

7 *Democratic governance and reflexive modernization of the internet*

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7.1 Introduction

One of the main contributions of the theory of reflexive governance is to have shown the importance of new ways of building democratic legitimacy in global orders, by focusing on the transformation of the background beliefs that play a role in the behavior of actors and organizations. This approach has great potential for issues of global governance, in which no well-established collective preferences exist on many questions of common concern and where controversy over solutions is widespread. Not only are these challenges present in connection with the governance of the internet, but they are also prominent in other fields, such as environmental governance and the protection of fundamental rights. The debate on reflexive governance has been especially vigorous in the environmental field, however, in which social and scientific controversies surround complex issues such as global warming and genetically modified organisms. At the same time, it is a field in which truly global governance devices have been put in place, such as in the areas of carbon-trading and plant genetic resources.

In the context of this debate, two models of reflexive governance have been proposed for building democratic legitimacy in global orders. The first suggests how to organize reflexive governance in global centralized orders, and is based on the emergence of transnational civil society organizations; the second develops models of reflexive governance in global decentralized orders through so-called "subpolitics." Jürgen Habermas (1996, 2001) and Ulrich Beck (1992), respectively, elaborate these propositions in a set of seminal works.

The theory of democratic legitimacy developed by Habermas in *The Postnational Constellation* (2001) and in his earlier theoretical work *Between Facts and Norms* (1996) has been very influential. It was one of the first attempts to justify, from a normative point of view, the

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specific role of civil society actors in a post-conventional society, in which democratic legitimacy is no longer built on the basis of common conventions shared by a group with a common history at the level of a nation or a social class. Instead, democratic legitimacy is built through an agreement between state and non-state collective actors on the procedures for organizing open participation in the debates. This theory influenced experimentation with several deliberative processes, such as citizen juries, consultations with civil society organizations and participatory councils.

Habermas's analysis also demonstrates some limitations to the role of civil society. The first is the informational bias of civil society actors and problems in their access to information. According to Habermas, this bias calls for appropriate access to information, to be organized for citizens and stakeholder organizations, in the building of their preferences, and the necessity of filtering the propositions emerging from civil society through intermediary organizations before they are used in political decision-making. The second limitation is the possible lack of real influence on the part of civil society actors on decision-making, beyond the procedural guarantee of their participation in the public debate.

Another type of limitation in building democracy in global orders arises when the national or supranational entities have limited capacity to regulate the behavior of social actors. This can occur with unforeseen risks, or in highly technical fields such as the regulation of content on the internet. The second model of reflexive governance attempts to address the problem of a lack of legitimacy by organizing reflexive learning processes with different non-governmental actors that contribute to solving global governance problems in decentralized orders. This second model was studied by Beck in the context of his work on the regulation of ecological risks. According to Beck (1992), the building of efficient and legitimate rules for dealing with risks that might have important unanticipated side effects should involve subpolitics, in which non-governmental actors (including social movements) solve social problems directly in innovative ways without relying on the administrative state (Hunold and Dryzek, 2005).

Examples of subpolitics include direct negotiations between environmental associations and corporations to make corporate activities or products more sustainable, and the participation of representatives of indigenous peoples in meetings of the international organization for

ethnobotanical research (such as that held in Belem in 1988) to reach common agreement on access to medicinal plants. In the field of internet governance, subpolitics occurs when authors decide to put their digital content in open-access repositories on the internet, and when they put pressure on publishers to authorize the self-archiving of published papers on their personal website or their research institution's institutional repository. An important strength of subpolitics is its direct impact on the strategic decisions of collective actors, without having recourse to global collective orders. An important weakness is the possible isolation of subpolitics from more encompassing issues and broader social groups.

The key lesson that can be drawn from these contributions by Beck and Habermas is the importance of reflexive processes in both global centralized and decentralized orders. This chapter reviews the research that has built upon these seminal analyses and compares basic features of reflexive governance in the fields of environmental governance and the governance of the internet. For this I use a broad definition of reflexive governance as the social process of the transformation of the cognitive and normative background beliefs that lead to and emerge from changes in the behavior of actors and organizations. In other words, I do not consider that reflexive governance can be reduced to the cognitive aspect only. Rather, reflexivity is analyzed as a cognitive process that emerges from, and is situated within, a social and political context. This chapter therefore also considers the extensive literature on governance in economics and political science, which has shown the importance of informal rules and beliefs in social orders. According to this literature, both formal (legal and contractual) and informal (social and normative) rules and beliefs are important in establishing global governance regimes (North, 1990; Ostrom, 1998). In particular, as stressed, for instance, by Robert Cooter (1994), the complexity of modern economies is so great that centralized lawmaking and regulation cannot effectively cope with the need to achieve normative regulation among communities of individuals who repeatedly face collective action problems.

In the first section of the chapter I analyze three main approaches to the explanation of the drivers of reflexive governance: the cognitive, institutional and experimental approaches to reflexive governance. For this the analysis relies mainly on the literature on global environmental governance, in which these approaches have been extensively

debated in the context of both centralized and decentralized global orders. Then I assess the comparative strengths and weaknesses of strategies based on each of these three approaches to governance, showing that it is important to select the appropriate strategy depending on the characteristics of the context. Finally, in the third section, I illustrate my analysis with two examples of possible frameworks for reflexive governance in the field of environmental governance and internet governance, respectively, based on the lessons learned from the assessment. One of the main questions that I address in the discussion of these examples is when and how the cognitive approach to reflexive governance should be combined with institutional- and actor-centered approaches to foster the design and implementation of more effective global governance regimes.

7.2 Three explanations for the drivers of reflexive governance

The works of Habermas and Beck show that transnational civil society and subpolitics both contribute to building the legitimacy of global governance, through fostering reflexive learning in global centralized and decentralized orders. These studies mainly focus on reflexive learning on the basis of cognitive reframing by rational argumentation. This is only one strategy for reflexive governance, however, and other strategies for the revision of informal rules and their associated beliefs are also important, especially when the social and political dimensions of reflexive governance are considered. Because my goal is a comparative assessment of some of the main forms of reflexive governance, which also provide new insights for analyzing the governance of the internet, I do not provide a systematic overview of the different theories of reflexive governance (for an in-depth review, see Lenoble and Maesschalck, 2003). Rather, I contrast three complementary approaches to the explanation for the drivers of reflexive governance, capturing some of the main features of each. The models considered are the cognitive model of reframing, the institutional model of the social and institutional embedding of reflexive processes, and the experimental model based on the building of actors' capacities for reflexive learning. As I attempt to show, in order to address the challenges of legitimacy in global orders a combination of different models will be needed, beyond a simple focus on the cognitive model of rational deliberation in the public sphere.

In the cognitive approach to reflexive governance, the key driver for reflexive learning is a process of discussion about the rational acceptability of the beliefs. The main idea is that the revision of beliefs is the result of argumentation through open communicative processes. An important implication is that the communicative processes that are set up to question validity claims of all sorts must enable the participation of all affected and interested parties. Hence participation and deliberation are two sides of the same coin (Feindt, 2012). Reflexive learning through deliberation depends on some supplementary conditions to be effective, however. First, deliberation requires a political culture of open communication and the permanent questioning of normative and discursive backgrounds. Indeed, since participants bring along their discourses and experiences from outside the deliberative space, participants in the debate have to take a critical stance toward their own discourses and practices in which they and their social activities are embedded. Second, the usefulness of public deliberation depends on institutional guarantees that the results of the deliberations (with citizen juries etc.) are used in the revision of the collective rules in public decision-making. As a result, the scope for transforming background beliefs depends on the integration of the deliberative processes in the overall governance framework. This second condition is addressed in a more systematic manner in the second approach.

The second set of theories focuses on the dynamics of the social and institutional embedding of the process of revising beliefs. The main concern is with the role of reflexive governance processes in the effective social acceptance of new rule systems. This includes the rational acceptability addressed in the cognitive model, but in addition important social factors, such as the creation of social trust around the rules that result from the new beliefs, the creation of an appropriate institutional framework favoring the exchange of viewpoints and a permanent critical examination of beliefs in open knowledge societies (North, 2005).

This second approach to reflexive governance – which can be labeled the institutional approach – addresses the problem that rules that are designed in the framework of a certain belief system often have perverse effects when they do not take the existing action strategies that prevail in a given institutional and social context into account (Dedeurwaerdere, 2005). For example, under the United Nations Convention on Biological Diversity, new rules around the commercial use of biodiversity were adopted as a result of the

consensus that emerged from the various deliberative processes organized in the preparation of the convention (Louafi, 2007). These rules have nevertheless led to very poor results, mainly because they were weakly embedded in the institutional and social reality of the local contexts of biodiversity conservation. In particular, profit-sharing mechanisms were envisioned as a tool for protecting biodiversity in the countries of origin. In practice, however, they have created perverse effects, in particular through the crowding out of intrinsic non-monetary motivations to preserve these natural resources.

In other cases, the dynamic change in beliefs, and the social embedding in the new rule system resulting from these beliefs, have been shown to be mutually supportive. For example, the seed exchange network managed by the Collaborative Group for International Agricultural Research (CGIAR) has adopted a set of core principles that promote open access (OA) and common responsibility in the preservation of the world's food security. The principles adopted by this group of non-state actors have proved to be an effective way to govern global food security. Their effect is to reinforce the informal norms of the research communities in a way that is compatible with the basic incentive structure of worldwide seed exchange. In particular, the informal norms are reinforced by the production of positive network externalities, such as the access of all players to the common pool, and the enhanced provision of collective goods such as basic research tools (databases, standards) that are shared among the network members.

The main driver of the revision of beliefs in this second approach is the creation of a mutually reinforcing dynamic between the changes in beliefs, on the one hand, and the institutional changes in the formal contractual and legal rules, on the other. Various factors contribute to this mutually supporting dynamic. Some important factors that have been addressed in the literature are inclusive decision processes in organizations, science-based knowledge generation and face-to-face communication. The first two play a role in broadening the available knowledge on solutions and changing the actors' perceptions of the opportunities generated by new rule systems (North, 1995). The third factor, which has been analyzed extensively in the context of community-based natural resource management, plays a role in building trust around new rules, which might in turn lower the compliance costs of institutional arrangements (Ostrom, 1990).

A major shortcoming of this model is its failure to address the conditions for the emergence of new beliefs and social norms in a forward-looking manner. Indeed, the set of available background beliefs is presupposed by the analysis, and the process of generating new beliefs is taken for granted. Its main strength, however, is that it explicitly considers the interaction between the new beliefs and the effective functioning of the rules in the social and institutional context. In particular, it draws attention to the possible synergies between certain belief systems and the set of informal and formal rules that generate productive outcomes in specific problem settings.

The third set of theoretical models addresses the problem of the building of the actor's capacities needed to enhance or generate reflexive change. An important example of this third approach to reflexive change is the model of democratic experimentalism (Sabel and Zeitlin, 2007). In this model, building capacities for joint experimentation is an important driver for reflexive change in situations in which cognitive processes do not lead to consensus, or institutional processes fail to accord with the available informal rules and beliefs in the social context. In general, this approach focuses on creating capacities for collective experimentation with a diverse set of action strategies resulting from a variety of cognitive frames.

The model of experimental open-ended learning process has been at the base of important policy innovations in the European Union, such as in the open method of coordination or the Water Framework Directive (Sabel and Zeitlin, 2007), and has also been implemented in other settings, such as natural resource policy in the United States and Australia (Gunningham, forthcoming). These examples of institutional innovation all have in common the establishment of procedures for joint experimentation, such as self-evaluation, reporting and the use of evolving outcome indicators. In this approach it is the proactive experimentation with various action strategies in a context of joint reporting and monitoring processes that leads to the successful governance regimes.

7.3 The use of the different strategies in building global democratic legitimacy

In the previous sections I have argued for broadening the debate on the legitimacy of global orders, beyond the focus on the cognitive model of the deliberative process in the global public sphere. First, new ways

of establishing democratic legitimacy have emerged in global decentralized orders, through so-called subpolitics, in which actors contribute directly to the provision of collective goods without relying on the administrative state. Second, institutional models and actor-centered models have been proposed as an important alternative to the cognitive theory of reflexive governance. Reflexive change can be generated by a combination of mechanisms based on cognitive framing, the social and institutional embedding of new rules, and the building of actors' capacities for open-ended experimentation.

This section develops some general hypotheses that can guide the choice of strategies for reflexive governance in any given governance situation. In general, the choice of strategy depends on the characteristics of the governance. The openness of the political system to the participation of civil society actors, and the temporal dynamics of the process of change are both addressed.

First, the choice of appropriate strategies will vary with the openness of the political system to civil society participation. In this context, it is useful to adopt the distinctions between different types of political regimes established by Christian Hunold and John Dryzek (2005) and to adapt these distinctions to the governance of global orders. In their comparative research, Hunold and Dryzek distinguish between (1) active inclusive states, such as Sweden and Norway, which select civil society organizations and actively support their involvement in decision-making; (2) passive inclusive states, such as the United States, the Netherlands and Australia, which organize extensive public consultation but do not get actively involved in selecting and supporting civil society organizations; (3) passive exclusive states, such as Germany and Belgium, which have difficult access to state bureaucracies for everyone except corporate actors and the political parties; and (4) active exclusive states, which actively restrict the access of interests to decision-making or intervene to undermine the basis for the organization of social interests, such as contemporary China or, to a lesser degree, the United Kingdom under Margaret Thatcher's Conservative government.

These distinctions are directly relevant for the comparative assessment of the different modes and strategies of reflexive governance. For instance, subpolitics was effective in building an oppositional public sphere in the context of a passive exclusive state in Germany

in the first half of the 1990s. It was this strategy of subpolitics that finally led to the adoption of new constitutional principles, such as ecological modernization and the precautionary principle. Another strategy, which played a role in the United States in the same period, favored the participation of moderate civil society organizations in the centralized state bureaucracy. It was this strategy that generated a major reconfiguration of environmental policy in the United States under the administration of Richard Nixon. Hence two very different strategies were adopted in these two cases, both of which led to successful policy innovations. As I go on to argue, similar differences in the openness of policy systems exist for global orders. An evaluation of the openness of the policy system will therefore also be highly relevant to the choice between possible reflexive governance strategies in global orders.

Second, the choice of strategy will depend on the temporal features of the process of change. Here a distinction can be made between temporary processes of reflexive change and more permanent reflexive processes. Reflexive governance processes will typically be temporary during the transition to a global order in which the benefits of coordination are considerable and the possibility of a consensus plausible. In such cases, the focus of the reflexive learning process will be on the transition to stable conventions that are expected to need little further adjustment. This temporary role of reflexive governance contrasts with the more permanent reflexive change that is needed when there is competition between different possible paths of development in situations of great uncertainty as to the possible outcomes. An example of the latter is trade in goods whose production has an undetermined, but potentially problematic, impact on health and the environment. Varying views on acceptable levels of risks circumscribe the circulation areas of such goods. Good examples are the different approaches of the European Union and the United States to genetically modified organisms and food safety regulations; no consensus seems likely to emerge in the near future (Godard, 2012).

On the basis of these distinctions, some of the advantages and disadvantages of the use of the various strategies of reflexive governance can be assessed. Cognitive strategies based on public deliberation are most useful in situations of possible consensus and when there are no major disputes over the adequacy of the knowledge claims (Rydin,

2007). In these situations the major issue is to remove the obstacles that block undistorted communication, by providing procedural guarantees for open and collaborative processes. As a result, cognitive strategies will be most appropriate in active inclusive political regimes, in which collaboration with civil society and other non-governmental collective actors is actively supported. An example of such processes in the field of environmental governance is the collaboration between the International Union for Conservation of Nature (IUCN) and the United Nations Environment Programme (UNEP) in writing the *World Conservation Strategy* (IUCN, 1980), which helped to build the consensus that led to the 1992 Convention on Biological Diversity (Louafi, 2007).

Another type of situation in which deliberative strategies might be useful is in passive exclusive political regimes. In this context, cognitive strategies have proved to be useful in building consensus in oppositional public spheres. For instance, an oppositional sphere emerged in the field of sustainable energy use in Germany in the early 1990s, with its own autonomous research institutions and service-providing organizations. In this case, deliberation in public forums proved very useful in building consensus about a possible alternative to the current public policy. Another example is the participation of representatives of indigenous communities in various forums before the Convention on Biological Diversity. Some principles that were elaborated in these forums, such as prior informed consent, did not receive a lot of attention at the time of the negotiations, compared to the principles of conservation and sustainable use. In the later implementation phase of the convention, however, they played an important role as guiding principles, and they are now at the core of the main policy advances in this area.

Institutional strategies for reflexive governance aim at adjusting the beliefs embedded in formal and informal rules to the institutional and social context. To be effective, these strategies depend on there being a certain degree of openness in political decision-making to the diversity of norms and institutions that operate in the social world. Hence they will be most useful in pluralist societies based on passive or active inclusive regimes, in which mechanisms exist to integrate new beliefs into the political decision-making processes.

This strategy is especially important when the embedding of the new rules in the social and institutional context is problematic, such as

in situations of possible destabilization of the norms and institutions by new rule systems. For example, in the regulation of digital content on the internet, the declarations and guidelines issued by public research institutions have played an important role in enabling the rapid dissemination of research results in open-access repositories, in a context of enhanced pressure for potential commercial use and restrictive policies from the publishers. Institutional strategies are also important in situations in which formal rules are costly to implement and when the informal norms of organizations and communities play an important role in producing collective goods.

An important limitation on cognitive and institutional strategies is the difference in capacity between different actors. To be effective, these strategies often need to be combined with strategies oriented toward capacity-building. Democratic experimentalism aims to reinforce actors' capacities for reflexive learning through open-ended experimentation. This strategy is important when new capacities are needed to generate reflexive learning beyond the existing scope of possible consensus (in deliberative strategies) or beyond the existing scope of the current informal rules and norms (in institutional strategies). Capacity-building strategies are typically temporary, as they are oriented toward opening up new possibilities for reaching certain targets. They are complementary to other strategies, and are important tools in passive inclusive and passive exclusive regimes, in which not all the parties have sufficient self-organizational capacity to participate in the reflexive learning process in subpolitics.

7.4 Possible governance frameworks

The key message of this review of existing research on reflexive governance is the importance of combining traditional modes of governance, based on formal legal and contractual rules, with modes of reflexive governance, in centralized and decentralized orders alike. The review has also shown the complementary nature of current strategies of reflexive governance, based on cognitive, institutional and actor-oriented approaches. This section illustrates these two key messages with four examples in which reflexive governance has played an important role in global governance, two from the field of environmental governance and two from the field of internet

governance. In doing so, the objective is to show how the governance models developed in the field of environmental governance allow the problems of global governance in the digital world to be better understood.

7.4.1 *Reflexive governance in global centralized orders*

7.4.1.1 *The International Treaty for Plant Genetic Resources*

A clear case illustrating the role of different strategies of reflexive governance in a global centralized order is the 2001 International Treaty on Plant Genetic Resources in Food and Agriculture (ITPGRFA). The treaty established an open-access regime for agricultural biodiversity, for a set of species considered essential for food security (such as wheat and rice). Two different reflexive strategies contributed to the elaboration of the basic principles that are the backbone of the treaty. These are conventional deliberative consensus-building, on the one hand, and institutional strategies in subpolitics, on the other.

As early as 1983 a mechanism for deliberative consensus-building on open-access principles was established by the Food and Agriculture Organization (FAO), through the creation of the Commission on Genetic Resources for Food and Agriculture (Halewood and Nnadozie, 2008). This deliberative process had some important shortcomings, however, including poor participation by civil society organizations. Moreover, the process had to face increasing commercial pressures stemming from the emerging globalized IPR regime. As a consequence, consensus was made more difficult.

Institutional strategies within the Collaborative Group on International Agricultural Research played an important role in providing an alternative strategy for reflexive learning. The strategy of the CGIAR was based on reinforcing the informal norms for the sharing of plant genetic resources through an agreement on a code of conduct, while at the same time continuing to provide advice to the treaty negotiators. Reflexive learning in the CGIAR in the 1990s is a good example of temporary subpolitics in a global centralized order, during a period when there were considerable difficulties in the deliberative processes. Now that the ITPGRFA has been adopted, there is again a level playing field for possible consensus, and deliberative processes have gained in importance. For issues that fall outside the scope of the

treaty, however, such as relations with private seed collections, subpolitics in the CGIAR will remain important in further learning about new rules and opportunities for the worldwide sharing of plant genetic resources.

7.4.1.2 *The open-access movement for digital publications*

An interesting example in the field of internet governance, illustrating the use of reflexive governance in global centralized orders, is that of the open-access movement in digital publications (Comba and Vignocchi, 2005). In this case, gradual consensus was built through a series of international declarations establishing new norms and principles for digital publishing. At the same time (as with global environmental governance), this example illustrates the importance of combining cognitive strategies for reflexive governance (which characterize international declarations) with institutional strategies for embedding these new rules in the informal norms and practices of communities and organizations.

The open-access movement promotes open access to digital content, through deposits in repositories of digital pre-prints (early drafts of a published paper) and post-prints (the submitted or published version of the article). The system envisioned by the open-access movement would provide open access to all government-funded research, establish a common system of rules for certification of the quality of the research output and promote rapid dissemination with due attribution. The main hurdles for moving toward such a system are the current organizational rules of research funders and universities, which give priority to high-impact peer-reviewed journals (which are not usually open access), and the strong commercial publishers' lobby, which opposes the open-access movement. As such, it is an example of reflexive learning in a global centralized order, in the context of a highly conflicting social and institutional environment.

Consensus on the new rules for establishing open-access repositories has been built in a series of seminal statements and initiatives, of which the best known are the Budapest Manifesto in December 2001 and the Berlin Declaration in October 2003. The first promoted on a wide scale, for the first time, the idea of achieving open access to literature by self-archiving and publishing in OA journals. The second introduced these ideas into a statement, the Berlin Declaration on Open Access to Knowledge in the Sciences and the Humanities,

which has since been signed by some 250 organizations – mainly academic and research institutions – worldwide. At the time of the Budapest Manifesto, self-archiving looked like a revolutionary, “anti-commercial-publishers” movement. After several years of debate, however, the supporters of opposing positions have been able to compromise and consider the tradeoffs. This can be evidenced by, for example, the recent establishment of the EU high-level group on digital publishing, composed of commercial publishers and prestigious research institutions.

Because of the highly conflicting social and institutional environment, it cannot be expected that the newly established consensus around digital publishing, even when endorsed by major governmental agencies, will automatically lead to a change in the publication practices of authors. Indeed, scientists are badly placed to adopt the new open-access principles in practice, because they are often themselves members of the editorial boards of the high-impact journals and are constrained by research evaluation practices that favor the (usually non-OA) established journals. It is here that coordinated institutional strategies for enforcing the new open-access norms and beliefs among scientists will play an important role.

The programs and activities of the Scholarly Publishing and Academic Resources Coalition (SPARC)¹ launched by the Association of Research Libraries (ARL) in 1998 and its European twin initiative, SPARC Europe, best embody and represent such an institutional effort to contribute to changing the present commercial publishing system. The research libraries are intermediaries between the authors and the publishers, and hence are well placed to reinforce the new norms and beliefs in a way that is compatible with the basic incentive structures embedded in the rules of scientific practice. Like the CGIAR, ARL provides an independent assessment of the socio-economic benefits of the open-access system and sustains a community-wide effort with important positive network externalities. Through these activities, the research libraries have had an impact on the background beliefs of authors and publishers alike. Today most journals allow self-archiving on personal websites and institutional repositories, and, increasingly, universities are demanding that research results be deposited in the central library’s institutional repositories.

¹ These are available online at www.arl.org/sparc.

Finally, the main focus of this reflexive learning process has been on the social acceptance of the new rules for publishing in the digital age. Capacity does not seem to be the main concern. Some parallel efforts to build capacity have been made, however, through initiatives developed on the Sherpa web portal.² These include the RoMEO/Sherpa project, which develops and maintains a database that lists journals’ and publishers’ copyright agreements, and the OpenDOAR project, which is building an authoritative directory of worldwide open-access repositories.

7.4.2 *Reflexive governance in global decentralized orders*

As suggested above, reflexive governance also plays a role in global decentralized orders. This has been shown in the field of environmental governance, with the emergence of subpolitics, but increasingly it also plays a role in internet governance. For instance, decentralized orders arise when the formal and informal rules have to be tailored to the specificities of user and provider communities of digital content. To substantiate this argument, I first present an example of reflexive governance in the field of the environment. Then I compare this to a case of internet governance with similar features.

7.4.2.1 *The Helsinki process in forest governance*

A good illustration of reflexive governance in decentralized orders is given by the reporting and monitoring mechanisms established in the Pan-European Forest Process. This is an intergovernmental forum in which ministers and officials from the European Union and neighboring countries meet and establish common rules and guidelines for forest policy. The overall goal of the process is to move toward sustainable forestry, based on timber production and the preservation of the environmental and social values of forests. Major hurdles are the limits of command and control regulation for changing the management practices of private forest owners and the resistance to change of vested interests in the public administration of forests.

In the Pan-European Forest Process, consensus on the goals of forest policy was built through a series of common declarations and resolutions that were adopted at the meetings. An important resolution

² These are available online at www.sherpa.ac.uk.

adopted in 1998 established a common set of criteria and indicators for monitoring and evaluating sustainable forest management in Europe. These criteria and indicators are a translation into the European context of the criteria and indicators that came out of international debates after the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, and they have been implemented in most national European legislations as the core standards for evaluating sustainable forestry.

Individual nation states have control over their natural resources. An effective transition toward sustainable forestry will therefore depend on initiatives taken at the national level. The criteria and indicators for sustainability cover only the economic, environmental and social dimensions of the forest in an abstract way, and, as such, they constitute no more than a scaffold on the basis of which further social learning can be organized. The need to translate the general principles to local contexts has led to major shifts in European forest legislation. New legislation has moved away from strict state control of forestry to new forms of joint management and collective learning involving forest owners, non-governmental organizations and public authorities (Schmithüsen, 2000). The new legislation sets out a framework for defining performance standards and supports efforts to develop cooperative forms of decision-making.

In spite of the progress that has been made by building these reflexive governance mechanisms into the legal frameworks, a major challenge remains, namely to broaden this approach to all forest owners. Indeed, the regime established by the new forest legislation still has to come to terms with the dominant trend in nature protection, which is based on investing in small but highly valued niches of biodiversity-rich forest reserves, with high payoffs for tourism and real estate value. In this context, the organization of a fully reflexive learning process among all the forest owners, as established by the joint management organizations, remains a challenge.

7.4.2.2 The Science Commons project on global data integration

An interesting example in the field of internet governance that illustrates some of the features of reflexive governance in decentralized orders is the Science Commons project on global data integration. In the Science Commons project, gradual consensus on possible rules of digital data-sharing has been built through a series of meetings with

stakeholders involved in the specific subfield of medical research into Huntington's disease (although the objective is to build a prototype of global relevance). This project has also suggested a model for building capacity for further experimentation with the proposed new rules of data-sharing, through a common monitoring and labeling system for the various community-specific adaptations of the rules.

The Science Commons³ is an organization that emerged from the Creative Commons movement. Its mission is to design strategies and tools for faster, more efficient, web-enabled scientific research. It promotes the use of open-access licenses and protocols within the current copyright legislation, in order to make it easier for scientists, universities and industry to use digital network infrastructures for sharing and integrating knowledge. The digital data-sharing project envisions large-scale machine integration and the user-based annotation of data made available through the internet. For example, life scientists have to integrate data from across biology and chemistry to comprehend diseases and discover cures, and climate change scientists must integrate data from widely diverse disciplines in order to understand the current state of the climate and predict the impact of new policies. Major hurdles for large-scale data integration are the wide variety of informal rules and practices that govern digital data-sharing over the internet and the legal uncertainty with respect to potential commercial exploitation of the databases and associated software in an open-access regime.

Consensus on the rules for data-sharing was reached through a set of stakeholder and expert group meetings. This resulted in the recognition of two basic principles: permission for full use and reuse of the contents of the database (for instance, through a broad waiver of all rights related to the database); and the need to preserve the reputational benefits of the database provider by giving due attribution of the original data source in all follow-on uses of the data.

In the discussion on the implementation of these rules and principles, it appeared that no formal contractual and uniform set of rules could be applied to all the communities. In particular, practices for due attribution of the use of digital data depend on the nature of the digital content and the norms of the communities. Archaeology data norms for citation will be different from those in physics, and different again

³ See the website of the Science Commons Project, at <http://sciencecommons.org>.

from those in biology or in the cultural or educational spaces. The most practical way forward, therefore, seemed to be to allow community-specific adaptations of the data-sharing regime, by defining community-specific norms of attribution embedded in the specific beliefs and practices of each discipline.

The proposed Science Commons model stimulates experimentation by providing a common framework and a review mechanism of the results of the learning process. Any community norm providing full use and reuse rights and specifying a protocol for due attribution of data source can be reviewed by Science Commons. If it conforms to the basic principles, the organizations will be authorized to use a common digital label on their websites, called the Science Commons Open Access Data trademark. All websites using this label will enable machine-based data-mining and reuse, under tailor-made attribution rules and principles.

The key focus of this model is on building capacity for decentralized learning by means of monitoring and reporting mechanisms. Accordingly, the model allows some of the characteristics of the experimentalist approach to reflexive governance in the field of the internet to be illustrated. It also shares some features of the institutionalist approach, however. For instance, in addition to its role in monitoring, the Science Commons acts *de facto* as a trusted intermediary. It facilitates change in the informal rules by generating trust among the stakeholders, and provides independent assessment of the benefits of the proposed regime through expert consultation.

7.5 Conclusion

This chapter has discussed the role of reflexive governance in building democratic legitimacy in global orders. The argument has mainly focused on an analysis of reflexive governance as a cognitive process that emerges from, and is situated within, a social and political context. I have illustrated this argument with two important prototypes of reflexive governance in the field of digital content on the internet: the open-access movement in digital publications; and the Science Commons project on the global integration of digital data. An important lesson to be drawn from this analysis is the complementary role of reflexive governance in non-state organizations and communities, on the one hand, and more conventional public deliberation in

transnational bureaucracies with the participation of transnational civil society organizations, on the other. In particular, global problems need not always be addressed by reflexive learning processes on a global scale. For instance, the analysis showed that subpolitics is often more appropriate for building social and political legitimacy in situations of transition or in contexts in which highly specialized communities use and produce the collective goods.

This chapter has adopted a modeling and design perspective to reflexive governance processes. It is from this perspective that I have analyzed the contribution of the cognitive, institutional and actor-based approaches to reflexive governance and assessed their strengths and weaknesses. From an epistemological perspective, however, the effective use of these models in real-world action situations will depend not only on their optimal adjustment to empirical reality (as in the modeling and design perspective) but also on the practical organization of epistemological inquiry into the limitations of the current models and practices of reflexive governance adopted by various actors in the face of collective action problems (Lenoble and Maeschalck, 2007). Theory, empirical evidence and practice all play important roles in enhancing the probability of selecting rules that will lead to better outcomes. Every institutional creation will remain a situated experiment that has to be evaluated and adapted over time through collective inquiry by those concerned.