DEMOS

DELPHI MEDIATION ONLINE SYSTEM

Lührs, Rolf / Malsch, Thomas / Voss, Klaus (2001):

Internet, Discourses and Democracy

In: Terano, T. et al. (eds): New Frontiers in Artificial Intelligence.
Joint JSAI 2001 Workshop Post-Proceedings.
Heidelberg: Springer-Verlag. S. 67-74.

IST-1999-20530

Internet, Discourses and Democracy

R. Luehrs[1], Th. Malsch[1], K. Voss[2]

[1] Technical University of Hamburg-Harburg, Department for Technology Assessment, Schwarzenbergstr. 95, 21071 Hamburg, Germany
[2] Pixelpark AG, Institute for Media Development, Rotherstr. 8, 10245 Berlin, Germany

1. Introduction

It is the very purpose of the DEMOS[1] project – the subject of this paper[2] – to exploit novel forms of computer mediated communication in order to support democracy on-line ('e-democracy') and to enhance citizen participation in modern societies.
In the following paper we will firstly point out how DEMOS aims to support the democratic process by exploiting the communicative potential of the Internet. Secondly, we will introduce a novel participation methodology which is derived from different social science approaches. Thirdly we will briefly describe the overall design approach.

2. On-line support for democratic processes

Since the neologism 'e-democracy' refers to both computer mediated communication and democracy without specifying the underlying concepts, there is a need to explain what exactly we mean when using the term. To start with the 'democracy' part of the term, there are different conceptions of democracy and depending on the perspective, different perceptions of how the internet could support, reform or even revolutionise the way democracy works. The most common distinction in the definition of democracy refers to the ways citizens participate in the decision

---

[1] DEMOS (Delphi Mediation Online System) is funded as a shared-cost RTD project under the 5th Framework Programme of the European Commission (IST) and is being developed by a research consortium comprising eight organisations from five different European countries, representing the fields of academic research, multimedia, software, market research and public administration. The DEMOS Project (IST-1999-20530) commenced September 2000 and is going on for 30 months. For more information see the project web site: http://www.demos-project.org

[2] This report describes the entire spread of the ongoing project and has to be seen as an short introduction to the particular fields of research and development which are pulled together in DEMOS.

making process and the respective types are called direct or representative democracy. However, these approaches have to be understood not as alternative, opposing systems of democratic governance but as two complementary forms of participation which exist side by side in every modern society. It would simply not be feasible in contemporary societies to ask people for their approval before coming to any decisions, like the ancient Greeks did, nor could representative democracy dispense with the civil engagement of the citizens. Mostly, ‘e-democracy’ in this context calls into question the appropriate mixture of both types of participation, not representative democracy as such. Whether or not more direct participation is perceived as being desirable, depends on the underlying normative model of democracy.

For the liberal, democracy operates by arranging compromises between citizens with different interests on the basis of fair procedures such as equal voting rights. The normative implications are low and the liberties of the citizens are above all defined as 'negative liberties' in the sense of them not being too much directed by the state. From this point of view, more direct participation is only worthwhile – if at all –in terms of plebiscites but not in terms of intensified public debate. In this case e-democracy would only mean substituting paper-based procedures with electronic ones in order to increase convenience and efficiency. By contrast the republican approach to democracy believes that "the formation of the citizen's opinion and will forms the medium through which society constitutes itself as a political whole" (Habermas 1996, 26). Especially in its communitarian reading the republican view tends to over-conceptualise ethical values and the need and chances for ethically integrated societies. Although, here the Internet could be potentially used in its entire diversity in order to support public democratic processes, the expectation that electronic networks will leverage the ethical integration of society seems to be far too idealistic. Though there might be a "trend towards more autonomous local units and the emergence of multicultural and more egalitarian politics, (...) strong counter-tendencies are at work. The Internet is involved in this process by both influencing the desired ends and their opposites" (Sassi 1997, 436).

Instead of identifying democracy merely with voting like liberal democrats tend to or reducing political to ethical questions, like republican democrats are supposed to do, a third variant, the discourse theoretic (deliberative) model, focuses on the *procedures* of public will formation. These procedures are considered to generate legitimacy and practical rationality (Benhabib 1996, 71). "In agreement with republicanism, it gives center stage to the process of political opinion- and will-formation" (Habermas 1996, 27) but without burdening this process with the idealistic expectation of enabling the public sphere itself to act. According to the discourse theory this quality belongs exclusively to the realm of the specialised subsystem called administration. The purpose of the deliberative process is, though, to influence the exercise of power by the administration. "The power available to the administration changes its aggregate condition as soon as it emerges from public use of reasons and communications that do not just monitor the exercise of political power retrospectively, but more or less program it as well" (Habermas 1996, 24). In *this sense*, the project strives to strengthen the legitimacy and rationality of

democratic decision making processes by using DEMOS to inspire and guide large scale political debates, to close the distance between political representatives and citizens, experts and laymen.

3. A novel participation methodology

The specific communication potential of the Internet can be characterised by the three terms - interactivity, speed and scope. Together, these characteristics allow novel forms of interactive communication between large numbers of participants. On the one hand, it is theoretically possible for an unlimited number of people to discuss a common subject– all 'talking at the same time' and contributing to the same discussion. On the other hand, the same participants could also potentially use electronically available information to deepen their knowledge, to give more evidence to their arguments or to convince other participants. Furthermore, people could form coalitions by getting in touch with like-minded people effortlessly or they could group around and discuss certain topics or subtopics of mutual interest.
To realise this potential however, there is a need for methodologies that match the media. They need to be able to aggregate and interrelate the individual contributions, to identify and foster the most promising aspects of the discussion, to profile different positions and to strive for convergence between them or at least to figure out what are the truly disputed aspects where no compromise can be achieved. In the latter case, we are always looking for a result from the discussion - whether it is a consensual statement supported by a majority of the participants or what is called a 'rational dissent'[3]. Only if the discussion leads to a result is the discussion likely to have any influence on political decision-making procedures. This impact, of course, can be manifold: if the outcome is a clear statement supported by the broad public, it will not be ignored by elected representatives. If the result is merely a widespread collection of different viewpoints, it can serve as input to prospective laws or it can anticipate future objections to planned policies and the like. Taking a closer look at this methodology, we are basically planning to assemble and integrate three well-proven social research methods, namely the Survey technique, the Delphi approach[4] and the Mediation method[5]. The difficulty here is that these ideas cannot simply be added and compiled to form a new methodology because they are, at least partially, contradictory.
Starting with the classic Survey technique, this method is designed for representative opinion polls and contributes to public opinion formation on a large-scale ba-

[3] „A rational dissent (...) implies that, on the basis of what is or has been collectively accepted, the persons involved succeed in understanding precisely what isn't collectively accepted" (Miller 1992, 14).

[4] As an overview see Florian et al. 1999.

[5] The mediation method is one of the so-called Alternative Dispute Resolution (ADR) procedures, which focus on 'informal participation' in the sense that they are not regulated by law. See Susskind and Cruikshank (1989), Maerker and Schmidt-Belz (2000).

sis by including (virtually) the entire population. However, this technique is rather unsuitable for interactive participation. Delphi polls, on the other hand, operate with a certain amount of interactive feedback, but this has the consequence of limited scalability. For DEMOS, Delphi polls are extremely interesting because they can be used to exploit expert knowledge. The basic idea is to generate a consensus among a limited number of domain experts by aggregated feedback. Feedback is supplied by the 'Delphist' on a strictly anonymous and statistical basis to exclude direct personal influence among the participants. A Delphi process runs through two (or more) cycles of interview-feedback-interview. After each cycle the experts are asked to rethink their original answers in the light of the statistically aggregated 'group opinion' that has emerged in the previous cycle, until a satisfactory level of convergence or (statistical) consensus is reached.

Whereas both Survey and Delphi are quantitative methods, the Mediation technique is a qualitative method used to reveal problems and resolve conflicts. The basic idea of Mediation is that consensus is not a statistical figure but a negotiated compromise. Mediation is a group process with a limited number of participants, chaired by an impartial mediator, and often running through several cycles of open discussion. It is highly interactive and participative, but being restricted to face-to-face interaction, it is unsuited for large numbers of active participants.

The challenge for the DEMOS project is to take the advantages of all three methods and combine them into a new methodology for on-line democratic participation and interactive conflict resolution. (1) From Surveys it will take the idea of mass opinion polls on a large-scale basis, (2) from Delphi it will take the idea of a cyclical decision process exploiting expert knowledge, and (3) from Mediation it will take the idea of an open process of participative conflict resolution.

The incompatibilities mentioned earlier can be eased by enriching each of the particular methods with elements borrowed from the others. For example, instead of conducting a standardised survey with pre-formulated questions, the items can be generated 'bottom up' by sorting and aggregating qualitative semantic content from earlier or ongoing discussions. The generation of the questionnaire, then, is conceptualised as an interactive process. Like conventional surveys, the main purpose here is to condense and aggregate information and beyond that to summarise the discussion at a certain stage. Accordingly classical Delphi studies can be supplemented with qualitative, open ended questions and extended to involve higher numbers of participants. On the other side, the Mediation method has to be adapted to the specific constraints of the Internet, that is mainly to develop functional equivalents which transfer the method's core strengths, like creating an atmosphere of confidence and trust from face-to-face interactions, to the on-line domain.

The three social research methods (Survey, Delphi and Mediation) will be applied and merged together in the so-called 'DEMOS process'. This process is always concerned with one main topic to be commonly discussed on a limited timeline under the guidance of on-line moderators. To limit the debate to not more than one main topic is a conceptual decision derived from the general objective of the project to concentrate on deliberative discourses with potential impact on public decision making process. It also serves to discourage debates from losing any sense of

direction. As a matter of course several processes can be conducted in parallel and each of them will split up into different subtopics during the course of the debate. To focus on just one main topic requires a careful selection of the topic to be discussed on the basis of general criteria. Within our research project we have found that a potential theme should at least meet criteria like popularity, complexity, controversy and persistency. The question of to what extent a DEMOS process affects 'real-world' decisions implies additionally a question relating to the general success of public discourses, which cannot be expanded on here.

The basic process model comprises three different phases each with specific goals. The first phase has above all to initiate, facilitate and broaden the debate and subsequently to identify the most important aspects or subtopics of the chosen subject matter. Therefore the moderators have to analyse and cluster the free text contributions in order to find out the issues most participants seem to be interested in. These tasks will be supported both on a methodological and technological level. The moderators will be backed up by qualitative methods of content analysis and can exploit various mechanisms relating to the social system's self-organisation. A good example of the latter is the detection and use of the thread-generating parts of the discussion. Here a text mining tool will be able to automatically group the text contributions once a set of categories (subtopics) are defined and illustrated by examples.

Additionally, the moderators will have to summarise the discussion during the course of the first phase following a specific procedure. These summaries consist of content and progress related parts and highlight and profile emerging lines of conflict according to the Mediation method. The first phase finally results in a set of proposed subtopics that can be more intensively discussed in separate discussion forums in the next phase. Since this procedure is relying on interpretations of the individual postings as well as of the entire discussion, the result may not exactly meet the preferences of the participants. At this point the Survey method comes into play in order to evaluate whether or not the proposed sub-forums meet the demands of the community and if necessary, to generate ideas on how to revise the list of subtopics.

In the second phase a limited number of sub-forums will be offered by the system on the basis of the poll results. The purpose of this phase is to intensively discuss specific aspects in smaller groups of interested participants, while the main forum still catches those participants who want to discuss the topic on a more general level. Again the moderators will have to summarise the developing debate on a regular basis and at the same time try to tease out and manage emerging conflicts. This is where the Mediation method comes in as part of the moderator's task will be to clarify how and to what extent people are agreeing or disagreeing and at the same time to reduce the distance between diverging positions by deliberative, moderated discourses. The results of the second phase should either be agreement (consent) or a rational dissent in the sense explained above. If required and appropriate, this opinion shaping process can be enriched and supplemented with expert knowledge by conducting Delphi surveys among a predefined set of domain experts. Delphi type studies can either be applied in the original fashion e.g. to reduce the uncertainty with respect to future developments or in order to evaluate

certain positions of the community from an expert point of view. Since even experts are often not of the same opinion the Delphi method here provides the participants with a condensed picture of their degree of agreement regarding specific issues. Finally the moderators will close this phase with a summary of what was discussed so far, and will once again ask the participants for their approval (survey).
The third phase reintegrates the sub-forums into the still existing main forum by transferring the summaries and related survey results. Here the participants have the opportunity to see the particular subtopic as part of the general subject matter and a 'big picture' will emerge. Participants have the last chance to comment on the main topic and the assembled results of the sub-forums and the community will be asked to rate the subtopics in terms of importance for the main topic that the DEMOS process was intentionally set up for. The final result will be a condensed document depicting both the results of a dynamic and deliberative discussion and the importance accorded its different aspects in the view of its participants.

4. System Design

The design approach for the DEMOS system started with the deduction of the generic DEMOS process from the participation methodology as described in the previous chapter. Accordingly the graphical user interface (GUI) depicts the main characteristics of this process, e.g. visualises the different phases within a given time limit, diverse discussion forums and user roles. The navigational concept is based on a timeline, which allows the user to discern the current phase of the discussion, and the actual topics. Starting from there, users can zoom successively into the focus of their interest, that is, into sub-forums and postings. The number of sub-forums is limited by the demands of screen design and usability.
In order to technically support the DEMOS process, the system architecture consists of four major support components for the modules: Argumentation and Mediation (A&M), Online Delphi Surveys (ODS), Subgroup Formation and Matchmaking (SFM) and Knowledge Management System (KMS).
The main element of DEMOS is the forum, where topics are discussed under the guidance of a moderator. The discussion forums of the Argumentation and Mediation module are provided by the Zeno system (Gordon et al. 2001). Zeno provides particular support to trusted third parties (e.g. the impartial mediator) responsible for moderating the discussions. The Zeno server is a java based application for the www, which enables and facilitates moderated, issue based discussion forums in a secure environment. Zeno discussion forums are integrated with a workspace facility for sharing classified documents.
The Online Delphi Survey module provides the moderators with means to generate and conduct on-line surveys as previously described. In a first step, a discussion will be analysed qualitatively and categorised with the help of a text data mining algorithm based on standard Bayesian inference methods. This engine is

able to extract the ‘concepts’, or main ideas out of a free text and to search for ‘similar texts’ based on comparison of these concepts. Once the moderator has clustered the contributions of the users and so preliminary structured the discussion, she may generate a questionnaire and conduct a detailed quantitative survey in order to validate her findings, clarify particular issues or focus on certain aspects. Furthermore the ODS component supports Delphi surveys and the visualisation of results, which are subsequently used to further organise the DEMOS process and also to establish new forums and groups of users.

The clustering of users is crucial for the scalability of the system. It will be handled by the Subgroup Formation and Matchmaking module which makes use of different profiling information. To maintain scalability on the technical level, SFM is also based on the categorisation tool. The first, limited deployment of the system will lead to a deeper understanding of the users behaviour in the DEMOS environment. Once, the behaviour of users and the rules are known precisely, further tasks can be automated. It is planned to represent users as well as forums with software agents. These agents will carry a set of rules derived form the first, 'manual' deployment of DEMOS, which will allow forum agents to match like-minded users and experts, user agents to identify appropriate forums and users to set up their own groups and forums inline with the progress of the main process. In other words more and denser interaction between a large number of participants can be realized by the help of software agents in the context of DEMOS than in any real world environment. This can be labeled as 'interactive mass communication', which denotes a new interaction type owing to the diffusion of the web. Before, it was just part of the definition of mass media, that interaction between sender and receiver was inhibited by interposed technology (Luhmann 2000). As new means of communication and interaction induce new and unexpected forms of behavior, we furthermore expect to observe emergent structures in this 'hybrid society' which may be also of interest for basic research problems like the so-called 'micro-macro-link'. This problem is of crucial importance for both sociology and computer science[6] and is especially focussed in the recently established research field 'socionics' (Mueller et. al 1998, Malsch 1998).

The agent’s ability to learn will be finally used for the Knowledge Management System (KMS). As described above the categorisation engine will enable agents to search for ‘similar texts’ based on comparison of extracted concepts. In particular, this allows agents to find documents, even if they do not contain a desired keyword. The agents can then be used to represent a particular set of documents covering a certain subject matter. Providing the participants with a couple of initially trained agents, the users can further modify their personal copies by retraining. Furthermore, the agents can be shared among the users, so that participants will not have to start their own research from scratch, but can retrain an existing agent and so reuse the expertise of others[7]. With the anonymous exchange of agents

---

[6] E.g. in the field of ‘Distributed Artificial Intelligence’ (Gasser 1991)

[7] This concept has initially been developed in the project www.estonia-sinking.org (funded by the Media II program of the EC), where users and groups with different (even contra-

bound to a certain topic, even users with contradictory theories or opinions can mutually benefit from their respective research by using foreign agents. Even if the agents are not perfectly trained with respect to the information needs of particular users, it may at least set them on a new track. The main idea is to enable "communication through shared knowledge" (e.g. exchange agents), which was one of the initial ideas of Tim Berners-Lee (1997) when developing the world wide web.

References

Benhabib, S., 1996. Toward a Deliberative Model of Democratic Legitimacy. In: S. Benhabib, ed. Democracy and difference: contesting the boundaries of the political; Princeton, NJ: Princeton Univ. Press, 67-94.

Berners-Lee, T., 1997. Realising the Full Potential of the Web. Published at http://www.w3.org/1998/02/Potential.html, visited 2001-07-24

Florian, M. et al., 1999. The Future of Security and Risks in Telecommunication – Expectations of Experts (TeleDelphi). In: G. Mueller and K. Rannenberg, eds. Multilateral Security in Communications. Vol. 3. Muenchen; Reading, Massachusetts: Addison-Wesley-Longman, 465-480.

Gasser, L. and M. N. Huhns, eds. 1989. Distributed Artificial Intelligence, Volume II, London: Pitman, San Mateo, Ca.: Morgan.

Gordon, T. et al., 2001. Zeno: Groupware for Discourses on the Internet. To appear in KI - Künstliche Intelligenz, Vol. 15, 2001.

Habermas, J., 1996. Three Normative Models of Democracy. In: S. Benhabib, ed. Democracy and difference: contesting the boundaries of the political; Princeton, NJ: Princeton Univ. Press, 21-30.

Luhmann, N., 2000. The Reality of the Mass Media, Palo Alto: Stanford University Press.

Malsch, T. ed. 1998. Sozionik: soziologische Ansichten über künstliche Sozialität. Berlin: Edition Sigma.

Maerker, O. and B. Schmidt-Belz, 2000. Online Mediation for Urban and Regional Planning. In: A. B. Cremers and K. Greve, eds. Computer Science for Environmental Protection, Marburg (Germany): Metropolis, 158-172.

Miller, M., 1992. Discourse and Morality – two case studies of social conflicts in a segmentary and a functionally differentiated society. Archives Européennes de Sociologie, 3 – 38.

Mueller, H. J. et al. 1998. SOCIONICS: Introduction and Potential. Journal of Artificial Societies and Social Simulation, Vol.1, no.3, http://www.soc.surrey.ac.uk/JASSS/1/3/5.html, visited 2001-07-24

Sassi, S., 1997. The Internet and the Art of Conducting Politics: Considerations of Theory and Action. Communication 22, 4, 451-469.

Susskind, L. and J. Cruikshank, 1989.Breaking the Impasse. Consensual Approaches to Resolving Public Disputes. New York: The Perseus Books Group.

---

dictory) interests and prior knowledge can conduct their research about the reasons for the sinking of the ferry Estonia.