

Online Mediation for Urban and Regional Planning

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Abstract

Vor dem Hintergrund der Steuerungsprobleme einer nachhaltig orientierten Stadt- und Regionalplanung und dem zunehmenden Gebrauch alternativer, informeller Planungsverfahren zur Lösung von Raumnutzungskonflikten, werden Potentiale und Probleme netzwerkbasierter Informations- und Kommunikationstechnologie zur Unterstützung von Mediation aufgezeigt und diskutiert. Dabei diskutieren wir speziell das Potential sogenannter Mediationssysteme und erläutern dieses Konzept anhand möglicher Anwendungsszenarien und des Mediationssystems Zeno. Abschließend zeigen wir Perspektiven für den weiteren Forschungsbedarf auf.

1. Management Problems in Urban and Regional Planning

Sustainable spatial development requires that ecological, economic and sociocultural issues be considered and handled at equal level. This integrated approach is a great challenge because it requires the integration and "confrontation" of so far isolated subjects, problem areas, information and knowledge domains. This involves an increased demand for intermediary communication, cooperation and mediation between individuals and groups involved or to be involved, between social subrationalities with diverging interests and objectives. In urban and regional planning, the extension of citizens' participation facilities is therefore regarded as an integral part of a sustainable planning process (Kopatz 1998; Müller-Christ 1998a). Sustainable urban and regional planning is therefore characterized by an increase in complexity from both an organizational and a content-related point of view. In this respect planning becomes a problem of organization.² In addition, the increase in land management conflicts and the level of these conflicts also requires the ability to regulate conflicts (Kühn/Moss 1998b, 239).

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² Following Klaus Lenk (Lenk 1999)

2. Alternative Planning Procedures

Therefore, not only possible objectives and models of sustainable urban and regional development, but also the demand for new and appropriate planning procedures and control processes have to be discussed (Kühn/Moss 1998a, 30). This is all the more important since the scope of participation and the complexity processing capacity of available, formal—in the sense of regulated by law—planning and participation tools and the one-sided sovereign, hierarchical-authoritarian planning cultures associated with these tools are inefficient and inappropriate to cope with complex problems of planning and to organize the acceptance and legitimation, decision making and interest reconciliation processes involved (Fülgraff 1995; Gawron 1998; Müller-Christ 1998b; Zilleßen 1998a; Zilleßen 1998b; Schmidt 1999). In other words, the information, problem views and interests relevant to decision making are not considered adequately so that the complexity of the input for decision making does not correspond to the complexity of the subject of decision making, i.e. the problem of urban or regional planning (Zilleßen 1998a, 20 -21; Zilleßen 1999, 279).³

In planning practice, alternative, so-called informal—in the sense of not regulated by law—planning and participation procedures, which are used in addition to formal procedures, are gaining importance. These also include procedures for conflict resolution which are subsumed under the term Alternative Dispute Resolution (ADR) (Zilleßen 1991; Cona 1997, 978-980).⁴ In Germany, it is in particular mediation that is being discussed as a cooperative planning approach towards conflict regulation and preparation for decision making in environmental, regional and urban planning (urban development planning) in consultation with a neutral third party (Zilleßen 1991; Fietkau/Weidner 1998; Zilleßen 1998a).

3. Mediation in Urban and Regional Planning

In Germany, mediation is used primarily for reconciling land management conflicts in regional planning. These are mostly land use conflicts in the domains of waste (e.g. incineration plants, landfill areas), contaminated sites, energy, new industrial facilities, nature conservation and traffic (airports, motorways, railway lines) or conflicts about current or future land management programmes of urban and regional

³ In this context, Rittel (1972) introduced the term "wicked problem" for planning problems. By "wicked problems" he means a class of problems for which a complete and stable problem description isn't possible, which have a infinite number of possible solutions, and where solutions are not right or wrong but good and bad. Rittel deduces: "The knowledge needed in a planning problem is not concentrated in any single head; for wicked problems there are no specialists. The expertise which you need in dealing with a wicked problem is usually distributed among many people" (Rittel 1972, 394).

⁴ The most common types of ADR among others are Arbitration, Negotiation and Mediation.

planning (traffic development, waste management programmes, programmes for groundwater use or wastewater disposal) (Zilleßen 1998a, 20-22). These are always problems of planning which affect a relatively large number of different players with divergent problem views. Usually, different problem views are based not only on different information and knowledge repositories, but also on differing interests.

The goal of mediation procedures is to search for problem solutions which are acceptable for everybody involved in the conflict: "The principle of mediation is that those participating in a planning process or those affected by a planning process (...) establish a dialogue prior to decision making. The role of the mediator is to arrange this dialogue and to keep it going with the aim of building an atmosphere of confidence among the participants, of enabling and to moderating negotiations for optimum solutions" (Fülgraff 1995, 16 -17).

3.1 Functions of Mediation

In Germany, mediation procedures show many differences in their actual implementation and organization. The understanding of mediation itself also differs. Let us mention here two important functions of mediation:

1. Mediation as "a creative problem-solving tool": "The aim of a mediation approach based on this basic principle is to create conditions which enable those participating in a procedure to see problem situations from a new point of view. The cognitive reorientation involves both a gain in information that is associated with such methods and cognitive restructuring (...)" (Fietkau 2000, 17). Therefore, mediation means to initiate a learning process in which different views, reference systems and knowledge types (e.g. expert knowledge, layman knowledge) are confronted with each other and are related to each other in order to learn from each other.
2. Mediation as "a tool of citizen participation": This emphasizes the dimensions of policy and administrative science, because mediation is regarded as a tool in the citizen-oriented democratic preparation for decision making in order to reduce acceptance and complexity problems of sovereign actions (Zilleßen 1998a; Zilleßen 1998b; Fietkau 2000). Another goal is to integrate subrationalities and subinterests of the participants into an overall rationality by processes of weighing up, evaluating and selecting and thus to optimise administrative decision-making processes (Zilleßen 1998b; Zilleßen 1999).⁵

The latter also shows that mediation is no alternative to formal planning or decision-making procedures, but a supplement to the decision-making power legitimised by

⁵ Here the proximity of Mediation to the *Abwägungsgebot* (duty to balance interests) of German planning law is conspicuous.

representation. This is why mediation neither pursues the participation of everybody in every decision-making process nor some mass participation in the form of plebiscites (Zilleßen 1998b, 58f.).

3.2 Weaknesses and Problems of Mediation

Mediation does indeed permit a high quality of participation in decision-making processes, though only for a few chosen representatives according to the representation principle. Even if mediation does not pursue mass participation, the number of active participants is limited to 20 to 25 and, therefore, participation is seen as central weakness of the mediation method.

The fact that this "inside" group of people is relatively small and closed complicates any feedback from or communication with the "outside" group of players, i.e. the interest groups represented by the members of the mediation group or the interested public. This applies all the more if mediation procedures extend over longer periods of time and the ways leading to potential results and decisions (design rationale) thus become hardly understandable or completely incomprehensible for people outside the group.

Even the integration of the small "inside" group of players into lengthy procedures is difficult because—in spite of frequent meetings—a procedure consists of many and relatively time-consuming asynchronous activities and periods of time in which the players lose contact with each other since "synchronous" procedural events are missing.

Another problem of mediation procedures is the cost in time, money and the required organizational effort. Especially for prolonged procedures and planning problems of greater spatial dimension, the organization of frequent mediation meetings and participation in these meetings might be difficult for many players. This applies in particular to the players who must devote their leisure time to the mediation procedure due to professional duties.

In addition, integration of a wide range of information and knowledge domains and the documentation of a current procedure (design rationale) requires considerable organizational effort. The major concern of mediation procedures, namely to consider any information, problem views and interests relevant to decision making, i.e. the attempt to cope with the complexity of decision making, confronts both the mediator(s) and all players involved with the problem of managing the input for decision making in appropriate fashion.

What support is to be expected here from network-based (Internet-based) information and communication technology? It is hardly conceivable that the potential of this new technology will not be used as a "means of organization" when new procedures and control processes for urban and regional planning are to be found. Therefore, the question to be asked also with respect to mediation procedures will

hardly be whether to use the technology or not, but rather in what way and to what extent.⁶

4. Online Dispute Resolution

Though the Internet has already been identified as an information and presentation platform for mediators in German-speaking countries (Rössler 1999; Janßen 2000), there is hardly any discussion about Computer-Supported Mediation (CSM) or Online Mediation—either in general or with respect to urban and regional planning.⁷ However, in the English-speaking countries—in particular in the USA—first projects are underway in conjunction with scientific programmes on Online Dispute Resolution (ODR).⁸

In most cases, online dispute resolution is used for the resolution of very simple to moderately complex bipolar conflicts that mainly have their origins in the Internet. These are cyberspace disputes like e-commerce transactions, copyright violations, domain name disputes, disputes which arise in an online auction environment, disputes between members of newsgroups or list servers, disputes with Internet service providers, misappropriation of trade secrets, defamation, freedom of expression, privacy, or fraud.

The dispute resolution methods used in this context can be divided into fixed system processing approaches and open system content processing approaches (Melamed 2000). The former are "automated settlement negotiations" (Donahey 1999) which are used for very simple conflict types.⁹ The latter are non-automated

⁶ following Melamed (2000)

⁷ A first attempt to relate environmental mediation and information technology to each other was undertaken by Märker/Schmidt (1998). In the European context, and in a broader sense, the topic of mediation was also part of the European CSDM project GeoMed (Geographical Mediation). In this project mediation services have been developed which provide discussion forums with moderation functions for a neutral third party for the moderation of public participation procedures in regional and urban planning (Gordon et al. 1997). We distinguish three types of Mediation: Mediation which is implemented without networked computers, Computer-Supported Mediation (CSM) part of which is implemented by means of networked computers, and Online Mediation which is handled exclusively by means of networked computers.

⁸ Melamed (2000) gives an overview of current ODR services and projects on the Internet <http://mediate.com/articles/melamed5.cfm>. The Center for Information Technology and Dispute Resolution summarises current ODR projects and Web Sites, too <http://aaron.sbs.umass.edu/center/onlineadr.htm>. In addition to the term Online Dispute Resolution, Electronic Dispute Resolution (EDR) is also customary.

⁹ For example "CyberSettle" which "(...) is a completely automated online system designed to facilitate settlement of disputes for an amount of money" (Donahey 1999, 116).

methods for the resolution of cyberspace disputes like online arbitration (e.g. Virtual Magistrate Project.), online mediation (e.g. Online Ombudsman, CyberTribunal Project)¹⁰, or online mediation for the resolution of non-cyberspace disputes like family, domestic and health care conflicts within the scope of the University of Maryland Online Mediation Project (Granat 1996; Katsh 1996, 964 -977; Cona 1997, 987 - 990; Donahey 1999, 120 -128). Internet services such as IRC (Internet Relay Chat), video conferencing, the World Wide Web, mailing lists, newsgroups and in particular e-mail are applied to all phases of the relevant procedure. The central functions which are assigned to these network-based technologies for handling these (less complex) types of online dispute resolution are as follows:

1. The *information technology* aspect of network-based ICT facilitates the storage, retrieval, and reuse of existing information and the organisation and examination of pre-existing information (Cona 1997, 990-992). This ensures more effective preparation for and handling of online dispute resolution procedures. In particular, better preparation of the participants for face-to-face meetings is to be expected so that these meetings can be carried out more effectively.
2. As *documentation technology* ICT enhances "(...) the capacity to thoroughly document each stage of negotiation (...)" (Granat 1996). In this way the process becomes more transparent and more re-enactable.
3. As *communication technology* ICT enables asynchronous distributed problem solving processes: "(...) having the option of asynchronous (...) discussions on the Internet, which allow participants time to craft their contributions as opposed to having to respond immediately, may enhance the thoughtfulness of agreement-reaching efforts. Parties can participate at times that are convenient and respond when they are capably prepared" (Melamed/Helie n.d.).¹¹ The asynchronous character will possibly allow the replacement of some of the meetings by computer-mediated communication (CMC).

However, the discussions about these (less complex) ODR projects make it clear that the importance of the aforementioned functions of network based information and communication technology in dispute resolution will depend on the extent to which we succeed in developing applications that go beyond the potentials of existing Internet services.

This applies in particular to the handling of online mediation: "Arbitration is a much less complex communication process than mediation and, therefore, development of software to arbitrate disputes online is much less of a challenge than devel-

¹⁰ URLs for the Online Ombuds Project: <http://www.umass.edu/dispute> and <http://www.ombuds.org>.

¹¹ also Granat (1996)

oping software that would support mediation" (Katsh et al. 2000).¹²

A further development of ODR, especially online mediation therefore requires the development of applications "(...) with features that will support various mediator styles, and create a more fluid environment for the parties and the mediator to work with each other" (Katsh et al. 2000). These include in particular comprehensive functions for the structuring, organization and visualization of communication processes (Katsh et al. 2000), functions for the shared processing of documents, group calendar, agenda setting, voting. A first approach is the "The Third Party" Project of the Center for Information Technology and Dispute Resolution which is to develop a number of Web-based tools to be used in different phases of online mediation.¹³ Therefore, central importance is also to be attributed to security measures which help to build and ensure confidence and integrity between the participants even in a computer-mediated environment.

Support for the mediation and handling of online dispute resolution and in particular online mediation therefore requires applications which, on the one hand, offer a wide range of functionalities for the moderator (the mediators) and the participants, but, on the other, also provide sufficient freedom to organize mediation as an open and creative process or to be able to adapt an application to the requirements or phases of a mediation instance.

This will be necessary in particular if applications are used for supporting and handling online dispute resolution in conflicts which are characterized by a very high degree of complexity, i.e. in fields of application such as urban and regional planning.

5. Zeno Mediation System

Zeno offers support for discussions in the widest sense and in any domains. Deliberation, argumentation, and discourses and negotiations with a high conflict potential are of special interest. The research focus lies on mediation as a special method of conflict resolution. Discussions play a central role in any group interaction; therefore, support for co-operation of groups is an integral and basic part of the Zeno system.

"Group" is understood in the most general sense. It comprises small closed and

¹² Arbitration is a relatively "closed" and determined procedure. At its end an award will be made by the arbitrator regardless whether the parties come to a compromise or not. In contrast, mediation is typically implemented as a "opened" process in the sense that the participants define the rules of procedure by mutual agreement and, if necessary, redefine them. Reaching a compromise between the conflicting parties is seen as the main objective of mediation, and, therefore, mediation also is characterised by an *open* and creative communication process.

¹³ see <http://aaron.sbs.umass.edu/legalspace/>

homogeneous groups (a project group, for instance), or large heterogeneous groups with strongly differentiated rights (large projects with a distinct management organisation and a strong organisational differentiation, distributed over many companies), as well as large dynamic groups (as they emerge in public discussions).

Zeno is based on the World Wide Web, which allows worldwide access, and clients only need a recent web browser to use Zeno. Access control guarantees the privacy of workspaces against outsiders; the access rights can be finely tuned to model and discriminate competences within groups.

Zeno's functionality augments the standard Internet tools (like newsgroups, e-mail, web browser, FTP) in many respects. A good integration of all functions, and a simple and convincing user interface make Zeno accessible for everybody who is prepared to use a web browser.

Zeno has been specified according to requirements of urban and regional planning (Gordon et al 1997). It is, however, a rather generic system, and is being used in other application domains (like international research and development projects, or planning of industrial production control processes) and for other purposes (like distance learning).

In any case, a system like Zeno has to be regarded as a socio-technical system, i.e. it is conceived with respect to a socio-cultural context of use, and appropriate application models have to be conceived and evaluated alongside the development of the technical system.

5.1 Features of Zeno

The two core services of Zeno are shared virtual workspaces and discussion forums. In a shared virtual workspace groups can archive their common documents, describe them by metadata, and structure their archives by directories. References, calendars and forums are also created and stored in shared workspaces.

Zeno discussion forums allow threaded discussions. Participants may discuss things in an informal way, or can follow the rules of an argumentation model. Currently, the IBIS model is supported (Kunz/Rittel 1970). A forum should be moderated, an auto-publish mode can be chosen, rating and voting can be allowed temporarily, discussion threads can be closed and reopened. Additional ways to moderate the forum are being developed.

The Zeno system security is provided by login procedures, and a sophisticated model of access rights definition suits almost every group organisation. Event logging allows the essential events in a workspace to be traced.

Additional services provide groups support¹⁴:

¹⁴ A detailed description can be found in the Zeno manual, which is available electronically at <http://borneo.gmd.de/MS/zeno/manual/>.

- Administration of user accounts and groups, including e-mail distribution
- Group calendars
- Search function, by metadata and full text (to be implemented)
- Notification services (to be implemented)

Thus, Zeno offers the central services of information, documentation and communication as outlined in section 4, and in comparison with basic Internet tools Zeno clearly shows added values with respect to functionality and service integration.

5.2 User Experience with Zeno

Since 1997, Zeno has been tested and evaluated in several real and experimental application scenarios. Therefore, a considerably body of user experience has been collected with regard to the usability of Zeno, organisation and modes of use, and potential benefits and problems of this technology. This experience has been considered during further development to improve the system.

We have gained the following experience mainly in the context of urban and regional planning:

- Experiment with two groups of users (employees of the administration of the City of Bonn, geography students) about how to support planning projects with shared virtual workspaces and discussion forums; 1997.
- Participation of citizens in planning a housing area in a suburb of Bonn; 1998.
- Experiment with a group of users (from city administration, politics, citizens and interest groups, professional moderator) as an experimental urban planning game; 1999.
- K.i.d.S. Project, a Local Agenda 21 activity for children and young people; since 1999¹⁵.
- The German initiative Cities of the Future; since 1998.
- EuroCities, several committees; since 1999.
- Zeno is also being used by several international research projects, and by scientific and political committees.

Initial user experience has already been reported in more detail (Schmidt-Belz et al 1998). Here, we summarize some essential experience that is important for regional planning. So far, there is no special experience with online mediation. Though the experience mentioned below may prove useful for online mediation, too, a simple analogy would be too speculative. Here we need more concrete and special experimental and real experience.

While citizens use the information offered in Zeno (or generally on the WWW) with no obvious problems, they are reluctant to get involved in interactive features

¹⁵ See the paper by Petersen and van Eimeren at this conference.

like online discussions (or e-mail). A similar finding is reported from several other European countries (Burg 1999). The reasons are not quite evident but one important reason seems to be that citizens wish to give their statements the highest possible impact by relying on traditional media (like letters, meetings, contact with politicians).

Planners and moderators need consulting and model experience needs to be considered when deciding how best to use the new medium (media competence).

Users appreciate a well-structured discussion as that which results from the IBIS method, but at the same time find it difficult to participate in such a formally regulated way. Therefore, participants must have the option to contribute their input without formal restrictions, and a moderator should provide a well-structured version or summary of all contributions. In addition to the IBIS argumentation model, there should be other "grammars" available.

It should be made easier to refer in a statement to the document or map that is being discussed.

Asynchronous communication seems highly appropriate to support participation in urban and regional planning. However, we often realised that unmediated workspaces and forums become dead. One means to avoid this effect can be notification services and search functions which support the individual user in a regular awareness of what is going on. In addition to technical solutions, a moderator should establish a suitable procedure, with clear briefings and deadlines, to ensure reliability of the asynchronous communication.

It became obvious that for online mediation the moderators and mediators will need more powerful tools that must support all content and structure-related work in a discussion forum. At the same time, technical means are necessary to make the work of a mediator understandable, so that misuse and distrust is avoided. (For example, original contributions of participants should be stored in a way that cannot be changed by the mediator, but the relation between original statements and the mediator's summary or paraphrasing input in the forum can be made traceable by cross-referencing.)

There are further requirements concerning access control. Read-only access by anonymous users should be permissible. The reliable registration of users who wish to participate actively should be obligatory, but easy, fast and at the same time counterfeit-proof. The sophisticated model of access rights in Zeno has been required and intensively applied by all organisations (supported by a trained administrator), nevertheless users obviously found it rather hard to understand and manage. So it seems a good idea to offer a much simpler model and see if users can be content with this.

In general, most users joined in the assessment that using Zeno to support planning processes would improve transparency for participants and responsible organisations, make the management of such processes more efficient, improve accessibility for participants, and improve quality and quantity of public participation. As

mentioned above, special experience and evaluation concerning online mediation still has to be established.

6. Ongoing Research and Development

It should be shown clearly that network-based information and communication media and in particular media that, like the Zeno mediation system, are developed especially to support mediation provide many facilities for the organisation and handling of complex and conflict-prone communication processes. It is hardly conceivable that these new technologies will not be used, but the question to investigate remains: How should these technologies be used and to what extent?

The extent to which computer-supported mediation can be used in urban and regional planning probably depends on several factors, like the following:

1. The actual and estimated *media potential* of the mediation system;
2. The selectivity of the medium or the *access to the medium*: These are in particular technical access restrictions (lack of access facilities to the Internet), material access restrictions (lack of financial resources for the procurement of computers or online access), education-specific access restrictions (lack of media or Internet skills). The latter includes in particular the media competence of the mediator or the mediators.
3. The *spatial and time dimensions* of the relevant conflict. It is to be assumed that, with increasing spatial (local-regional-supraregional) or time dimension (days-weeks-months-years), online mediation or the use of network-based ICT to reduce the number of face-to-face meetings will be more advantageous.
4. The *number of potential participants*: It is to be assumed that, with an increasing number of participants, asynchronization of communication through network-based ICT will be reasonable.
5. The character of a certain *phase of the mediation*: For instance, "negotiation" will be more difficult to support, while "argumentation" can be supported more easily in a computer-mediated way.
6. The relevant *conflict type*: This includes conflict history and in particular conflict level. It is to be assumed that, with increasing conflict level, confidence (in particular at the beginning of a mediation procedure, initialisation phase) can hardly be established by computer mediation only.

7. The *function of the mediation* procedure: Is CSM or online mediation used as "a creative problem-solving tool" or more as "a tool for citizen participation"?¹⁶

The handling of online mediation in urban and regional planning should, however, also be examined as a conceivable variant. A trendsetter in this context is the RuleNet project which was initiated from 1995 to 1996 by the Nuclear Regulatory Commission (NRC) and shows functional similarities to "mediation as a tool of citizen participation":¹⁷ More than 150 players in the problem area "fire protection at nuclear power plants" were involved over a longer period of time in an exclusively computer-mediated "rulemaking procedure" which was used as an additional informal tool in preparations for decision making (Colin 1998; Olmstead 1996).

The RuleNet project also indicates first responses with regard to the question "How should we use these technologies?": For example, this online regulatory negotiation procedure was characterized by clear procedural steps. These defined the roles of the facilitators and moderators, the participants and the use of information and communication technology.

Though the RuleNet procedure did not identify any substantial new aspects, it did offer a deeper insight into the requests and objections of the participants than traditional paper-based rule making processes. The procedure also improved acceptance among the interested public. However, the suspicion that the procedure that was presented to the outside as a participation procedure was abused in the end only as a means of ensuring acceptance and collecting information from (or about) the citizens could not be dispelled.

Further positive applications of model character have to be implemented. It is to be shown how network-based information and communication technology can be used for the solution of complex and conflict-prone problems of planning. For this purpose, however, new innovative methods have to be developed and tested in addition to the development of applications.

¹⁶ For example, the RuleNet project (see below) has shown indeed that network-based ICT permits comprehensive participation, but this approach did not introduce any new aspects into the discussion. To what extent CSM or online mediation can be used as a creative tool has still to be proved in comparison with procedures handled conventionally.

¹⁷ We would like to thank Matthias Trénel (WZB, Social Science Research Center Berlin, Germany) who drew our attention to the RuleNet Project.

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