Machiavelli Confronts 21st Century Digital Technology: Democracy in a Network Society

An Overview of the Dagstuhl Seminar on Democracy in a Network Society, Working Paper, Oxford Internet Institute, University of Oxford, 10 December 2009.[1]

by[2]

Walter Baer, Nikita Borisov, George Danezis, William H. Dutton, Seda F. Gürses, Marek Klonowski, Mirosław Kutyłowski, Ursula Maier-Rabler, Tal Moran, Andreas Pfitzmann, Bart Preneel, Ahmad-Reza Sadeghi, Thierry Vedel, Tracy Westen and Filip Zagórski

Introduction: E-democracy and the Politics of Technical Design

Computer science and informatics have great potential to improve citizen engagement with public officials, voting, access to public information and other democratic processes. Yet progress towards achieving these aims on a wide scale remains slow. At the same time, 'Web 2.0' Internet innovations like social networking and other user-generated content have stimulated new forms of government-citizen interaction as well as the rapid growth of a 'Fifth Estate' network of networks that supports and reinforces many different forms of political activity within - and across - traditional political structures (Dutton 2009).

A main reason for this lack of progress is a tension between the requirements of

technical designers and the way politicians have traditionally operated. Technical e-democracy innovations have political implications and are not necessarily politically neutral or benign. As Langdon Winner (1977) put it: ‘The issues that divide or unite people in society are settled not only in the institutions and practices of politics proper, but also, and less obviously, in tangible arrangements of steel and concrete, wires and transistors, nuts and bolts.’ Likewise, in developing his argument that ‘code is law’, Lawrence Lessig (2006: 6) noted: ‘We can build, or architect, or code cyberspace to protect values that we believe are fundamental. Or we can build, or architect, or code cyberspace to allow those values to disappear. There is no middle ground’.

In such ways, digital technologies do not simply make existing practices faster or more efficient. In many cases, they create the potential to alter significantly the relative influence of different groups and actors in the political process, and thereby quickly become embroiled in a political debate that crosses and complicates technical discussions. These kinds of innovations also have secondary effects beyond the stated goals of their sponsors and developers, such as when an online social network is used to raise money for political candidates or to organize political protests that may cross several jurisdictions. These kinds of real political conflicts and uncertainties have been made more transparent in applications of the Internet and related Information and Communication Technologies (ICTs) to support democratic processes.

Designing new technological systems in these activities thus explicitly or implicitly involves political as well as technical decisions. Technical limitations and failures can play a role in delaying progress for such innovations, for example in the requirements needed to ensure the security of electronic voting systems. However, there is still much more that could be accomplished by applying existing technologies to realize desirable new outcomes for democratic institutional processes. To achieve this, scientists and engineers would like public officials to provide them with concrete requirements for designing new technological systems, including clear specifications and priorities, for instance in areas such as usability, security, transparency, privacy, reliability and cost. But in fulfilling their role in mediating among conflicting values, politicians are generally more comfortable with ambiguity, and may prefer less

precise statements that require further clarification (e.g. ‘democracy’, ‘equality’, ‘fairness’, ‘access’).

The challenges created by these techno-political tensions, and how to address them, were the overall cross-cutting themes that emerged from the interdisciplinary Dagstuhl Seminar on Democracy in a Network Society, on which this paper is based.[3] The seminar involved a multidisciplinary group of computer and social scientists, legal scholars, practitioners and policy experts who aimed to chart the latest technical approaches to e-democracy and governance. Their intention was not to tell politicians how to maintain and enhance their power with the support of new technologies, in the manner of Niccolò di Bernardo dei Machiavelli’s 16th Century adviser to the prince. Instead, participants explored how new technologies could enhance or constrain the power of politicians and the general public, depending on how the technologies and the systems based on them are designed and implemented. When following certain paths of innovation, technological change could enable the better realization of conceptions of pluralist liberal democracies based on institutions that seek to represent the will of the public. However, other approaches to the design and implementation of such systems could undermine these institutions and processes, for example by reducing freedom of expression or the privacy of individuals.

Structure of this Paper

The next two sections summarize important cases tied to the overall theme outlined in the Introduction. These sections are followed by the highlighting of seminar insights on political and technological constraints on e-democracy progress, as well as the ways in which design and political strategies interact. After a summary of the seminar’s conclusions and recommendations, Appendix 1 reflects the dialogue at the event that reached across computer, social and political sciences by outlining the kinds of related questions that can be addressed through productive interdisciplinary exchanges. Appendix 2 lists the paper’s authors and their affiliations.

Examples to Illustrate Political and Technological Tensions

Four important examples tied to the above theme illustrate the tensions and interplay between politics and technology:[4]

1. Making Government Information More Accessible and Useful. The Internet is an excellent medium for expanding public access to information produced by government and other public bodies, as well as providing channels for citizen feedback. Yet efforts to increase online accessibility to government information are often hampered by fragmented, incompatible government ICT systems; obsolete policies and procedures designed for print media; and many, often arbitrary, restrictions. Decisions about what the public should know and which information public bodies should disclose and disseminate, are themselves highly political. In order to improve transparency in digital services, governments should therefore develop policies that explicitly address issues such as which content and functionality should be made available, to whom and how (e.g. the type of search capabilities required). The security, privacy, accessibility and usability requirements that should apply in a given context are also significant policy issues. Such policy clarifications should provide a sound basis on which computer scientists and engineers can then devise specific solutions to increase public access to government information.

2. Improving Voting Technologies. New voting technologies for public elections aim to address the accessibility, security, privacy and accountability problems that have reduced voter trust in many current electronic systems. For example, ‘open-audit’ voting systems are being designed to allow voters to receive feedback on how their vote is counted and to verify that elections were properly conducted. These systems are being tested in small-scale trials. Further deployment will depend both on technical assessments and the making of political judgments about their public acceptance, ease of use and cost. Remote voting over the Internet, however, still appears vulnerable to fraud and coercion on a scale much greater than for comparable polling station kiosks or manual paper-based systems. Although Internet voting may be appropriate in lower-risk settings, such as corporate or university elections, we cannot recommend their use in high-stakes public elections until these vulnerabilities are effectively addressed.

3. Enhancing Online Democratic Decision Making. Beyond periodic elections, the Internet offers possibilities for more widespread participation by citizens in day-to-day policy decisions. Many collaborative tools are now available to help individuals and groups discuss issues and work together online. Social networks can facilitate bottom-up organizing among individuals and institutions with a common interest, anywhere in the world. Ranking and recommendation systems can identify ideas of greatest interest and help form group consensus. Computer-assisted systems can also make opinion polling techniques more widely available to grassroots as well as established organizations. Yet potential downsides of more direct democratic participation online are also evident: polarizing opinion into narrow segments that create an 'echo chamber' reinforcing existing views; bolstering emotional rather than deliberative responses to complex issues; or simply overwhelming policy makers with a flood of undifferentiated citizen inputs. Government officials and developers of online systems for direct citizen participation in public issues must work together to resolve a host of difficult political and technical issues so that their efforts can lead to enhanced democratic decision making.

4. Balancing Surveillance, Privacy and Anonymity. Strong privacy concerns have been raised by the growing use by government and private entities of digital surveillance technologies, such as networked Webcams, location tracking, digital identification (ID) devices, data mining and analyses of communication traffic and search engine queries. In response, many governments have established privacy rights for individuals, developed data protection frameworks and mandated privacy policies. Technical measures to protect personal information have also been developed. They can be used by individuals to express their political opinions anonymously, such as to avoid censorship or discovery. However, existing protection schemes for privacy, confidentiality and anonymity may be undermined by newer generations of smaller, cheaper, better surveillance technologies that will be much more difficult to detect or control. Moreover, legal limitations have been imposed by some governments that could work against privacy and anonymity, such as requirements for the length of data retention and accessibility by security and police authorities. Technical counter-measures alone will therefore not suffice

to protect individuals or communities from surveillance. As a consequence, it is important to encourage broad public discussion and debate, for example on how to balance societal goals of safety, transparency and accountability with individual values of free speech, privacy and confidentiality.

Constraints on Designing Appropriate Networks for Democracy

Technical decisions can be criticized from a political point of view because they raise, in the classic phrasing of Harold Lasswell (1935), ‘extraordinarily potent questions’, such as: How can we reconfigure who gets what, when and how? Prominent examples of the factors holding back progress in technologies for e-democracy include unresolved debates around the pros and cons of electronic voting; the balance between anonymity and accountability in political speech; representative versus direct democracy; or infrastructures for ID cards.

In many cases, such as systems for accessing information, the key issue is not a lack of technical innovation, but the implementation of existing technical solutions in new areas or on a broader scale. This is a problem of political decision-making and the political will to change democratic processes or institutions (e.g. to enable deep search and linking to government documents and databases). Understanding the key political and technical constraints in any particular context is therefore crucial to overcoming such barriers.

In order to assess the best approach to developing an appropriate e-democracy solution, it is useful first to assess which specific issues face more challenging political or technical difficulties. This could involve questions such as:

- How does the design of technology affect the associated political power plays, and vice versa?
- Who will lose or gain from this new technology?
- What are the limits of technological innovation vis-à-vis improving democratic processes?
- Why have available technical solutions to the problem not been applied more effectively in this context?

Political Constraints

The institutions of democracy have evolved over many centuries. Modern institutions, such as regulatory agencies, have themselves evolved complicated and detailed rules of procedure anchored in existing technologies. These rules have not evolved from a holistic, rational-comprehensive process, but from incremental adjustments to cope with specific problems that have occurred over time. The resulting institutional arrangements are not necessarily well understood by everyone, and therefore not easily reconfigured by those who believe new technologies should be used to modernize existing institutions.

This means the designers of ICT solutions should meet democratic political requirements should therefore keep in mind that their use may be shaped, or strongly influenced, by a history of political considerations. They should not hope that technical solutions on their own can fix or sidestep existing political processes. An appropriate way forward will require an acknowledgement that a complex technical solution may not be an acceptable replacement for simpler human processes. Ultimately, these solutions must also be made understandable to all citizens if they are to be politically acceptable in democratic societies.

Confusions as to whether problems are technological or political can lead to log-jams and inaction. Too often there is a perception of a clear dichotomy between technical and political dimensions, rather than a more nuanced understanding of their inherently intertwined nature. If politicians wait for perfect technical solutions, say to electronic voting, and computer experts wait for clear political judgments on how much risk should be accepted, no solution emerges. What is needed instead is a list of problems that seem relevant to improving democracy, and then to determine which aspects may be primarily technical and which lie mainly in the political sphere. This would help to decide where politicians must take the lead in confronting a problem, and where researchers and technologists can identify solutions to problems that require further investigation. For example, electronic voting systems can be created which have a high - if not perfect - degree of accuracy and reliability. In some cases this level of accuracy and reliability may lead to higher costs, which then poses a political question of how much risk and cost society is willing to accept.

Incentives to produce appropriate tools for democratic use also have an important political dimension. Private companies have developed many innovations that can, and have been, put to such use (e.g. online searches, social networking). However, there may be some areas in which the commercial sector will not design technologies without government cooperation and financial incentives (e.g. voting machines, structured citizen-input into legislative processes). Private companies will have no incentive to do so without a government-created market. Having ownership of certain tools in private hands also raises political issues of control and transparency. Definitions of the parameters of the market for supplying and monitoring solutions must therefore be set openly and with democratic input, or they risk an accusation of introducing a built-in bias to the solution's implementation.

Technical Constraints

The success of a technical system designed to support political processes depends on aligning it with the values embedded within the political consensus, or with the power balance in the environment in which it is deployed. For example, identity cards have been adopted in a number of countries, and rejected in others, often on the basis of the prevailing political consensus over civil liberties. When the balance of power permits, one party can simply impose a technical solution, embedding unilateral values. In other cases, where a different balance of power exists, technological artifacts are successful only when they genuinely embody multilateral security values, protecting the interests of all parties.

Technology itself may outlast or overgrow the political reality that created it, and end up imposing inappropriate or outdated values upon its users. Legacy systems built on past investments in computers, and the cost of replacing them, can also impose their values - even though they may have no social proponent.

Information security and cryptography are key to mediating conflicts in technical systems. Pure reason is not always the goal with which they are implemented or why they are deployed. At their heart, such security systems aim to embody the values of those who design them or fund them, by allowing some actors to access information or act on it, while excluding others. Democratic concerns of social justice, equity or efficiency come into play in deciding the values that are cemented by security

systems, but so do other considerations relating to personal privilege, commercial advantage, rent seeking and the maintenance of power. These values are not technologically determined, but are the product of political struggle. For example, a provider of voting machines might be selected by a government not because they produce the best machine, but because they have the best relationship with public officials.

The Interaction of Technical Design and Political Strategies

The constraints outlined above affect three main dimensions in the relationship between technology and politics, which continuously interact with each other:

1. Technology Shaping Politics. Disruptive technologies may force discussions and result in changes in the political domain and in relationships of power. They also enable or disable forms of participation in democratic processes (Westen 2000). Political forces may embrace these changes or try to contain them through legal frameworks or regulatory mechanisms (e.g. the continuing efforts to limit the availability of cryptography to the masses, or the interventions by Privacy Commissioners in the practices of social network providers). Technologies may exist that could leverage interesting social changes, but these may not be known, may not be usable, may not be massively deployable, may be blocked by those in power or may require political cooperation for implementation (e.g. national ID cards). Newly developed technologies may privilege certain power positions, although they are presented as neutral technologies (e.g. search engine rankings).

2. Politics Shaping Technology. Technologies may be used to cement existing power relations or offer merely an ineffectual ‘play democracy’. Technologies may disadvantage certain groups and worsen power imbalances (e.g. some types of surveillance technologies). Political forces may seek widespread deployment of such technologies or try to limit their use. Politicians could also rely on technology to solve some problems, but forget that there are other ways to deal with them. Political interests may ensure that certain technologies receive much more financial and political support than others

more aligned with democratic processes (e.g. data mining vs. privacy technologies, or cryptography vs. technologies of participation).

3. Balancing the Roles of Private and Public Sectors in Protecting the 'Social Good'. The ICT tools deployed in activities tied to democratic processes come from four main sources: private commercial companies (e.g. voting machines; search engines; social network sites); applications developed and owned by government (e.g. sites offering official information and feedback services); largely publicly-funded research projects taken up by other players (e.g. the Internet and Web); and non-profit social ventures (e.g. open-source[5] software providers; the Creative Commons[6] movement; the MySociety[7] service that enables citizens to send petitions to the UK Prime Minister). As such technical tools become a more integral part of the democratic society, there may be a conflict between the 'social good' and the goals of the owners of the tools, who may be motivated by financial gain in the private sector or obtaining and holding onto power in government-controlled activities. Mechanisms would then be required to ensure these tools directly support the purposes of democracy. For example, a recent Canadian Privacy Commission ruling required Facebook to adjust its privacy policies, whereas previously these have been defined exclusively by site owners (Denham 2009). However, regulation has sometimes been known to stifle innovation, access to information or free speech through government control of digital media or by creating barriers to new technologies that weaken the government's power and change the status quo.

Conclusion and Recommendations

An increasingly important interface to 21st Century democracy will be formed around computer-supported networks that mediate between citizens and elected officials to enable wider and more direct participation in democratic processes. This does not mean that 'digital divides' will cease to exist, nor that all citizens will be equally enabled by electronic channels. The Internet will not be the only interface, and for many citizens it may not be the most important one for some time to come. However, for an increasing number, including the most active opinion leaders, ICTs will be the

primary interface for collaboration within democratic processes and in interactions with democratic institutions and elected and appointed officials.

If these new interfaces are to enhance democratic values of equality, fairness, transparency, representation, authenticity and privacy, they must be designed in effective collaborations between governments, citizens, technologists, social scientists and other stakeholders. The Dagstuhl seminar participants proposed the following recommendations to assist in supporting such collaborations:

1. Encourage Multidisciplinary Collaboration. Design processes for technologies used in democratic systems should include a wide range of competencies, including lawyers, public officials and social scientists as well as computer scientists and engineers. Severe design errors may result from making decisions based on partial expertise, or from separate groups working in isolation.

2. Ensure Effective Take-up of E-democracy Solutions. Substantially more research is needed on how to adapt technologies to meet the diverse requirements of e-democracy. Government-driven processes (elections, disclosure of information) are often so conservative that they fail to take full advantage of new technologies and approaches that have proved effective elsewhere.

3. Deploy Appropriate Design Models. To the extent feasible, new technical systems should be small, modular and based on proven off-the-shelf technical components, rather than large, centralized special-purpose systems.

4. Promote Best Practice. A survey should be conducted of best practices in making government information accessible online inexpensively, efficiently and in forms that are easy to use by the public. Pilot projects should then be funded to implement these best practices in a number of different jurisdictions. Information on best practices and pilot projects should be made available to the public in easily accessible formats.

5. Support Open-Audit Systems. Current field trials of open-audit voting systems should be carefully assessed and documented. When they are successful, larger-scale trials should be encouraged.

6. Learn from Web 2.0 Innovations. Public officials and system designers should draw on the experience of Web-based social networks in planning online systems for democratic decision making.

7. Address Conflicting Requirements. More research should be directed toward new technologies that have the potential to reconcile conflicting requirements (e.g. cryptographic techniques that retain accountability without sacrificing anonymity; or decentralized identity technologies that do not require large central databases).

8. Gain Public Acceptance. Technical solutions that support democratic processes should be made simple enough, or must be so widely endorsed by the scientific community and other societal leaders, that they engender understanding, acceptance and confidence by the lay, non-scientific public. Democratic technologies should be designed with widespread public acceptance as a key design parameter.

9. Fund Civic Engagement Experiments. Governments should be encouraged to fund experimentations with technologies that support greater online civic engagement in democratic processes (voting, acquisition of information, collaborative participation in government decisions). Such government funding will encourage technological research as well as provide computer scientists with the priorities they require.

10. Share Knowledge Between Disciplines. The various contributions made by different disciplines to e-democracy developments can be strengthened through forums that encourage dialogue between multidisciplinary groups of computer and social scientists, legal scholars, practitioners and policy experts.

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APPENDIX 1. DIALOGUES ACROSS SOCIAL AND COMPUTER SCIENCES

In developing ICT-based systems to solve problems in particular fields, computer scientists are accustomed to stating their design assumptions precisely (e.g. ‘If A, then B’). They therefore look to the system’s users to set specific objectives and tasks as the basis for designing a solution to the specified problem (e.g. a system of electronic voting that meets required levels of privacy, security, accessibility, cost, etc.). Political and social scientists, on the other hand, tend to think more imprecisely and generally about democratic systems (e.g. how to improve ‘civic participation’). The interdisciplinary nature of the Dagstuhl seminar enabled a dialogue that helped to bridge the gap between such specificity and generality. This was reflected in the

formulation of a set of questions that computer and political scientists need to pose to each other in order to further understanding of how to improve progress in the practical availability and use of e-democracy opportunities.

Questions by Computer Scientists to Social Scientists

1. Specifics of Democracy. What are the key democratic systems? If voting is not the only procedure, what else is needed? What is your vision of systems needed for democracy? What are the needs and procedure required to support democracy? What are the products needed?

2. Conflicting Values. What are prime examples where democratic values come in conflict with each other? What types of conflicts are inherent in democratic systems? Is the integrity of technical systems the key requirement for e-democracy solutions? Is it more important than privacy? Is availability more important than both? What are the social dangers for democracy in a network society?

3. Transparency. How do we support transparency, or checks and balances, in a democracy? Is this similar to auditing in the private sector? What can be done to fill the gap between the complexity of the legislative process and the understanding of the citizens?

4. Definitional Issues. What is democracy in a network society? Is the Internet a democratic place? Is there a need to build a more democratic Internet?

5. Information. How are search engines influencing our decision making? How is the flow of information in a network society influencing democracy? How is the unmediated flow of information impacting information quality and democracy?

6. Participation. What incentives will encourage more people to be more involved in democratic processes? What has proven to be good in the past? How can these be tied effectively to ICT innovations?

7. Legitimacy. What gives legitimacy to technical systems that support democratic processes? To what extent does technical complexity and ease of

understanding influence this legitimacy? How can democratic systems be shaped to legitimize these systems?

8. Globalization. How do we handle different national requirements in relation to democracy in a network society that is not defined by national borders?

9. Locus of Decision Making. How can the divide be bridged between politicians who are less connected with the Internet and younger citizens who are generally connected to the Internet, but not to politics?

10. Modernizing Legislative Processes to Support e-Democracy Potential. In what ways have traditional political processes failed to take account of network-age opportunities (e.g. in the ability to overcome previous constraints of distance and other difficulties in communicating with decision makers)? How can technical capabilities best help to reshape new legislative process to enhance democratic participation in decision making?

11. Requirements for Technological Solutions. How can transparency be improved by using digital tools connected to information, processes and actors (e.g. through graphical visualizations of processes showing the connectedness or interdependencies of actors)? Where should we go to find appropriate political and other non-technical expert views (e.g. on legislation)? How could we best create appropriate search engines that will distinguish ‘serious’ or ‘expert’ statements from ‘superficial’ or ‘in-expert’ comments? How can reliable ‘reputation systems’ be designed to help decide what is trustworthy?.

Questions by Social Scientists to Computer Scientists

1. Information Retrieval. How can computer science assist citizens to sift through vast amounts of information to obtain from trusted sources whatever they are seeking? How can this be best presented at the speed and employing the type of format and simple interaction wanted by the user (e.g. video, text, audio)? Which innovations are most likely to move significantly beyond search and other current technologies?

2. Privacy and Surveillance. How will future technologies enable all branches of government to discover what citizens and other residents are doing, thinking and saying? To what extent can existing and new privacy and security technologies limit the government's ability to know more about the public than the public wants to reveal? Can privacy technologies help both enhance and protect the democratic process (e.g. by preventing widespread disclosure of the names of persons signing petitions in a way that could lead to subsequent harassment because of their support of a controversial measure - at the same time as allowing dissemination of information that the wider public would like to know, such as how many people signed the petition and their broad demographic characteristics, but not their individual identities)?

3. Citizen Collaboration and Input. How can technology help create opportunities for effective and efficient electronic dialogues between citizens and their elected representatives? What are the most significant emerging collaborative technologies aimed at enabling the public to better communicate among themselves, to organize politically and to communicate their views effectively to elected officials and administrative decision makers before they make important decisions? How can these overcome online behaviour that inhibits open and fair democratic debate (e.g. in resolving issues such as: who takes the next turn in online discussions; ways of dampening aggressive ‘flaming’ in such discussions; how online forums are mediated; who holds editing rights over material posted on the Web; and how to provide access for all who wish to participate)? How can public officials analyze the incoming flood of citizen inputs, so that they can extract what is important without being overwhelmed?

4. Technical Design Driving Political Processes. To what extent will computer scientists and engineers be creating systems that define the ‘rules of the game’ in the political process? How can such rule shaping be made as adaptable as possible to meet the needs of evolving political processes, rather than embedding a rigid standardization that usurps any future rule changes? Alternatively, would rigidity be desirable in some cases (e.g. to permanently embed basic democratic principles, such as anonymous voting in a secret ballot)?

5. Motivation of Technical Experts. Do computer scientists regard the technical solution to some important political problems as being too mundane or well-know to be of interest to them? Do they sufficiently understand the political system in order to see how and which technological solutions can help to resolve political problems? How best can any lack of motivation be overcome?

6. Role of Artificial Intelligence. How important is the development of ‘smarter’ technologies (e.g. ‘intelligent agents’ that can conduct searches for you to find political candidates compatible with your views)?

7. Future Innovation. What major changes in networked computers will occur in the next decade? Which aspects are most likely to affect democracy (e.g. security, privacy, usability, transparency, speed, portability)?

APPENDIX 2. AUTHORS’ AFFILIATIONS

Walter Baer, Annenberg School for Communication & Journalism, University of Southern California, USA

Nikita Borisov, University of Illinois at Urbana-Champaign, USA

George Danezis, Microsoft Research, Cambridge, UK

William H. Dutton, Oxford Internet Institute, University of Oxford, UK

Seda F. Gürses, K. U. Leuven, Belgium

Marek Klonowski, Wroclaw University of Technology, Wroclaw, Poland

Mirosław Kutyłowski, Wrocław University of Technology, Wrocław, Poland

Ursula Maier-Rabler, Universität Salzberg, Austria

Tal Moran, Harvard University, USA

Andreas Pfitzmann, TU, Dresden, Germany

Bart Preneel, K. U. Leuven, Belgium

Ahmad-Reza Sadeghi, Ruhr-Universität, Bochum, Germany

Thierry Vedel, CEVIPOF SciencesPo-Paris, France

Tracy Westen, Center for Governmental Studies, Los Angeles, California, and Annenberg School for Communication & Journalism, University of Southern California, Los Angeles, USA

Filip Zagórski, Wrocław University of Technology, Wrocław, Poland

Endnotes

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[2] See Appendix 2 for authors' affiliations.

[3] A more detailed analysis of the issues is in preparation.

[4] For further background on such cases, see for example: Westen (2000), Dutton and Peltu (2007), or Tapscott (2008); Dutton (2009).

[5] See: http://www.opensource.org

[6] See: http://creativecommons.org

[7] See: http://www.mysociety.org