internal structure makes it a weak organization with little resources and therefore an unattractive ally for other organizations so far.

## **6 The Internet Society between the telecommunications and the Internet domain**

In the eyes of many observers, the Internet complex has evolved as a decentralized heterogeneous system with a loosely defined national or territorial identity. Its social structure in a way mirrors the technical structure of the network of networks. The units are loosely integrated in the system. They retain as much autonomy as possible without this being detrimental to the links connecting the units. Organizations in this field interact on a peer-to-peer basis rather than in a hierarchical mode. Power, control and authority is distributed, and the system is open and responsive to bottom-up initiatives. Coordination rather than regulation is the operating mechanism of this complex. This becomes apparent if we look at the organizations which laid the technical foundation of the network. Not only the IAB, the IETF and the IESG, but others too were traditionally guided by professional and scientific, rather than political and economic, motives and values. The withdrawal of U.S. government agencies from funding the coordination and administration of the network has reinforced privatization and commercialization of the Internet. Although commercial use of the Internet is regarded as legitimate and beneficial to the network, deliberations of technical and operational matters are not meant to be guided primarily by business concerns.

Some features of the Internet complex stand in sharp contrast to the organizational field of telecommunications, which has inherited monopolistic or oligopolistic structures that are subject to regulatory and anti-trust intervention in order to maintain competition and prevent abuse based upon economic power (Kahin 1997). The users of telecommunications networks and services still play a passive role, whereas the Internet is more open to user participation. However, deregulation and liberalization of the telecommunications markets have triggered structural changes of this organizational field towards decentralization, greater competition and a globalization of network operators and service providers. This development has also left its mark on the global landscape of technical standardization, where many private consortia and forums have evolved which co-exist with the official intergovernmental standardization organizations enjoying global and regional significance.

In addition, technical changes have accelerated the convergence of the Internet with the telephone network and the emergence of many new services. This has triggered a need for new standards and collaboration between the organizational field of the Internet and that of telecommunications. In this context it has become apparent that many organizations in telecommunications have traditionally ignored the Internet or regarded it as a transitory phenomenon. The majority of Internet standards have never been approved as international standards, although the specifications have gained an international significance and reputation on a scale parallel to the global expansion of the Internet. The international standardization organizations, the ITU in particular, have refused to give their approval because the Internet protocols provide a platform for a multitude of standards which are functionally equivalent to, but not directly compatible with, the standards developed by these organizations (Malamud 1993). This policy indicates that powerful organizations in the telecommunications domain have tried to gain control over the Internet and absorb its components.

The Internet community has been open and cooperative with regard to efforts aiming at improving technical and organizational coordination with telecommunications. However, it has not been clear who would represent the Internet at the international level. Early on, the ISOC had an interest in filling this gap and acting as the representative of the Internet

community. This "mandate" would facilitate its acceptance as an important player in the area of international standardization and technical coordination. The start was promising. A first symbolic gesture indicated tentative international recognition. At its TELECOM 95 Forum in Geneva, for instance, the ITU organized a special Internet@TELECOM.95 conference with many companies representing the different facets of the Internet. At this occasion Vinton Cerf, a co-inventor of the generic Internet protocol and a member of the Board of Trustees of the ISOC, was awarded the ITU Medal by the ITU's Secretary General, Pekka Tarjanne - an act of techno-political diplomacy. A short time later a substantive step was made when a formal liaison was approved between the ISOC and JTC1 (the Joint Technical Committee of the ITU and the ISO) in the area of information technology standards - another notable stage of recognition from the ISOC's point of view. However, other formal links were established between the IETF - not the ISOC - and several committees of regional and global standardization organizations. This was welcomed by the Internet community, although not so much by the ISOC.

These developments mobilized the ISOC's CEO, who announced a more active role for his organization in the future. In a press release of 1996 he declared that the ISOC aspired to be placed "squarely at the forefront of some very key issues developing with regard to Internet governance". In fact, if the Internet complex wanted to prevent being absorbed by the telecommunications field it had to develop a stable governance structure which was recognized internationally.

Thus, it was a logical consequence that the ISOC became involved in an international inter-organizational committee charged with proposing a solution for restructuring the Internet Domain Name System - one of the basic building blocks of the organizational structure of the Internet. Initiated by the ISOC, an International Ad Hoc Committee (IAHC) was formed in order to define, investigate and resolve issues arising from an international debate over a proposal to establish global registries and additional generic top level domain names (such as .com, for example). The most important reason for this initiative was that the U.S. government had signaled it would terminate its financial support of address and domain name administration. Contracts with the Internet Assigned Numbers Authority (IANA) and other organizations involved in this area were not to be renewed, it argued, and the privatized and commercialized Internet should become self-supporting. While it is not our intention in the context of this paper to deal extensively with the technical background and the regulatory and legal implications of the Internet's domain name system, suffice it to say that it is remarkable that the IAHC was composed not only of representatives of the Internet complex, including the Internet Architecture Board (IAB), the ISOC and the IANA, but that it also included a representative of the U.S. Federal Networking Council (FNC) and - more important with regard to the ISOC's aspirations to become an international player - the ITU, the World Intellectual Property Organization (WIPO) and the International Trademark Association (INTA), i.e. three well-established international organizations.

The IAHC was dissolved after the signing ceremony of a Memorandum of Understanding (MoU) in Geneva on May 1, 1997. According to the MoU, which has since been signed by more than 200 organizations from around the globe, the Secretary General of the ITU was to act as the depository of the generic Top Level Domains. Seven new domains were created and domain registration was planned as a competitive field with different, commercially operating registrars. Representatives of the registrars formed the Council of Registrars (CORE), and before its dissolution the IAHC appointed the first members of an interim Policy Oversight Committee (POC), which was regarded as a central player in this new structure. All organizations that participated in the IAHC were empowered to

appoint members of the POC and influence the administration of the domains through the POC. Administrative Domain Name Challenge Panels (ACPs) were to be established to resolve disputes over domain names, and the WIPO was chosen to administer the procedures accompanying the disputes.

The ISOC took a leading role in the construction of this predominantly private regime for governing the Internet. The idea behind the IAHC plan was to reinforce Internet self-governance and at the same time include UN Treaty organizations to provide the Internet with an international legal framework. However, the new system never took off. As the U.S. government did not accept UN Treaty organizations getting involved in the governance of the Internet, in particular the ITU with its traditionally tight links to the former national PTT monopolies, it started to draft its own transition plan for the withdrawal of government agencies from the Internet domain name and address administration.

As a first step the Department of Commerce issued a Green Paper (Improvement of Technical Management of Internet Names and Addresses), the drawing up of which was directed by its National Telecommunications and Information Administration (NTIA) agency.[6] This paper meant a major setback to the Internet Society since the ISOC and the IAHC plan were not mentioned at all. The NTIA emphasized private non-governmental coordination as one principle of the new system. According to the Green Paper, the functions of the IANA would be transferred to a new not-for-profit corporation based in the U.S. and competition would be introduced not only at the level of the registrars (which deal with the customers), but also at the level of registries (which run the domain name/IP number databases). The role of the U.S. government would be confined to participation in policy oversight during the transition period and would be phased out by the end of September 2000. The successor to the IANA would be directed by an international Board of Directors, in which *inter alia* Internet users would be represented by a membership association, which according to the text had "to be created". The NTIA received over 400 comments on the Green Paper, among them one from the ISOC which stressed the principles of self-governance and the concept of "rough consensus" that spearheaded the evolution of the Internet. It pointed out that there was no need to reinvent the IANA, and expressed its discontent at not being recognized as *the* organization of Internet users that it is, i.e. representative, international and open. The U.S. government's response to the comments, however, gave no reason to expect that the ISOC's position might be strengthened.

In a second paper, known as the White Paper (June 1998), the NTIA considered the comments received on the Green Paper. The NTIA adhered to its plan to form a new corporation for the coordination of core Internet functions. It stated that the private sector should assume leadership and "that neither national governments acting as sovereigns nor intergovernmental organizations acting as representatives of governments should participate in management of Internet names and addresses." While the IAHC concept followed the model of global coordination by intergovernmental arrangements, the NTIA favored private arrangements akin to consortia and forums in international standardization. The White Paper set up the framework for the new corporation, but provided no definitive solutions. Although the ISOC participated in the discussions which followed, its influence on the foundation of the new Internet Corporation for Assigned Names and Numbers (ICANN) was slight. In the middle of 1999, the ISOC reviewed its strategic plans and decided to concentrate on its role as an international and non-governmental professional organization. The ISOC will continue to struggle for recognition as both *the* membership association of Internet users and developers and a

major player in the concert of international organizations. However, in keeping with the concept of organizational isomorphism, we surmise that the ISOC will have difficulties in the future in placing itself at the intersection of two different organizational fields.

## **7 Conclusion**

Liberalization and technical innovations in telecommunications have changed the international regime of technical coordination and regulation including the landscape of international standardization organizations. The incumbent intergovernmental or quasi-intergovernmental organizations at the international and the regional level have been complemented by a growing number of vendor-driven consortia and forums, which at the same time represent a new model of standard-setting. The differences between the older intergovernmental and the new private organizations notwithstanding, we find substantial organizational similarity in the field of technical standardization in telecommunications and related areas of information technology (Schmidt & Werle 1998: 58). Organizations rather than individuals predominate. Individuals are regarded as "delegates" of the organizations. Private units coexist and from time to time cooperate with (inter-)governmental organizations. In principle, participation is open, but de facto it is restricted to those organizations which are "substantially interested". The work is committee-based, cooperative and consensus-oriented. It follows formalized rules and procedures. Besides technical orientations, business interests guide the work.

Historically, the developments in this field coincided with the evolution of new decentralized networks and services. Most spectacular was the evolution of the Internet, which developed into a backbone of the information society and a commercially viable global network. Standardization and technical coordination in the Internet context were motivated both by business and by scientific and professional objectives. The latter were reinforced by the non-profit public-good tradition of the Internet. With regard to the coordination of the Internet, an organizational field evolved which comprised these elements, though it has not as yet reached a stable state.

One of the organizations which form the Internet complex is the Internet Society (ISOC), which was set up at the time when U.S. government agencies began to disengage from financially supporting the Internet. The ISOC's goal was to support and fund the development and technical coordination of the Internet. The procedures of technical coordination and standardization in the Internet community add much to the view that the Internet represents a new paradigm of governance. As in telecommunications, participation is voluntary, though it is more open to interested actors because there are virtually no formal membership rules. Participants are seen as individuals and do not represent organizations or companies. The work aims at achieving quick technical solutions. Transparency of the working process is taken for granted. In contrast with telecommunications, all documents are available online and for free.

When technical coordination and support of the Internet assumed an international dimension, and increasingly overlapped and interfered with technical areas which were traditionally controlled by actors outside the Internet complex, this provided opportunities for the Internet Society as a corporate actor to establish itself as a player at the international level of coordination of telecommunications and data networks. However, the ISOC could not rely on strong organizational resources to take advantage of this situation, because its internal constitution as a corporate actor remained ambiguous. Neither the relation of the "headquarters" to the national and regional chapters nor the



role of the individual and the corporate members of the ISOC are clearly defined. Individual membership and the predominance of the individual over the collective have been typical of the Internet community, whereas corporate membership and the priority of corporate before individual interests characterize the telecommunications domain. The ISOC has tried to integrate both elements under one roof and, in doing so, has maneuvered itself into a somewhat marginal position with regard to both organizational fields.

The ISOC's difficulties in establishing itself as a powerful connecting link between the two organizational fields were aggravated by the general conflict over the role of private organizations vis-à-vis intergovernmental arrangements in the international coordination of technical networks. The transformation of Internet names and address management touches upon this general problem. Initially, the ISOC managed to bring together groups from the Internet complex and intergovernmental organizations to build a global regime of technical coordination of the Internet. However, when the U.S. government intervened, the ISOC was not strong enough to channel the national and international debate into a direction favorable to the original governance model. Thus the process ended with the formation of the Internet Corporation for Assigned Names and Numbers, which appears to be more in line with corporate interests than of benefit to the traditional Internet community. This is not to say that the new private system has already reached a stable state. Problems, such as the representation of the individual Internet user in the new governance structure or the enforcement of rules in the Internet that developed from a computer network for scientists to a universal infrastructure, remain to be solved. Some observers suggest that in the long run the inclusion of the International Telecommunication Union (or an equivalent body) in the governance of the Internet is inevitable. Yet few expect that the ISOC will be needed to cope with the problems. Torn between the two organizational fields and their different institutional structures, the ISOC could well end up being pushed into a marginal role in both fields.

### **Endnotes**

- 1 These functions have since been transferred to ICANN.
- 2 Professional objectives always played a significant role in standardization, besides business interests and political interests. Many professional organizations are involved in standardization at the national as well as the international level. The most prominent professional association in this area is the Institute of Electrical and Electronics Engineers (IEEE). IEEE is a transnational society with about 300,000 individual members in over 130 countries.
- 3 However, a change has been observed in recent years. Regarding the current composition of the IAB, most members are U.S. residents working for the major information technology companies. This indicates that some functions of the IAB with regard to international coordination have been shifted to other organizations, particularly the ISOC. At the same time we find that many of the Internet pioneers have switched from the university and research area to business firms.
- 4 This is documented in RFC 2028 (Oct 96) entitled "The Organizations Involved in the IETF Standards Process", which describes Internet standardization as "an organized activity of the ISOC, with the Board of Trustees being responsible for ratifying the procedures and rules of the Internet standards process". In RFC 2031 (Oct 96), which deals exclusively with the "IETF-ISOC relationship", both organizations state clearly "that ISOC has no influence whatsoever on the Internet Standards process, the Internet

Standards or their technical content" and that the ISOC should restrict its involvement to "provid[ing] a legal umbrella". Thus, the ISOC should not directly deal with technical issues, but provide the legal shelter for Internet standardization. Accordingly, since October 1997, each Request for Comments (beginning with RFC 2220) contains a copyright statement, which acknowledges ISOC as copyright holder.

5 <http://www.dcisoc.org/>

6 The process is documented in some detail on the homepage of NTIA (<http://www.ntia.doc.gov>).

## References

- Aronson, Jonathan D./ Peter F. Cowhey, 1988: *When Countries Talk. International Trade in Telecommunications Services*. Cambridge, MA: Ballinger.
- Cerf, Vinton, 1995: IETF and ISOC.
- Coleman, James S., 1974: *Power and the Structure of Society*. New York: Norton.
- Coleman, James S., 1990: *Foundations of Social Theory*. Cambridge, MA: Belknap.
- Commons, John R., 1961: *Institutional Economics*. Madison: Univ. of Wisconsin Press.
- Cowhey, Peter F., 1990: The International Telecommunications Regime: The Political Roots of Regimes for High Technology. In: *International Organization* 44, 169-199.
- David, Paul A./ Mark Shurmer, 1996: Formal Standards-setting for Global Telecommunications and Information Services. Towards an Institutional Regime Transformation? In: *Telecommunications Policy* 20 (10), 789-815.
- DiMaggio, Paul J., 1988: Interest and Agency in Institutional Theory. In: Lynne G. Zucker (ed.): *Institutional Patterns and Organizations: Culture and Environment*. Cambridge, MA: Ballinger, 3-21.
- DiMaggio, Paul J./ Walter W. Powell 1991a: Introduction. In: Walter W. Powell/ Paul J. DiMaggio (eds.): *The New Institutionalism in Organizational Analysis*. Chicago: Univ. of Chicago Press, 1-38.
- DiMaggio, Paul J./ Walter W. Powell 1991b: The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. In: Walter W. Powell/ Paul J. DiMaggio (eds.): *The New Institutionalism in Organizational Analysis*. Chicago: Univ. of Chicago Press, 63-82.
- Döhler, Marian, 1995: The State as Architect of Political Order: Policy Dynamics in German Health Care. In: *Governance* 8 (3), 380-404.
- Döhler, Marian/ Philip Manow-Borgwardt, 1992: Korporatisierung als gesundheitspolitische Strategie. In: *Staatwissenschaften und Staatspraxis* 1, 64-106.
- Eisner Gillett, Sharon/ Mitchell Kapor, 1997: The Self-Governing Internet: Coordination by Design. In: Brian Kahin/ James H. Keller (eds.), *Coordinating the Internet*. Cambridge, MA: MIT Press, 3-38.
- Flam, Helena, 1990: Corporate Actors: Definition, Genesis, and Interaction. *MPIFG Discussion Paper 90/11*. Köln: MPIfG
- Genschel, Philipp/ Raymund Werle, 1993: From National Hierarchies to International Standardization. Historical and Modal Changes in the Governance of Telecommunications. In: *Journal of Public Policy* 13, 203-225.
- Hannan, Michael T./ John Freeman, 1977: The Population Ecology of Organizations. In: *American Journal of Sociology* 82, 929-964.
- Kahin, Brian, 1997: The U.S. National Information Infrastructure Initiative: the Market, the Web, and the Virtual Project. In: Brian Kahin/ Ernest J. Wilson (eds.), *National Information Infrastructure Initiatives*. Cambridge, MA: MIT Press, 150-189.
- Kenis, Patrick/ Volker Schneider, 1991: Policy Networks and Policy Analysis: Scrutinizing a New Analytical Toolbox. In: Bernd Marin/ Renate Mayntz (eds.): *Policy Networks:*

- Empirical Evidence and Theoretical Considerations*. Frankfurt/M.: Campus/ Boulder, CO: Westview Press, 25-59.
- Knight, Jack, 1992: *Institutions and Social Conflict*. Cambridge, MA: Cambridge Univ. Press.
- Leib, Volker/ Raymund Werle, 1998: Computernetze als Infrastrukturen und Kommunikationsmedien der Wissenschaft. In: *Rundfunk und Fernsehen*. Vol. 46, No. 2-3, 254-273.
- Malamud, Carl, 1993: *Exploring the Internet. A Technical Travelogue*. Englewood Cliffs, NJ: Prentice Hall.
- Meyer, John W./ Brian Rowan, 1991: Institutionalized Organizations: Formal Structure as Myth and Ceremony. In: Walter W. Powell/ Paul J. DiMaggio (eds.): *The New Institutionalism in Organizational Analysis*. Chicago: Univ. of Chicago Press, 41-62.
- Olson, Mancur, 1971: *The Logic of Collective Action: Public Goods and the Theory of Groups*. Cambridge: Harvard University Press.
- Pappi, Franz Urban/ David Knoke, 1991: Political Exchange in the German and American Labor Policy Domain. In: Bernd Marin/ Renate Mayntz (eds.): *Policy Networks: Empirical Evidence and Theoretical Considerations*. Frankfurt/M.: Campus/ Boulder, CO: Westview Press, 179-208.
- Scharpf, Fritz W., 1997: *Games Real Actors Play: Actor-Centered Institutionalism in Policy Research*. Boulder, CO: Westview Press.
- Schmidt, Susanne K./ Raymund Werle, 1998: *Coordinating Technology. Studies in the International Standardization of Telecommunications*. Cambridge, MA: MIT Press.
- Schneider, Volker, 1999: *Staat und technische Kommunikation. Die politische Entwicklung der Telekommunikation in den USA, Japan, Großbritannien, Deutschland, Frankreich und Italien*. Opladen: Westdeutscher Verlag.
- Schneider, Volker/ Godefroy Dang-Nguyen/ Raymund Werle, 1994: Corporate Actor Networks in European Policy-Making: Harmonizing Telecommunications Policy. In: *Journal of Common Market Studies* 32 (4), 473-498.
- Scott, Richard W., 1987: The Adolescence of Institutional Theory. In: *Administrative Science Quarterly* 32, 493-511.
- Vanberg, Viktor J., 1992: Organizations as Constitutional Systems. In: *Constitutional Political Economy* 3, 223-253.
- Werle, Raymund, 1999a: Liberalisation of Telecommunications in Germany. In: Kjell A. Eliassen/ Marit Sjøvaag (eds.), *European Telecommunications Liberalisation*. London: Routledge, 110-127.
- Werle, Raymund, 1999b: The Impact of Information Networks on the Structure of Political Systems. In: Christoph Engel/ Kenneth H. Keller (eds.), *Understanding the Impact of Global Networks on Local Social, Political and Cultural Values*. Baden-Baden: Nomos, forthcoming.

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