Complexity, Information Overload, and Online Deliberation

OREN PEREZ[*]

Abstract: This article explores the influence of information overload on online democratic processes. The study of this question is motivated by the increasing importance of the doctrine of transparency, by the central role of the paradigm of informed citizenship in contemporary political thought, and by the empirical observation that the modern citizen is exposed to increasing amounts of political data. To explore this question, the article develops a rigorous understanding of the concept of information overload in the democratic context. The article argues, drawing on empirical studies which highlight the adverse psychological impacts of cognitive overload, that this question can undermine the capacity of the Internet to reinvigorate democratic praxis. It considers two different responses to this threat. The first questions the seriousness of this threat by re-conceptualizing democracy as a "low-information" practice. This "shallow" understanding of democracy emphasizes the role of heuristics and political intermediaries in modern democratic life. While acknowledging the important role of heuristics and political intermediaries, the article questions the capacity of this narrative to provide a coherent account of legitimate democratic governance. The article proceeds to consider an alternative, technological-oriented response to the problem of information overload. This approach

highlights the capacity of new technological innovations to resolve the information overload question by reducing the cognitive burden associated with web-based political action. The article uses a concrete case study—the advanced online participatory framework offered by TransLink, the South Coast British Columbia Transportation Authority—to highlight how the information overload problem is manifested in an actual political context. The article concludes by exploring the blind-spots of these different technological innovations. It considers in this context the role of a new class of political players—techno-political intermediaries—and discusses their potential influence on the democratic process. This discussion points to certain deficiencies in the current doctrine of transparency (and the paradigm of the "informed citizen" underlying it), which is insensitive both to the cognitive limitations of the average citizen and to the increasingly important (but hidden) role of techno-political intermediaries in the political process as it draws increasingly on online tools.

I. INTRODUCTION

The legitimacy of political decisions depends on the quality of the information on which they are based. We expect people to base their political actions—from voting to engaging in public consultation—on a deep understanding of the relevant information. We want their decisions to be informed rather than arbitrary, capricious, or involuntary. This expectation applies to political action at various levels: voting in general elections, referendum over national issues, and local consultation processes focusing on planning or environmental dilemmas. The idea that the legitimacy of the political decision may be undermined if it is not based on informed collective reasoning seems to reflect deep-seated societal intuitions. It is, thus, not enough for the democratic process to be inclusive, equal and non-coercive. It also needs to satisfy certain cognitive requirements. These widely shared intuitions regarding the nature of the democratic process and the legitimacy of political decisions have deep roots in political thought—notably the writings of Jürgen Habermas—and in constitutional jurisprudence.

In studying the cognitive burden associated with civic political action, I want to highlight two important facets of contemporary political life. The first is the increasing importance of transparency in the common understanding of legitimate governance. The doctrine of transparency has also become one of the more influential principles of modern administrative law, greatly increasing the amount of information available for democratic reflection. [1] This doctrinal development is a reflection, I will argue, of a strong social belief in the value of informed citizenship. The penetration of the Internet into the political domain constitutes the second facet. The Internet provides unlimited opportunities for presenting, storing, and accessing political and other information. These two processes have amplified the cognitive demands on democratic engagement. The increasing importance of the doctrine of transparency and the technical opportunities made available by the Internet have increased the amount of data citizens can and are expected to use as they enter into the political arena. But this upsurge in information resources only seems to have deepened the gap between the actual democratic practices and our normative expectations. It is becoming increasingly

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[1] The principle of transparency is also considered one of the key components of the emerging field of global administrative law.

difficult to cope with the cognitive challenges associated with civic political activity. This gap poses a deep challenge to the legitimacy of contemporary democratic institutions.

At the individual level, as we reach the boundaries of our cognitive and attentive capacities, this cognitive challenge is experienced as information overload. This article examines the collective repercussions of this phenomenon– its impact on the democratic process. This article focuses, then, on the implications of information overload on online democratic processes (and the conception of democracy in general).

To explore this question, the first section develops a more rigorous understanding of the concept of information overload in the democratic context. This conceptual exploration is necessary because the theoretical treatment of this notion has tended to focus either on the perspective of the individual[2] or the perspective of the business organization.[3] The second and third sections consider two different reactions to the problem of information overload. The second section explores an alternative, shallower understanding of democracy, which emphasizes the role of heuristics and political intermediaries. While acknowledging the important role of political intermediaries in modern political life, this section highlights the deep problem of a re-conceptualization of democracy as completely mediated practice. Section three proceeds to consider possible technological reactions to the problem of information overload. It discusses four different strands of technological innovations—sophisticated search technologies, user-sensitive design, new visualization techniques, and deliberation support technologies—which can reduce the cognitive burden associated with political action.

The fourth section considers a concrete case study– the advanced online participatory framework offered by TransLink, the South Coast British Columbia Transportation Authority. This concrete case

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[2] Kenneth E. Himma, *The Concept of Information Overload: A Preliminary Step in Understanding the Nature of a Harmful Information-Related Condition*, 9 ETHICS & INFO. TECH. 259, 267 (2007); David M. Grether, Alan Schwartz & Louis L. Wilde, *The Irrelevance of Information Overload: An Analysis of Search and Disclosure*, 59 S. CAL. L. REV. 277, 281–87 (1986).

[3] *See* Ingrid Mulder et al., *An Information Overload Study: Using Design Methods for Understanding*, 206 ACM INT'L CONF. PROC. SERIES 245, 245–52; Ruud Janssen & Henk de Poot, *Information Overload: Why Some People Seem to Suffer More than Others*, 189 ACM INT'L CONF. PROC. SERIES 397, 397–400; Nathan Zeldes et al., *Infomania: Why We Can't Afford to Ignore it any Longer*, 12 FIRST MONDAY (Aug. 2007), http://firstmonday.org/issues/issue12_8/zeldes/index.html.

highlights how the information overload problem is manifested in an actual political context. The last section revisits the technological reaction to the information overload problem and explores the blind-spots of the different technological tools– the "hidden" price they may impose on the democratic process. It explores in this context, the role of a new class of political players—techno-political intermediaries— and discusses their potential influence on the democratic process. This discussion points to certain deficiencies in the current doctrine of transparency, which is insensitive both to the cognitive limitations of the average citizen and to the increasingly important, but still hidden, role of techno-political intermediaries in the political process as it draws increasingly on online tools.

II. INFORMATION OVERLOAD AND THE DEMOCRATIC EXPERIENCE

A. THE INFORMATIONAL REQUIREMENTS OF DEMOCRATIC ENGAGEMENT

Thinking about information overload in the democratic context requires, first, that we define the kind of information that is relevant to political action (from voting to public deliberation, regulatory consultation, demonstration, and more). This requires a two-level inquiry, which simultaneously explores the individual and collective levels. In thinking about the informational requirements of political reasoning and political deliberation, a distinction has to be made between two different perspectives: normative and socio-psychological. The normative perspective reflects our expectations regarding "good" citizenship and "good" deliberative process. It refers both to the mode of reasoning expected from a citizen who takes part in a political interaction, and to the dialectical properties of a proper deliberative process. Further, these primary expectations also entail certain secondary expectations regarding the institutional infrastructure that must be in place in order to facilitate these "proper" forms of democratic practice. These normative intuitions draw on three main sources: political traditions, political philosophy, and constitutional law. In contrast, the socio-psychological perspective explores the modes of reasoning and deliberation that characterize, in effect, the political dynamic of contemporary democracies.

Analyzing the influence of information overload on the democratic process, in its individual and collective facets, requires us therefore to develop a concept of democracy and "good citizenship," and further to test this normative conceptualization against sociological and

psychological evidence. Democracy is the art of living together. It designates those multiple institutions and procedures through which a political community can sustain itself– despite the various issues that divide it. As Bruno Latour has put it: "We don't assemble because we agree, look alike, feel good, are socially compatible, wish to fuse together, but because we are brought by divisive matters of concern into some neutral, isolated place in order to come to some sort of provisional makeshift (dis)agreement."[4] The range of issues that can divide a political community—but that nonetheless require a collective, binding decision—is almost endless. The unbounded nature of political struggle imposes a difficult challenge on the democratic enterprise. To fulfill its mission of enabling a particular *demos* to continuously co-exist despite the various issues that divide it, democracy has to develop institutional mechanisms that will enable a community to resolve disputes involving competing logics and cultural viewpoints.

Democracy requires, therefore, the development of collective and individual sensitivity to multiple types of argumentation and reasoning; or to put it in other words, it demands the development of individual and collective sensitivities to multiple categories of information. In order to get a better sense of the nature of this sensitivity and of the meaning of information in the political domain, I will draw on the analytical distinctions developed by Jürgen Habermas in his theory of communicative action. Habermas's analysis of democratic deliberation is based on a distinction between different types of validity claims that can be the subject of a critical dialogue in a public process of argumentation. These claims include claims to empirical truth, moral rightness, ethical goodness or authenticity, aesthetic value, and personal sincerity. [5] Political dilemmas—from parliamentary debates about primary legislation to local disputes about construction projects—may involve a combination of validity claims.[6] Indeed, all of the various types of

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[4] Bruno Latour, *From Realpolitik to Dingpolitik – or How to Make Things Public, in* MAKING THINGS PUBLIC – ATMOSPHERES OF DEMOCRACY 14, 23 (B. Latour & P. Weibel, eds., 2005).

[5] JÜRGEN HABERMAS, THE THEORY OF COMMUNICATIVE ACTION, REASON AND THE RATIONALIZATION OF SOCIETY, VOL. 1, 8–23 (Thomas McCarthy, trans., 1984); Thomas Risse, *"Let's Argue!": Communicative Action in World Politics,* 54 INT'L ORG. 1, 9–11 (2000).

[6] JÜRGEN HABERMAS, BETWEEN FACTS AND NORMS: CONTRIBUTIONS TO A DISCOURSE THEORY OF LAW AND DEMOCRACY 108 (William Rehg trans., 1998).

validity claims may play a part in the deliberative process that precedes a particular political decision. This means that the informational spectrum associated with democratic deliberation is not limited to propositional content classically defined (i.e., content capable of being either true or false, what Habermas defines as empirical claims), [7] but may involve additional categories of information.

Let us consider more closely what is meant by these different categories of information. Consider, first, claims to *empirical truth*. These are claims about the objective world. Such claims appear commonly in almost any political debate. Debates about the proper policy response to environmental and health risks (e.g., the regulation of genetically modified organisms) provide a classic example. Next, claims to *moral rightness* involve moral dilemmas. They question the rightness of different courses of action in light of their impact on human life– and according to some moral theories, on non-human life as well. Moral claims appear in various contexts in the political domain. Two examples are the abortion debate in the United States[8] and the environmental campaign against commercial whaling.[9] Moral and empirical claims are susceptible to universal justification in an open and inclusive deliberative process. In the case of moral truth claims, this presupposition rests on the idea that valid moral rules hold for all persons; in the case of empirical truth claims, this presupposition rests on the idea that we all live in the same objective world.[10]

But political debates may involve more than empirical and moral arguments. They can also involve ethical, aesthetic, and sincerity claims. *Ethical claims* focus on questions of the good life. They can be raised either from the perspective of a given individual ("ethical-existential" discourse) or a particular collective ("ethical-political"

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[7] For this interpretation of "information," see Himma, *supra* note 2, at 261–62.

[8] *See generally* FAYE D. GINSBERG, CONTESTED LIVES: THE ABORTION DEBATE IN AN AMERICAN COMMUNITY (1998).

[9] *See* Whale and Dolphin Conservation Society, http://www.stopbloodywhaling.org (last visited Feb. 4, 2009); Whales Need Us Coalition, http://www.whalesneedus.org/ (last visited Feb. 4, 2009); Campaign Whale, http://www.campaign-whale.org, (last visited Feb. 4, 2009).

[10] James Bohman & William Rehg, *Jürgen Habermas*, *in* THE STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Edward N. Zalta ed., Spring 2008), section 3.2, *available at* http://plato.stanford.edu/archives/spr2008/entries/habermas.

discourse). These claims may appear in both senses in political debates.[11] Claims about *aesthetic value* involve judgment pertaining to the beauty and splendor of works of art and natural objects. In the political domain, aesthetic claims could appear in debates about conservation of natural habitats or urban environments.[12]

Finally, *sincerity claims* are claims concerning the internal subjectivity of the agent: feelings, moods, desires, beliefs, and the like. Such claims may become politically relevant in some contexts. For example, in Israel, the question whether the music of Richard Wagner should be played by government-funded Israeli Orchestras or broadcast on Israeli national radio was debated prominently through the lens of the negative impact such actions may have on the feelings of Holocaust survivors.[13] While feelings, as such, are not open to rational assessment, their political implications may be.

In the political sphere, these different types of discourse may intertwine in various and intricate ways.[14] Consider, for example, the political debate that preceded the construction of a new massive bridge in the entrance to Jerusalem.[15] Does this project represent the best way to spend the city's limited resources, in terms of distributive justice? Does the new bridge, which has become the most dominant shape on Jerusalem's skyline, fit the city's unique identity, as perceived by its citizenry? The construction of the bridge also

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[11] Thus, for example, the debate about governmental subsidy of cultural institutions (e.g., museums, opera houses) or about the proper amount of leisure time people should have involve ethical claims of both types. *See* Martin Shubik, *Culture and Commerce*, 23 J. CULTURAL ECON. 13 (1999); Ann Bowling & Joy Windsor, *Towards the Good Life: A Population Survey of Dimensions of Quality of Life*, 2 J. HAPPINESS STUD. (NO. 2) 55 (2001).

[12] Emily Brady, *Aesthetics in Practice: Valuing the Natural World*, 15 ENVTL. VALUES 277 (2006); Henry J. van der Windt et al., *Nature and Landscape Planning: Exploring the Dynamics of Valuation, the Case of the Netherlands*, 79 LANDSCAPE AND URB. PLANNING 218 (2007).

[13] Richard Wagner was associated with Nazi ideology. *See* Na'ama Sheffi, *Cultural Manipulation: Richard Wagner and Richard Strauss in Israel in the 1950s*, 34 J. CONTEMP. HIST. 619 (1999); *see also* Lilli Eylon, *The Controversy Over Richard Wagner*, JEWISH VIRTUAL LIBR., http://www.jewishvirtuallibrary.org/jsource/anti-semitism/Wagner.html.

[14] Bohman and Rehg, *supra* note 10, at section 3.2.

[15] *Jerusalem's Bridge of Chords - A New Addition to City of Ancient Symbols*, HAARETZ, June 30, 2008, http://www.haaretz.com/hasen/spages/996211.html. The bridge was designed by the famous Spanish architect Santiago Calatrava. *Id.*

involved various empirical and aesthetic questions (Was it really necessary in view of Jerusalem's future transportation needs? Is it beautiful?).

The decision to go ahead with this project required the simultaneous resolution of all these categorically different questions. The multi-dimensional nature of political dilemmas comes into play in other contexts as well. Thus, for example, choosing a candidate or party in general elections requires the voter to consider the policies of that candidate or party across multiple discursive dimensions. One of the key features of political reasoning and political deliberation lies, therefore, in the fact that the ultimate outcome—the decision—can be evaluated across multiple dimensions.

Habermas's conception of democratic legitimacy presupposes the possibility of rational political will-formation across all these different validity horizons, at least in their political aspects. That is, Habermas argues that there are different types of discursive tests and reasoning that could be employed in public deliberation to resolve disputes involving each of these distinct validity claims.[16] This theoretical claim underlies his democratic principle of legitimacy, which states: "[O]nly those statutes may claim legitimacy that can meet with the assent of all citizens in a discursive process of legislation that in turn has been legally constituted."[17] Participating in a democratic dialogue thus requires a willingness to engage in an argumentative process that is open to different types of validity claims (with their idiosyncratic forms of critique and justification). The realization of this civic duty depends on the existence of a public sphere that is open to multiple forms of argumentation.

Habermas's argument is far-reaching in that it assumes the existence of "right" answers to complex political questions. It is possible, he argues, to reach consensual decisions through collective, rational deliberation in each of the various discursive domains

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[16] Habermas, *supra* note 6, at 108, 110; Jürgen Habermas, *On the Pragmatic, the Ethical, and the Moral Employments of Practical Reason, in* JUSTIFICATION AND APPLICATION: REMARKS ON DISCOURSE ETHICS 1–17 (C. Cronin trans., 1993). It should be noted that Habermas distinguishes in this context between moral and empirical claims and ethical and aesthetic claims. Ethical and aesthetic claims, unlike moral and empirical claims, do not come with such a strong consensual expectation. Resolving ethical dilemmas, for example, involves reference to individual and group-related particularities (life histories, traditions, and particular values) and thus their resolution is more likely to be local, rather than universal. *See* Bohman & Rehg, *supra* note 10, at section 3.2.

[17] Habermas, *supra* note 6, at 110.

delineated by his discourse theory.[18] However, even if one rejects Habermas's claims regarding the possibility of reaching collective consensus,[19] his characterization of the type of information that is relevant to political decision-making seems to offer a sound basis for thinking about democracy. Even if we do not believe that political conflicts, in all their intricate dimensions, can be rationally resolved, it seems that we would still like to have in place an institutional infrastructure that will ensure: (1) that each of the different validity claims could be freely invoked in the political domain; and (2) each of the distinct claims will have a fair chance of being taken up in the deliberative process–that is, they will not be disregarded. A political sphere, in which some of these types of claims and their associated modes of reasoning are disregarded is seen, from this perspective, as somewhat deficient. This argument points to a different concept of democratic legitimacy, in which the legitimacy of a political arrangement rests not on its capacity to produce consensual decisions, real or hypothetical, but on its capacity to facilitate a communicatively complex deliberative process. Thus, one of the key features of a legitimate democratic regime lies upon its capacity to create a discursive environment that is rich in terms of the categories of arguments and reasons it includes and supports.

Democratic legitimacy depends, then, on the creation of a multifaceted informational sensitivity at both the individual and institutional levels. It is not only that our democratic institutions must provide the appropriate conditions for different types of validity claims to be put forward; it is also our duty, as citizens, to listen and evaluate each of these claims before we take a political action, whether voting or deliberative contribution. Habermas's analytic distinctions thus provide a powerful framework for studying the concept of information overload in the political context, even if we do not accept his view regarding the possibility of rational collective will-formation across all or some of the different discursive dimensions he identifies.

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[18] Bohman & Rehg, *supra* note 10, at section 3.4.

[19] Gunther Teubner, *De Collisione Discursuum: Communicative Rationalities and the Law*, 17 CARDOZO L. REV. 901 (1996); Oren Perez, *Normative Creativity and Global Legal Pluralism: Reflections on the Democratic Critique of Transnational Law*, 10 IND. J. GLOBAL LEGAL STUD. 25, 52–53 (2003). This critique points, among other things, to the lack of a meta-discourse which can guide us in the resolution of political dilemmas involving multiple discursive domains. For further discussion, see Bohman and Rehg, *supra* note 10, at section 3.2. Grether et al. discuss a similar problem, which arises in the context of choosing between distinct products, when the choice involves multiple attributes. Grether et al., *supra* note 2, at 281–82.

Under the foregoing account of democratic legitimacy, more information, broadly defined, is necessarily "good," either because it should lead to better individual contributions and superior collective decisions,[20] or because it can generate a more complex and diverse political discussion. [21] Thus, to return to my previous example concerning the construction of a new bridge at the entrance to Jerusalem, this account presumes that providing more information about the various aspects of this project, across all its various discursive dimensions—empirical, moral, ethical, aesthetic, sincerity— will have a positive impact on the ultimate decision and the public deliberation preceding it.

This expansive understanding of the informational requirements of democratic life is consistent with the rise of transparency as a key principle of modern administrative law. The obligation of the government to provide its citizenry with increasing amounts of information has been given a semi-constitutional status in many countries. It is enshrined both in specific laws and in the practice of administrative agencies.[22] A good illustration of this principle in the environmental field has been the establishment of environmental disclosure schemes such as the United States Toxics Release Inventory (TRI) program and the European Pollution Emissions Register (EPER). These schemes require manufacturers that meet certain conditions, usually in terms of size and type of business, to provide estimates of their chemical emissions for a designated set of toxic

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[20] Habermas, *supra* note 6, at 108.

[21] Perez, *supra* note 19.

[22] *See, e.g.*, Armin von Bogdandy, *Doctrine of Principles*, JEAN MONNET WORKING PAPER, (Sept. 2003) 29–30, *available at* http://www.jeanmonnetprogram.org/papers/03/030901-01.pdf; David C. Vladeck, *Information Access–Surveying the Current Legal Landscape of Federal Right-to-Know Laws*, 86 TEX. L. REV. 1787 (2008); Cary Coglianese et al., *Unifying Rulemaking Information: Recommendations for the New Federal Docket Management System*, 57 ADMIN. L. REV. 621 (2005). For three websites that illustrate the increasing import of "transparency" in the contemporary public sphere, see Office of the Public Inspector, http://www.opsi.gov.uk (last visited Feb. 4, 2009); Transparency International, http://www.transparency.org (last visited Feb. 4, 2009); AccountAbility, http://www.accountability21.net (last visited Feb. 4, 2009). It should be noted, however, that significant amounts of data are still kept outside the public gaze, particularly data pertaining to national security or representing trade secrets. This phenomenon of cognitive suppression is highly problematic from a political perspective. *See* Peter Galison, *Removing Knowledge*, 31 CRITICAL INQUIRY 229 (2004).

substances. [23]   Transparency has also emerged as an important principle in international law.[24] It is codified in various international legal instruments[25] and reflected in the unwritten practices of various global institutions.[26]

B. IS THERE A DEMOCRATIC PROBLEM OF INFORMATION OVERLOAD?

Is the abundance of information generated by the modern administrative state good for democracy? I will argue that it is not– at least not necessarily so. The reason why information overload is a problem, I will argue, is the deep cognitive and psychological limitations of the human agent. We are, to use Bruno Latour's illuminating phrase, "politically-challenged," or handicapped.[27] This conclusion also raises questions about the conceptual structure of democratic legitimacy developed by Habermas, which takes for granted, through its exacting informational requirements, certain cognitive capacities of the human agent. But it is also problematic for non-Habermasian, pluralistic accounts, which claim—or more accurately, hope—that providing more information will necessarily lead to a richer political discursive environment.

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[23] See J. Brehm & J.T. Hamilton, *Noncompliance in Environmental Reporting: Are Violators Ignorant, or Evasive, of the Law?* 40 AM. J. POL. SCI. 444, 445 (1996). More details about these programs can be found at http://www.epa.gov/tri and http://eper.eea.eu.int/eper. A significant advance in the adoption of pollution registers came in May 2003, when a broad coalition of countries signed the Protocol on Pollutant Release and Transfer Registers (PRTR) under the Aarhus Convention. The PRTR Protocol reflects an ambitious effort to expand mandatory disclosure requirements for toxic pollutants. *See* United Nations Economic Commission for Europe, http://www.unece.org/env/pp/prtr.htm (last visited Feb. 4, 2009).

[24] Bendic Kingsbury, Nico Kirsch & Richard B. Stewart, *The Emergence of Global Administrative Law*, 68 LAW & CONTEMP. PROBS. 15, 37–38 (2005).

[25] *See, e.g.*, The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, *adopted on* June 25, 1998 ("Aarhus Convention"), and the WTO Trade Policy Review Mechanism, http://www.wto.org/english/tratop_e/tpr_e/tpr_e.htm.

[26] Consider, for example, the wide-ranging data that is made available to the public through the websites of the WTO and the Global Reporting Initiative, available at http://www.wto.org/english/docs_e/docs_e.htm and http://www.globalreporting.org/Home.

[27] Latour, *supra* note 4, at 31.

To complete my argument I need to make two points.[28] First, I need to show that the amount of political (and non-political) information we are exposed to in today's world is in some respects excessive. Second, I need to show that this condition adversely affects the vitality of our democratic institutions. That is, that it makes the products of our governing bodies less legitimate, given the normative framework that was developed above. Consider, first, the question of excessiveness. In what sense is the amount of information generated by and associated with the multiple political processes that come with modern democracy excessive? It is excessive, I will argue, if the amount of politically-relevant information people are exposed to, through the various communication media, together with the non-political information, exceeds the cognitive and attentive capacities of the average citizen. The upsurge in the amount of politically relevant information could increase the cognitive pressure citizens are facing in two ways. First, it can increase the effort needed to acquire information about political choices. Second, it can increase the effort associated with the procession of political information.[29]

In a web-based environment, the overload problem can manifest itself not just in the sense of having more data than we can handle in terms of search and processing costs, but also in the form that the data is presented. The number of links associated with a web-page (the "branching" factor) as well as the length of the web-page (the "scrolling down" factor) influences its cognitive complexity. While some structure may help users, a web-page with many layers can be highly complex and difficult to navigate.[30] Users working in a web environment that is characterized by multiple hypertext links and manifold layers may experience disorientation and cognitive strain– a situation that communication scholars have labeled "the lost in hyperspace syndrome."[31]

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[28] I follow here the conceptual structure laid out in Himma, *supra* note 2 and David Levy, *Information Overload, in* THE HANDBOOK OF INFORMATION AND COMPUTER ETHICS (K.E. Himma & H. Tavani eds., 2008).

[29] *See* Grether, *supra* note 2, at 287.

[30] The optimal design of web-pages in terms of user convenience may differ between contexts and tasks and may also be a function of user characteristics. Y. A. Hamburger, *Internet and Personality*, 18 COMPUTERS IN HUM. BEHAV. 1, 1–10 (2002); Ben Shneiderman, *Designing Information-Abundant Websites: Issues and Recommendations*, 47 INT'L J. HUM.-COMPUTER STUD. 5, 5–29 (1997).

[31] Olga Troyer et al., *WSDM: Web Semantics Design Method, in* WEB ENGINEERING: MODELLING AND IMPLEMENTING WEB APPLICATIONS 303, 303–51 (Rossi, Pastor, Schwabe, & Olsina, eds., 2008); J. Conklin, *Hypertext: An Introduction and Survey*, 20 COMPUTER

There are numerous studies that demonstrate that the capacity of the human mind to deal with extensive amounts of information—in terms of attention resources, memory, and processing (computation)—is highly limited. [32]   Thus, for example, in the consumer context, numerous studies have demonstrated that having access to more information, in combination with using a less accurate decision strategy as the information load increases, can lead to inferior decisions (in terms of the consumer's preferences profile).[33] The exposure to more data (content) than our attentive resources can deal with can lead not only to inferior decisions, but it can also adversely affect our well-being by causing diverse psychological conditions associated with stress: depression, anxiety, a sense of being overwhelmed, and in extreme cases, panic.[34]   The literature uses several terms of art to describe this collection of symptoms: technostress, information anxiety, or information fatigue syndrome.[35]

The information overload problem is not an abstract theoretical conjecture. Various sociological studies have demonstrated that these cognitive limits are commonly breached in our daily life in a range of

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NETWORKS AND ISDN SYS. 17, 17–41 (1987); Dyi-Yih Michael Lin, *Hypertext for the Aged: Effects of Text Topologies*, 19 COMPUTERS IN HUM. BEHAV. 201, 201–09 (2003). Disorientation or "getting lost in hyperspace" is defined as "the user not having a clear conception of the relationships within the system or knowing his present location in the system relative to the display structure and finding it difficult to decide where to look next within the system." Cognitive overload is defined as the extra effort required in order to maintain, at any given moment, routing information of several trails. As the web continues to grow in volume, exploring its structure is becoming increasingly difficult and frustrating. Many web users opt to use search engines to aid them in finding the information they require, but are struggling to comprehend the displayed result list and, in addition, are having difficulty in navigating the web page structure while trying to remain focused on the goals of their original query. Mazlita Mat-Hassan & Mark Levene, *Can Navigational Assistance Improve Search Experience? A User Study*, 6 FIRST MONDAY (NO 9.) (Sept. 2001), http://www.firstmonday.org/ISSUES/issue6_9/mat/index.html (*quoting* W.C. Elm & D.D. Woods, *Getting Lost: A Case Study in Interface Design*, PROC. AT THE HUMAN FACTORS SOC'Y 29TH ANN. MEETING 927–31 (Santa Monica, Calif. 1985)).

[32] *See* Himma, *supra* note 2; Levy, *supra* note 28; Zeldes, *supra* note 3; Troy A. Paredes, *Blinded by the Light: Information Overload and its Consequences for Securities Regulation*, WASH. U. L. Q. 21, 23 (2003), *available at* http://ssrn.com/abstract=413180.

[33] *See,* Paredes, *supra* note 32, at 21–22 (citing numerous studies demonstrating this effect); *but see* Grether et al., *supra* note 2.

[34] Himma, *supra* note 2, at 10.

[35] Levy, *supra* note 28; Zeldes, *supra* note 3.

domains or roles (e.g., work, home, and politics).[36] This condition of cognitive stress seems to be a side effect of modernity and the hectic pace it imposes on us. It seems to reflect a more general phenomenon that William Scheuerman has called the "busyness" of modern life. The condition of "busyness," Scheuerman argues, adversely influences the political sphere because it leaves little private space for political engagement.[37]

Citizens can employ different coping strategies in response to this cognitive pressure, all of which lead to less-informed citizen engagement. One type of coping strategy could involve the adoption of simpler decision strategies that could resolve some of the search and processing challenges raised by the abundance of political data. Such strategies—which will usually involve the use of various heuristics—should allow citizens to economize on the cognitive effort associated with making political decisions.[38] According to this view, political deliberation and decision-making is not based on extensive deliberation and reflection (as imagined by Habermas) but on various political heuristics. Instead of studying the issue at stake—reflecting on the diverse questions it raises and exploring the views of other stakeholders—people tend to rely on various cognitive cues. Thus, in forming an opinion on a certain issue, citizens may rely on the fact that a certain view was endorsed by a political leader they trust, rather than reflecting on the issue themselves; and in making a decision they may rely on the candidate's party affiliation, rather than on studying his resumé or views. [39] At the limit, when the cognitive effort associated with political action is seen as too large, citizens may choose to withdraw completely from the political arena.[40]

Citizens may therefore be willing to take part in the democratic process, but only under conditions of intentional ignorance, drawing

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[36] Id.; see also Jeanne Mengis & M.J. Eppler, The Concept of Information Overload: A Review of Literature from Organization Science, Accounting, Marketing, MIS, and Related Disciplines, 20 THE INFO. SOC'Y: AN INT'L J. 325, 325–44 (2004); Zeldes, supra note 3; Paredes, supra note 32, at 21–23.

[37] William E. Scheuerman, Busyness and Citizenship, 72 SOC. RES. 447 (2005).

[38] This argument draws on Herbert Simon's pioneering work on human's reasoning. See, e.g., Herbert A. Simon, A Behavioral Model of Rational Choice, 69 Q.J. ECON. 99 (1955).

[39] Michael Schudson, America's Ignorant Voters, 24 THE WILSON Q. 19 (2004); Richard R. Lau & Jack S. Levy, Contributions of Behavioural Decision Theory to Research in Political Science, 47 APPLIED PSYCHOL. 29, 36 (1998).

[40] Scheuerman, supra note 37.

on various heuristics. There are several studies that demonstrate that the narrative of "intentional ignorance" provides a better description of contemporary political life, relative to the counter image of the informed citizen.[41] The description of the contemporary political culture as one based on "low information rationality" also has important sociological implications.[42] It means that the dissemination of more information to the public domain will not necessarily lead to a more complex discursive environment. Placing more political data in the public domain, using the remarkable storing and dissemination capacities of the Internet, cannot guarantee (in itself) that this information will be picked up in the deliberation process. Further, increasing the amount of available political data could lead citizens to increase their reliance on various heuristics, making their political interventions less, rather than more, informed. Thus, counter-intuitively, the provision of more information could enlarge the gap between actual citizens' behavior and the ideal of informed political engagement, leading to a discursively impoverished political sphere.

The gap between the image of the "informed citizen" (which, as we saw, also underlies the administrative law doctrine of transparency) and actual citizenship behavior can also lead to a cyclical process that further supports ignorant political action. If, for example, regulators do not expect to receive informed comments to consultative processes, they may develop a dismissive attitude to the comments they do receive, treating them as "cheap talk." This may be especially true of comments received by e-mail because of the low cost of sending such messages and the technical capacity to send numerous messages through automated services. This regulatory attitude can further reduce citizens' motivation to collect relevant data before sending comments, since citizens do not expect their comments—especially those made online—to be taken seriously, further exacerbating the dismissive attitude of government officials, and so on. A similar process may be experienced in more deliberative democratic processes, in which the shallowness of the deliberation crowds-out more informed contributions.[43]

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[41] Schudson, *supra* note 39; SUSAN JACOBY, THE AGE OF AMERICAN UNREASON (2008).

[42] *See* Doris Graber, *Mediated Politics and Citizenship in the Twenty-First Century*, 55 ANNU. REV. PSYCHOL. 545 (2004).

[43] For initial empirical exploration, see Quentin Jones, Gilad Ravid & Sheizaf Rafali, *Empirical Evidence for Information Overload in Mass Interaction*, Interactive Posters: Internet, PROC. OF ACM CHI 2001, CONF. ON HUM. FACTORS IN COMPUTING SYS. 2001 vol. 2 177.

The foregoing discussion challenges our common conceptions of the democratic enterprise in its theoretical, practical, and legal aspects. In theoretical terms, this discussion questions the extent to which the image of the informed citizen provides a useful paradigm in thinking about democracy. In particular, it questions the extent to which the legitimacy of political decisions should depend on a collective, wide-ranging process of informed reflection. It also questions the extent to which a more transparent political environment can lead to a more complex and pluralistic political discussion. In terms of the legal structure underpinning our democratic practices, especially regarding the rules governing the provision of information by state agencies and the structure of government consultation, we have to consider to what extent these legal structures contribute to the robustness of the institution of democracy. Finally, to the extent that we are not willing to give up the normative commitment to the ideals of "informed citizenship" and deliberative complexity, this sober analysis of citizens' cognitive capacities emphasizes the need to explore new techniques for storing and presenting politically relevant information, as well as new forms of consultation, which will take this problem into account.

III. A SHALLOWER DEMOCRACY? LOW-INFORMATION POLITICS AND THE ROLE OF POLITICAL INTERMEDIARIES

A pragmatic conception of democracy, especially one that focuses on the possible contribution of the Internet to the reinvigoration of the democratic process, needs to take into account the problem of information overload. One possible response is to rethink our understanding of democracy. Our normative intuitions about the nature of democracy may be ill-conceived. The starting point for such an alternative account of democracy is the argument that Habermas's informationally expansive conception of democratic legitimization is not sensitive enough to the cognitive limitations of the human mind. As I argued above, the behavioral practices that characterize modern democracies, as documented by various political scientists, seem to reflect indeed a gap between the paradigm of the "informed citizen" and the cognitive capacities of "real" citizens.[44] Drawing on this empirical gap, political scientists have argued that we should reconceptualize our understanding of democracy and good citizenship. Michael Schudson, for example, argues that our

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[44] See the survey in Graber, *supra* note 42.

constitutional thinking should be guided by an alternative idea– the "monitorial citizen."[45] The concept of the "monitorial citizen" is based on the vision of a citizen who delegates part of his discretion to political professionals, but at the same time is "watchful, even while he or she is doing something else,"[46] and who is prepared to deal with particular political issues as they arise. In some ways, Schudson argues, the paradigm of "monitorial citizen" implies a more demanding form of citizenship than the one stipulated by the "informed citizen" model because:

> [it] implies that one's peripheral vision should always have a political or civic dimension. But it does not imply that citizens should know all the issues all of the time. It implies that they should be informed enough and alert enough to identify danger to their personal good and danger to the public good. When such danger appears on the horizon, they should have the resources– in trusted relationships, in political parties and elected officials, in relationships to interest groups and other trustees of their concerns, in knowledge of and access to the courts as well as the electoral system, and in relevant information sources to jump into the political fray and make a lot of noise.[47]

Other writers have argued that the reality of a political culture based on "low information rationality" expressed in the writings of Michael Schudson, Samuel Popkin, Arthur Lupia, and others,[48] is not a sociological anomaly of the modern society, but a reflection of the proper structure of democracy in complex and large societies. Citizens, Doris Graber argues, "can perform their political obligations effectively on a low-information diet, supported by an array of well-developed decision shortcuts."[49] The vision of directly deliberated democracy is, under this view, incompatible with the sociological and

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[45] MICHAEL SCHUDSON, THE GOOD CITIZEN: A HISTORY OF AMERICAN CIVIC LIFE 240–93, 308–09, 311 (1999).

[46] *Id.* at 311.

[47] Schudson, *supra* note 45.

[48] Graber, *supra* note 42, at 562; SAMUEL L. POPKIN, THE REASONING VOTER: COMMUNICATION AND PERSUASION IN PRESIDENTIAL CAMPAIGNS (1991).

[49] Graber, *supra* note 42, at 563.

psychological realities of living in today's world, and as such, should also be rejected as a normative yardstick.

The argument of Schudson and Graber highlights the important role of political intermediaries—political parties, civic groups, unions, religious leaders, mass-media, academics, and corporations—in the democratic process. These intermediaries interpret and analyze politically-relevant information and generate those cognitive cues to which the general public responds. [50] In this way, political intermediaries enable citizens to make political decisions without being fully informed themselves. The result of this mediated process will be rational in the sense of being consistent with citizens' preferences, reflective of the facts at issue, and open to the arguments and interests of other participants. According to this view, extensive deliberation about policy questions rarely takes place at the level of the "simple citizenry." Rather, these discursive processes are controlled by political intermediaries, and consequently also take place in restricted institutional contexts. As Graber observed:

> While average citizens play important political roles in democracies, the bulk of the burden for political action has always been born by elected and appointed public officials and by citizens with above-average interest in politics whom scholars call 'the attentive public.' At best, that category comprises no more than 10% of the citizenry . . . . Complex modern societies require intermediaries between citizens and elected and appointed public officials. Relatively small groups of attentive citizens have always served that role along with political parties and interest groups. These proxies relieve the majority of citizens of the burden of continuously monitoring public problems and pondering solutions. Political elites benefit immensely from the new information resources provided by modern technologies, especially the Internet. To the extent that they use this information to formulate better policy choices, and disseminate their views via mass media, the mass public

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[50] *Id.* at 563–64. Three good examples of web-based political intermediaries are MoveOn.org, http://www.moveon.org (last visited Feb. 4, 2009); mySociety.org, http://www.mysociety.org/ (last visited Feb. 4, 2009); and TheyWorkForYou.com, http://www.theyworkforyou.com/ (last visited Feb. 4, 2009).

benefits from this information treasure trove, albeit via a
two-step transmission process.[51]

Graber and Schudson's political account reformulates our
normative expectations regarding good citizenship, reducing the
current gap between the observed patterns of political behavior and
the behavioral ideal. This normative re-conceptualization downplays
the significance of information overload to the function of modern
democracy. [52] While the empirical observations of the "political
heuristics" literature cannot be dismissed,[53] its normative argument
about the role of political intermediaries in the political process and
the nature of "sound" political reasoning at the citizen level is
unconvincing as a normative account of democracy.

First, Graber and Schudson ignore the deep gap between their
"low-information" understanding of democracy and the emergence of
transparency as a key principle of modern national and global
administrative law. It is wrong to dismiss this jurisprudential
development as an isolated legal phenomenon with no repercussions
in society. Rather, the widespread dispersal of the doctrine of
transparency reflects deep social intuitions and expectations about the
meaning of citizenship in a democratic society.

Second, the narrative of mediated democracy seems to ignore the
question of the legitimacy and trustworthiness of political
intermediaries. These questions mean that even if we take the
discursive intervention of political intermediaries as an inevitable
feature of modern political life, the question of how the work of

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[51] Graber, *supra* note 42, at 563–64.

[52] Graber notes in this context that: "For aficionados of the informed citizen model it may
seem heresy to argue that democracy is well served even when most citizens leave most
civic tasks, including information collection and policy appraisal, to elites. They should be
reminded that direct democracy has never been a constitutional pattern in the United
States. Policies and laws have always been made and executed by elites, with most citizens
limiting themselves to serving as periodic monitors through electoral mechanisms. The
end has been a serviceable, if not ideal, democracy." *Id.* at 564.

[53] In particular, I do not disagree with the empirical observation that political
intermediaries play an important role in the life of modern democracies. *See* Perez, *supra*
note 19 (noting the role of NGOs in global governance processes); Oren Perez, *Facing the
Global Hydra: Ecological Transformation at the Global Financial Frontier: The
Ambitious Case of the Global Reporting Initiative, in* CONSTITUTIONALISM, MULTILEVEL
TRADE GOVERNANCE AND SOCIAL REGULATION (C. Joerges & E.U. Petersmann eds., 2006)
(noting the role of intermediaries in interpreting complex environmental data in the
context of corporate environmental reports).

political intermediaries should be woven into our normative conceptualization of democracy requires deep reflection.

Samuel Issacharoff and Daniel R. Ortiz examined the question of political mediation through the lens of the principal-agency problem, distinguishing between primary and secondary agency costs. [54] Political intermediation, they argue, can enable citizens to better choose their elected officials and enable them to better monitor and control their actions. As such, political intermediation can bring down the direct agency costs that would ensue if citizens had to undertake this overseeing and monitoring task themselves. In this way, political intermediation promotes democracy by helping to overcome the principal-agent problems inherent in representation. However, political intermediaries are second-order agents;[55] their activity thus raises a new set of questions associated with their representative status. Issacharoff and Ortiz highlight, in particular, that the problem is superagency costs. These costs reflect potential conflicts of interest between political intermediaries and citizens. The political intervention of the intermediary may be geared toward promoting her interests, rather than those of her principal.[56]

Issacharoff and Ortiz focus on three types of political super-agents: corporations, unions, and political parties.[57] However, their argument can be generalized across the whole spectrum of political intermediaries. The agency-principal dilemma calls into question the extent to which the various political intermediaries can be trusted in

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[54] Samuel Issacharoff & Daniel R. Ortiz, *Governing Through Intermediaries*, 85 VA. L. REV. 1627, 1632 (1999).

[55] They are, in economic terms, super-agents.

[56] *Id.* at 1632. Another problem noted by Issacharoff and Ortiz is enhanced rent-seeking. By advocating an interest more powerfully than any of their individual principals could, super-agents can more effectively exert pressure on political officials to pursue certain policies. This may cause a cleavage between the interests of super-agent and the principal because the super-agent will not take into account the effects of its successful lobbying on the principal's overall welfare (taking into account only the narrow field in which the super-agent represents the principal). *Id.* Thus, for example, an individual who holds shares of a mobile phones producer may have an interest in curtailing policies that will force the latter to take costly measures to limit the radioelectric radiation emitted by phones, based on the precautionary principle (to the extent that this will reduce the corporation's profits). However, such policy might harm the shareholder's overall welfare, if he is exposed to a substantial amount of (possibly damaging) radiation. Because the corporation superintends only a narrow range of the shareholder's interests, the corporation may nonetheless lobby to curtail such policy.

[57] *Id.* at 1635.

representing the interests of either their principals (e.g., in the case of unions, NGOs, and corporations) or of society as a whole (e.g., media and academic scholars). For example, environmental groups may select their agenda not because of its ecological significance, but because of its projected value to organizational survival. Journalists are subject to severe economic constraints in picking their stories. Finally, even the contribution of academics is not devoid of selective biases. Academic work is produced under a range of institutional pressures, such as the need to publish in order to get tenure (which may encourage intellectual conservatism), availability of grants, and institutional constraints reflecting the culture of the academic institution in which the research is undertaken. The argument that political deliberation can take place exclusively through the communicative cues generated by political intermediaries seems, therefore, highly problematic. [58] If, as I argued, the discursive contribution of political intermediaries may be skewed, citizens must be endowed with the tools to criticize these contributions. This can only be achieved through access to high quality information.

Third, democracy takes place on various levels, and it is not clear that we want to give up the ideal of direct deliberation at all levels of government. It might be that the hope of achieving a wide-ranging and informed discussion on national trade policy is misplaced, but such discussion can be achieved in the context of local dilemmas (e.g., planning), or in concrete contexts (e.g., rules on organic food). Finally, information overload is not just a problem of the "average citizen"; it may also hinder the work of the more sophisticated political elite.[59] This may undermine the theoretical basis for the mediated model, which is based, as Issacharoff and Ortiz argue, on the claim that political intermediation helps to overcome the first-order principal-agent problem, which characterizes representative democracies.

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[58] *See* Mark E. Warren, *Deliberative Democracy and Authority*, 90 AM. POL. SCI. REV. 46 (1996).

[59] For an example of empirical analysis of information overload at the elite level, see Robert Orton et al., *An Observational Study of the Information Seeking Behaviour of Members of Parliament in the United Kingdom*, 25 ASLIB PROC. 207 (2000).

IV. RE-IMAGINING THE TECHNO-LEGAL APPARATUS SUPPORTING ONLINE DELIBERATION AND CONSULTATION

The principle of transparency and the associated right to information reflect a commitment to a political regime that values the contribution of its citizenry to the political process. However, the doctrinal structures in which the principle of transparency is embedded are not sensitive enough to the problem of information overload. The assumption that loading web-sites with information and providing simple electronic contact opportunities can facilitate robust citizen engagement of the kind imagined by Habermas is not supported by empirical research. The question is to what extent new web and computer technology can allow citizens to reach beyond the cognitive and attentive limitations described above. To answer this question, I want to imagine digital democracy through the lens of the web of tomorrow, looking at several technological innovations, some of which are still in an embryonic stage. In exploring these possible technological fixes, I will also consider their blind-spots and hidden biases.

In exploring new web technologies, we need to keep in mind the various cognitive and social failings to which they respond. At the individual level, these new web technologies respond both to the increasing costs of search in a data-saturated environment and to the increasing processing costs associated with extensive data streams.[60] At the collective level, the new web technologies seek to create a deliberative framework that could encourage informed and thematically rich deliberative process. It should be noted, finally, that my argument regarding the possible cognitive efficacy of the various technologies described below is somewhat speculative. Evaluating how each of these technologies influences the dynamic of political life will require careful empirical studies, which will examine their impact in diverse political contexts.[61]

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[60] Note that some technologies influence both search and processing costs.

[61] For a preliminary study that seeks to tackle this empirical question, see Cary Coglianese, *The Internet and Citizen Participation in Rulemaking*, 1 ISJLP 33 (2005) (concluding that digitizing the rule-making process is unlikely to increase substantially both the level of participation and its quality).

A. SOPHISTICATED SEARCH TECHNOLOGIES: POLITICAL AGENTS,
TAGGING AND NATURAL LANGUAGE SEARCH

Searching for politically relevant information on the Internet can
be a highly complex task. The costs associated with such searches can
substantially hinder informed political involvement. Let us consider
two concrete examples. An environmentally conscious U.S. citizen,
who is contemplating how to vote in the 2008 presidential election,
may want to find information about the environmental agenda of the
competing presidential candidates. However, getting an answer to
this question will require a non-trivial search on the Internet. A mere
Google search will probably not provide a good enough answer. It is
possible that someone (e.g., environmental group or a think tank) has
the answer— but the voter will have to find it.[62]
Similar problems may arise in more bounded data-environments
and in the context of unique search engines. The results of an
experiment conducted by Cary Coglianese provide an insightful
example. Coglianese examined the ability of students at Harvard's
Kennedy School of Government to locate regulatory information on
the Internet. The students were given information about four rules
proposed by two federal agencies, the DOT and the EPA, and were
asked to find a specific numbered document in the docket for each
rulemaking.[63] This exercise has simulated the challenge a typical user
might face, in an attempt to find out more about a proposed rule.
Coglianese found that even these graduate students, who were
interested in regulation and adept at using the Internet, had a difficult
time locating the right dockets within the time allotted. On average,
the Kennedy School students could find only half of the dockets they
were instructed to locate.[64] I suspect that similar results can be
expected in other domains. Thus, for example, the search portal of the

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[62] For initial answers to this question, see 2008 Presidential Election Forum,
http://www.2008presidentialelectionforum.com (last visited Feb. 4, 2009); *see also*
Maryland Pro-Life News and Commentary, http://defendlife.blogspot.com/2008/01/us-
presidential-candidates-evaluated.html (evaluation of 2008 Presidential Candidates
against U.S. Bishops' Criteria). In the previous elections in Israel I have done (together
with my students at the environmental clinic) a similar exercise. It took several weeks to
compile the relevant information (some of which was not even available on the web).

[63] The U.S. Federal Docket Management System (FDMS) is now managed by a new
website: http://www.Regulations.gov. This site includes a redesigned search engine and
user interface, but the experiment was conducted using the previous docket system.

[64] Cary Coglianese, *Citizen Participation in Rulemaking: Past, Present, and Future*, 55
DUKE L.J. 943, 965–66 (2006).

World Trade Organization offers users multiple and quite intricate research options, which I think are likely to cause a non-expert to quickly find herself at a loss when executing a search.[65]

The technological vision of the Semantic Web aims to provide a more sophisticated solution to the search dilemma.[66] The Semantic Web will create a new infrastructure that will enable people to search for data more efficiently through software agents, relying on natural language. Unlike the current Internet, which is oriented toward human understanding, the Semantic Web is constituted of actionable information– information that can be "understood" by software agents through the employment of a semantic theory for interpreting symbols. The semantic theory provides an account of "meaning" in which the logical connection of terms establishes interoperability between systems.[67] Generally the Semantic Web is based on three basic technologies: (1) a common language for representing data that can be understood by software agents; (2) ontologies (common taxonomies defining classes of objects and relations among them that will allow us to translate information from multiple databases into common terms); and (3) rules of inference that allow software agents to reason about the information described using those common terms.[68]

The Semantic Web is still in its early days, and it may take several years before its technological vision will materialize. In the meantime, it is possible to improve political search technologies using more primitive techniques. We can imagine, for example, the design of a special pre-election website in which candidates or competing parties disclose their agendas, ordered by common terms. This mechanism will not only assist citizens to search political data on the Net; it will also reduce some of the processing costs by allowing them to compare candidates' views on the issues that they find most important. One way in which this can be done is by using a "tagging" system, such as

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[65] *See* World Trade Organization, http://www.wto.org/english/docs_e/docs_e.htm (last visited Jan. 2, 2009).

[66] Ian Horrocks, *Semantic Web: The Story so Far*, 225 ACM INT'L CONF. PROC. SER., 120 (W4A 2007).

[67] Nigel Shadbolt, Tim Berners-Lee & Wendy Hall, *The Semantic Web Revisited*, 21 IEEE INTELLIGENT SYS. 96 (2006).

[68] *Id.*; Tim Berners-Lee, James Hendler & Ora Lassila, *The Semantic Web*, SCIENTIFIC AM. 34 (May 2001); Lee Feigenbaum, Ivan Herman, Tonya Hongsermeier, Eric Neumann & Susie Stephens, *The Semantic Web in Action*, SCIENTIFIC AM. 90 (Dec. 2007).

the one used by Digg, MySpace, and Flickr. The tagging system allows browsers to find the tagged information, drawing on the taxonomy used in this domain. This technological solution is more primitive than the Semantic Web technology because each tagging system is unique to the domain (e.g. Flickr's tags may be different from those of MySpace). Still, it offers significant benefits to users.[69] Several new digital consultation frameworks, such as the one provided by the U.S. government (www.regulations.gov) and a counterpart from the Scottish government (http://www.scotland.gov.uk/Consultations), represent initial steps in this direction, although their search options are much more primitive than those imagined by the Semantic Web.[70]

B. USER-SENSITIVE DESIGN

Current examples of e-democracy—which are still mostly consultation exercises—tend to offer uniform service to citizens.[71] This practical uniformity draws on universal ideals of equality and consistency. However, the procedural uniformity that permeates the legal and pragmatic aspects of contemporary Western "democracy," is not compatible with the reality of social and individual pluralism. At the social level diversity is manifested in the multiple discourses, which constitute society as a communicative domain.[72] At the

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[69] See Flickr, http://flickr.com/photos/tags/; Feigenbaum et al., *supra* note 68; Scott A. Golder & Bernardo A. Huberman, *The Structure of Collaborative Tagging Systems*, Information Dynamics Laboratory, HP Labs, *available at* http://www.hpl.hp.com/research/idl/papers/tags/tags.pdf. Katz et al., offer to incorporate a similar natural search system, based on manual annotation into the U.S. digital rule-making framework, www.regulations.gov. Boris Katz et al., *Better Public Policy Through Natural Language Information Access*, 130 ACM INT'L CONF. PROC. SER. 1 (2003).

[70] For a discussion of the search features of www.regulations.gov, see Katz et al., *supra* note 69.

[71] For surveys of U.S. and European initiatives, see Cogliansese, *supra* note 64; Paskaleva-Shapira Krassimira, *Transitioning From E-Government to E-Governance in the Knowledge Society: The Role of the Legal Framework for Enabling the Process in the European Union's Countries*, 151 ACM INT'L CONF. PROC. SER. 181 (2006).

[72] See Niklas Luhmann, *Habermas on Law and Democracy: Critical Exchanges: Law's Proceduralization: The Communicative Model, Systems, and Order: Quod Omnes Tangit: Remarks on Jurgen Habermas's Legal Theory*, 17 CARDOZO L. REV. 883 (1996); Thomas McCarthy, *Habermas on Law and Democracy: Critical Exchanges: Laws, Morals, and Ethics: Legitimacy and Diversity: Dialectical Reflections on Analytical Distinctions*, 17 CARDOZO L. REV. 1083, 1121 (1996). This pluralistic vision puts in doubt the capacity of a political community to reach an agreement through rational deliberation, as imagined by

individual level, diversity reflects people's distinct innate structures. It refers to people's different beliefs, concerns and cultural baggage as well as their varied cognitive capacities and personality profile. It also reflects socio-economic differences, including personal wealth and social background. These differences influence people's political concerns, their willingness to engage in political activities, and their ability to do so.[73] The deep plurality of human society calls the logic of uniform e-democracy models into question.

The plasticity of the Internet makes it an ideal medium for responding to this pluralistic challenge. In particular, it enables the design of participatory structures that can cater to the ideological differences and psychological and cognitive diversities that characterize political users. Modern web-technologies allow the designer to create interfaces that are responsive to user profiles.[74] There are also technologies that enable users to store their profiles in one secured place over the Web, and to use it as they surf the Net and interact with varied applications.[75]

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both Habermas and Rawls. It suggests that in thinking about democratic legitimacy more weight should be given to the challenge of designing institutional structures that could facilitate thematically rich deliberative interactions.

[73] *See, e.g.*, Oren Perez, *Electronic Democracy as a Multi-dimensional Praxis*, 4 N.C. J. L. & TECH 275 (2003); Judith R. Myers, Donna H. Henderson-King & Eaaron I. Henderson-King, *Facing Technological Risks: The Importance of Individual Differences*, 31 J. RESEARCH IN PERSONALITY 1 (1997); Y. Amichai-Hamburger, *Internet and Personality*, 18 COMPUTERS IN HUM. BEHAV. 1, 5–6 (2002); Y. Amichai-Hamburger, *Personality, Individual Differences and Internet Use*, *in* OXFORD HANDBOOK OF INTERNET PSYCHOLOGY (forthcoming) (A. Joinson, K. McKenna, T. Postmes & U. Reips eds., 2007).

[74] Troyer et al., *supra* note 31; Ralf Isenmann et al., *Customized Corporate Environmental Reporting by Internet-Based Push and Pull Technologies*, 8 ECO-MGMT & AUDITING (NO. 2) 100 (2001); Javier Sevilla et al., *Web Accessibility for Individuals with Cognitive Deficits: A Comparative Study Between an Existing Commercial Web and its Cognitively Accessible Equivalent*, ACM 14 TRANS. COMPUTER-HUM. INTERACTION 12 (2007); Barry McMullin, *Users with Disability Need Not Apply? Web Accessibility in Ireland*, 7 FIRST MONDAY (NO. 12) (Dec. 2002), http://www.firstmonday.org/Issues/issue7_12/mcmullin/; J. J. Jahng et al., *Personality Traits and Effectiveness of Presentation of Product Information in E-Business Systems*, 11 EURO. J. INFO. SYS. 181 (2002); Benoit Encelle & Nadine Baptiste-Jessel, *Personalization of User Interfaces for Browsing XML Content Using Transformations Built on End-User Requirements*, 225 ACM INT'L CONF. PROC. SER. 58 (2007); Brian Kelly et al., *Accessibility 2.0: People, Policies and Processes*, 225 ACM INT'L CONF. PROC. SER. 138 (2007).

[75] For an example of such technology, see Pageone, https://www.pageonce.com (last visited Jan. 2, 2009).

C. USING NEW VISUALIZATION TECHNIQUES TO SUPPORT ONLINE CONSULTATION

Visual presentation is an important mechanism for reducing complexity. [76] It can reduce the cognitive costs associated with searching for and deciphering information. This can be achieved through multiple tools. One type of visualization tool focuses on the cognitive difficulties associated with the search task itself, irrespective of the information sought. This type of visual tool can assist users by incorporating graphical representations in the user interface, thus reducing some of the cognitive difficulties associated with the search task.[77] A second type of tool offers ways to represent the data, the object of the search, through visual means such as charts, graphs, drawings, pictures, and maps. The claim that visual aids can enhance understanding received support in numerous studies,[78] although the extent of this impact depends upon context (e.g., the task for which

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[76] For the argument that visualization can enhance understanding, see, e.g., Isaac M. Lipkus & J. G. Hollands, *The Visual Communication of Risk*, 1999 J. NAT'L CANCER INST. MONOGR. 149 (1999).

[77] Mat-Hassan & Levene, *supra* note 31 (reporting on a search and navigation engine called NavZone that incorporates the concept of a trail both at the system and user interface levels in order to improve users' experience when "surfing" the Web). The new search engine, http://www.cuil.com, employs a different visualization strategy by presenting the results in a 3x3 matrix (in contrast to Google's single column approach). This allows Cuil to provide more information about each of the findings and also to include in the results images taken from the (extracted) websites.

[78] Lipkus & Hollands, *supra* note 76; Gary W. Dickson, Gerardine DeSanctis & D. J. McBride, *Understanding the Effectiveness of Computer Graphics for Decision Support: A Cumulative Experimental Approach*, 29 COMMUN. ACM (NO. 1) 40 (1986); S. L. Jarvenpaa & Gary W. Dickson, *Graphics and Managerial Decision Making: Research-Based Guidelines*, 31 COMMUN. ACM (NO. 6) 764 (1988); E. Hoadley, *Investigating the Effects of Color*, 33 COMMUN. ACM (NO. 2) 120 (1990); Stephen M. Casner, *Task-Analytic Approach to the Automated Design of Graphic Presentations*, 10 ACM TRANS. GRAPH. (NO. 2) 111 (1991); Cheri Speier, *The Influence of Information Presentation Formats on Complex Task Decision-Making Performance*, 64 INT. J. HUM.-COMPUT. STUD. (NO. 11) 1115 (2006); Joachim Meyer, Marcia Kuskin Shamo & Daniel Gopher, *Information Structure and the Relative Efficacy of Tables and Graphs*, 41 HUMAN FACTORS: THE J. OF THE HUM.FACTORS AND ERGONOMICS SOC'Y 570, (1999); Piotr Jankowski & Milosz Stasik, *Spatial Understanding and Decision Support System: A Prototype for Public GIS*, 2 TRANSACTIONS IN GIS (NO. 1) 73 (1997); Katy Appleton & Andrew Lovett, *GIS-Based Visualization of Development Proposals: Reactions From Planning and Related Professionals*, 29 COMPUTERS, ENV'T AND URB. SYS. (NO. 3) 321 (2005); I. Svedung & J. Rasmussen, *Graphic Representation of Accident Scenarios: Mapping System Structure and the Causation of Accidents*, 40 SAFETY SCI. (NO. 5) 397 (2002).

the information is sought)[79] and user personality characteristics.[80] Politically oriented websites have already begun to make use of these visual technologies.[81] In the context of resource management and planning, one of the prominent visualization techniques is Geographic Information Systems (GIS). GIS is a collection of computer hardware, software, and geographic data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.[82]

While it is generally agreed that visualization can enhance understanding at least in some contexts, the use of visual aids—especially GIS—has been widely criticized.[83] The critics point out that despite the objective look of visual representations such as maps and photos, they are in fact the product of unstated selections. The design of maps or the production of photos reflects the work of various technical choices. The layers of a GIS map or the point from which a

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[79] Graphical representation may be superior to other forms of representation when there is a cognitive fit between the information emphasized in the representation format and that required by the task. Thus, for example, while tables emphasize symbolic data and lead to better performance for the task of reading individual data values, graphs emphasize spatial information and lead to better performance (relative to numerical presentation) for most elementary spatial tasks, including summarizing data, conveying trends, comparing points and patterns of different variables, forecasting, and showing deviations. Jarvenpaa & Dickson, *supra* note 78. Graphs may also affect attentional processes through a vividness effect, attracting and holding people's attention because of their concrete and visual form of displaying information. Lipkus & Hollands, *supra* note 76.

[80] Jahng et al., *supra* note 74.

[81] For examples of using visual aids in consultation regarding local planning projects, see http://www.veteransglasscityskyway.org/4_public.htm (dealing with the construction of a new, massive bridge over the Maumee River, Toledo, Ohio: *The Veterans' Glass City Skyway*) and http://www.scudderfallsbridge.com/public.htm (dealing with a 140 million dollar project to improve the I-95/Scudder Falls Bridge over the Delaware River). Another example is BP Sustainability worldwide map (http://www.bp.com: environment and society), which allows users to find out information about BP actions by clicking on a global map).

[82] *See* Geographic Information Systems, http://www.gis.com/whatisgis/; *see also* Participatory GIS, http://pgis2005.cta.int/background.htm. For a good example of a website using GIS technology to disseminate information to the public, see http://www.saferoadmaps.org/home/index.htm (providing visual representation of traffic safety across the United States).

[83] *See, e.g.,* Renee Sieber, *Public Participation Geographic Information Systems: A Literature Review and Framework,* 96 ANNALS ASS'N AM. GEOGRAPHERS 491 (2006); Kevin S. Ramsey & Matthew W. Wilson, *Rethinking the 'Informed' Participant: Precautions and Recommendations for the Design of Online Deliberation, in* ONLINE DELIBERATION: DESIGN, RESEARCH, AND PRACTICE (T. Davies ed., CSLI Publications 2008).

photo is taken may be a product of economic, aesthetic, or political pressures. The impression that maps or photos open a window to reality uninfluenced by ideology is ungrounded.[84] The problem is that hidden selections underlying these representational mechanisms may pre-determine, or at least put into a certain course, the consultation process, and thus could undermine the whole purpose of an open deliberative process.

D. DELIBERATION AND SUPPORT TECHNOLOGIES: WIKIS AND MORE

A frequent mistake in scholarly thought regarding information overload in the democratic context is the consideration that it is a static problem. This view—which can be denoted the "encyclopedic" narrative—conceptualizes the problem as one of extracting and evaluating data from a huge unchanging database. [85]   The "encyclopedic" narrative suffers from two key flaws.   First, the Internet has changed the nature of knowledge by turning traditional data sources—encyclopedias or libraries—into highly dynamic knowledge environments. The emergence of Wikipedia is the most vivid example of this process. This means that people cannot trust the results of a Wikipedia search conducted "yesterday" because of its potential for frequent change.   Second, and more important, the cognitive challenge facing the citizen as she enters the political domain is dialectical. Thus, a citizen seeking to participate in a public debate about a certain issue has to constantly track the diverse claims or positions that are invoked by different participants, the reasons that are used to justify them, and how the debate unfolds with respect to each of these claims; that is, whether certain claims were retracted or defeated by better arguments. This cognitive challenge can take place across multiple discursive domains, involving various modes of justification.

These individual cognitive challenges can influence the dialectical features of the deliberation process.   From an informational perspective, it is possible to assess a deliberation process using two different dimensions.   The first dimension involves the question of

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[84] Ramsey & Wilson, *supra* note 83; Sarah Elwood, *Critical Issues in Participatory GIS: Deconstructions, Reconstructions, and New Research Directions*, 10 TRANSACTIONS IN GIS (NO. 5) 693, 693–708 (2006).

[85] This image underlies the experiment conducted by Cary Coglianese to examine the barriers facing citizens in searching for regulatory materials. Coglianese, *supra* note 64, at 965–66.

inclusiveness: to what extent the political discussion has considered all the relevant issues and provided a voice for all the relevant stakeholders. "Relevance" can be defined in this context either through the perspective of the participants or in view of some external normative criteria. The second dimension refers to the *responsiveness* of the dialogical process.[86] "Responsiveness" refers to the extent to which the discussion addressed all the relevant questions and objections, which were raised by the participants, leading to a decision that is *reasonably justified* and *not arbitrary*. Reasonable justification is not a measure of logical correctness, but rather represents the decision's cogency or reasonableness, which in turn is a reflection of the decision's discursive responsiveness.[87]

Today, there are several types of computer supported argumentation and collaborative decision-making systems.[88] The most popular and widely used system is the Wiki platform, but there are various other systems, which were developed by computer scientists (in collaboration with legal scholars and political scientists) and were tested in various issue domains, such as Zeno and Hermes.[89] Generally, these systems seek to fulfill several functions.[90] First, a deliberation support system provides a forum in which to undertake dialogue. By creating formal protocols in which any discursive contribution needs to be made, the system provides a structured space in which participants interact. In other words, the system can make sure that the discursive contributions satisfy certain argumentation

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[86] William Rehg, Peter McBurney & Simon Parsons, *Computer Decision-Support Systems for Public Argumentation: Assessing Deliberative Legitimacy*, 19 AI & SOC. 203, 216 (2005).

[87] *Id.*; Consequently, arbitrariness refers to a decision that disregards some considerations or voices which were relevant to the decision.

[88] It is important to emphasize that these systems are restricted to a support function and they do not play the role of participant or decision-maker.

[89] *See id.*, at 205–07 (discussing the Zeno system); Nikos Karacapilidis & Dimitris Papadias *Computer Supported Argumentation and Collaborative Decision Making: the HERMES System*, 26 INFO. SYS. 259 (2001) (discussing the Hermes system); *see also* P. McBurney & S. Parsons, *Intelligent Systems to Support Deliberative Democracy in Environmental Regulation*, 10 INFO. & COMM. TECH. L. 79 (2001).

[90] Rehg et al., *supra* note 86, at 209; B. Verheij, *Automated Argument Assistance for Lawyers, in* PROC. OF THE 7TH INT'L CONF. ON ARTIFICIAL INTELLIGENCE AND LAW 43–52 (ACM Press 1999).

rules, pertaining, for example, to their justificatory form.[91] Second, these systems seek to support the participants in monitoring the deliberation by tracking it as it unfolds. This monitoring involves, first, keeping track of the issues that are raised and the assumptions that are made, sorting out the different issues into distinct threads. Third, with respect to each issue-thread, the system has to keep track of the exchange of arguments and counter arguments noting the reasons offered for each argument and the conclusions drawn.[92] In keeping track of the argumentation process these systems play a record-keeping role, providing a complete description of the decision-making process. Finally, these systems can also fulfill a more problematic function of evaluating the justification status of the statements made. In this role they can either reflect the conclusions reached by the participants or use certain rules of inference that are built into the system.

An interesting recent example of the use of a deliberation-support system in a political context is the deliberative process initiated by AccountAbility in 2008, using a Wiki platform, with respect to the revision of the AA1000 Assurance Standard.[93] A wiki is software that allows users to create and edit content in a collaborative manner.[94] By drawing on a Wiki platform to facilitate the collaborative drafting process AccountAbility sought to address two challenges: access and transparency. Thus, the introductory notes to the Wiki state that "[t]he wiki makes it possible for thousands of individuals and organizations to provide their input without facing access barriers such as the cost of travel to meetings and the difficulty of cutting through dominant voices. It also keeps a transparent record of

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[91] For the notion of argumentation rules, see Jacob Glazer & Ariel Rubinstein, *Debates and Decisions: On a Rationale of Argumentation Rules*, 36 GAMES & ECON. BEHAV. 158 (2001).

[92] Deliberation support systems, like Zeno, can also support a human moderator or mediator, who takes part in the debate as external observer, by identifying common assumptions across different arguments. Rehg et al., *supra* note 86, at 209.

[93] *See* AccountAbility AA1000 Wiki, http://www.accountabilityaa1000wiki.net/index.php/Structure (last visited Jan. 2, 2009). The deliberation process has taken place in three phases of 60–90 days. The three periods ran from January 24 to April 4, 2008; April 30 to June 20, 2008; and July 7 to September 12, 2008. The final revised standard was published on October 24, 2008, see http://www.accountability21.net (last visited Jan. 2, 2009).

[94] *See* Wikipedia, http://en.wikipedia.org/wiki/Wikipedia:About (last visited Feb. 5, 2009).

everyone who has participated as well as the nature of their input."[95]
The deliberation platform created by AccountAbility is not, however,
completely anarchic. The final authority to approve the standard
remained within the hands of the AccountAbility Standards Technical
Committee (ASTC). However, AccountAbility has committed to make
any interventions of the ASTC transparent (that is to publish them on
the Wiki).[96]

V. THE CASE OF TRANSLINK

TransLink is the South Coast British Columbia Transportation
Authority. It operates under the 2007 South Coast British Columbia
Transportation Authority Act.[97] It is responsible both for the
operation of various transportation services, from trains to buses, and
to the development of related infrastructure projects (railways, roads,
bridges, etc.). The scale of its responsibilities and the possible social
and environmental impacts of its actions are enormous. TransLink
states that it is firmly committed to public consultation:

> At TransLink, public consultation drives everything that we
> do– our transportation plans, policies and financial strategy.
> We consult with the public through a variety of ways,
> including open houses, forums, interactive online panels,
> discussion groups and more.[98]

TransLink also commits itself to follow an internal consultation code
entitled "Principles for Public Consultation and Community
Engagement," which consists of nine principles:

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[95] *Id.*

[96] *See* AccountAbility AA1000 Wiki, The AccountAbility Standards Technical Committee,
http://www.accountabilityaa1000wiki.net/index.php/Main_Page (last visited Feb. 7,
2009).

[97] TransLink– South Coast British Columbia Transportation Authority,
http://www.TransLink.bc.ca/About_TransLink/default.asp (last visited Feb. 5, 2009).

[98] Public consultation page, TransLink,
http://www.TransLink.bc.ca/Plans/Public_Consultation/default.asp (last visited Jan. 2,
2009) (access to the *Consultation* section is made available both through the opening page
and through a reference in the *Plans* section).

1. Integrate public consultation into all applicable aspects of TransLink's business.

2. Consider both local and regional perspectives.

3. Work with municipal partners.

4. Clearly define the parameters of the consultations.

5. Consult in advance of key decisions.

6. Be inclusive and accessible by offering a variety of opportunities for input.

7. Ensure participants have the opportunity to provide informed input.

8. Consider public input as advice.

9. Inform participants about the results of the consultation process.[99]

The foregoing principles are clearly based on the narrative of the "informed citizen." They require TransLink to establish the necessary conditions for "informed input," [100] to consider "public input as advice," and to "inform participants about the results of the consultation process."[101]

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[99] http://www.TransLink.bc.ca/Plans/Public_Consultation/default.asp#commeng (last visited Jan. 2, 2009). The principles are further elaborated in the website.

[100] The detailed elaboration of principle seven emphasizes TransLink's commitment to the model of "informed citizenship": "Public consultation requires informed participants. TransLink will ensure sufficiently comprehensive and accurate information in a variety of formats is available to participants in a timely manner, and that opportunities for interaction with TransLink representatives are provided, so questions can be answered as part of the information-sharing process." TransLink– South Coast British Columbia Transportation Authority, http://www.translink.bc.ca/Plans/Public_Consultation/default.asp (last visited Feb. 5, 2009).

[101] TransLink emphasizes that it will take seriously the public comments: "TransLink will report to the public on the results of its consultation processes in a variety of locations and formats, and will demonstrate how public input has been used in its decision-making processes." Translink, *supra* note 99, at elaboration to principle nine.

Clearly, TransLink's commitment to consultation is impressive, but let us look more closely at the participatory framework that TransLink has established. The consultation section offers two types of data: general information about TransLink's participatory commitments and links to "open" projects, in which citizens can get involved.[102] Each project includes consultation materials, an input form (limited to 350 characters– hardly enough for the complex projects led by TransLink), and contact details (telephone, email). The project website also serves as a message board, announcing (non-digital) meetings.
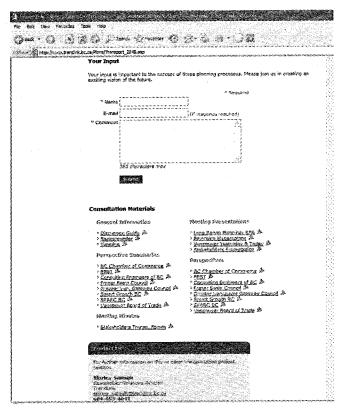
To make the discussion more concrete, I have chosen a particular consultation:

the "Transport 2040" plan. This project seeks to develop a 30-year transportation strategy for the region. During the consultation phase the Transport 2040 page included the following input page[103]:

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[102] *Id.*

[103] TransLink– South Coast British Columbia Transportation Authority, Looking Forward to 2009 and Beyond, http://www.translink.bc.ca/Plans/Transport_2040.asp, (last visited Feb. 7, 2009). The consultation phase has now ended. Transport 2040 and the 2009 10-Year Plan were approved by Translink board and transmitted to the Regional Transportation Commissioner and the Mayors' Council.

The consultation page provided interested citizens with various types of data: general information, perspective summaries, meeting minutes, meeting presentations, and perspectives. The "general information" category included a project timeline document, which provides detailed information concerning the consultation process, including information on scheduled meetings.[104] The "timeline" paper clarifies that the current consultation is only a first step, meant to help TransLink to develop a draft strategy. In the second phase, the proposed strategy will be posted on TransLink's website and circulated to stakeholders for comment.

Making an informed contribution to the strategic question put forward by TransLink would obviously require an extensive investment of cognitive resources. Yet, there is no clear focal point for the discussion. TransLink does point to several key questions, which presumably should lead the discussion at this stage, but the questions

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[104] See TransLink– South Coast British Columbia Transportation Authority, Timeline, http://www.translink.bc.ca/files/pdf/2040/Timeline.pdf (last visited Feb. 7, 2009).

are not highlighted in the project website. Instead, they are included at the end of the Discussion Guide.[105] The key (and highly abstract) questions highlighted by TransLink are:

1. What do you want your transportation experience to be like in 2040?

2. What are the most important issues facing the regional transportation system in the next 30 years?

3. What strategies should TransLink consider to address these issues?

4. What strategies should be considered by other agencies that are involved in or that impact the regional transportation system?

5. In a financially constrained reality, what do you think the difficult choices and trade-offs will be? What would be your priorities?

Note that the foregoing questions involve a diversity of validity claims. Thus, for example, how should the climate change problem influence TransLink strategic plan? Answering this question requires TransLink and the citizens participating in the debate to consider empirical questions relating both to the science of climate change and to the various carbon prints of alternative strategies, to consider the normative aspects of the climate change dilemma and various adaptation strategies, and to rethink the place of nature in society– an ethical question.[106]

The Transport 2040 page is also very simple in its design, as are the other project pages. It does not offer any visual decision aids, which could have illustrated some of the transportation challenges facing the region. Nor does it attempt to create a user-sensitive environment. Given the cognitive complexity of the Transport 2040 consultation call, it seems reasonable to hypothesize that TransLink

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[105] TransLink, Strategy Discussion Guide (October 2007),
http://www.translink.bc.ca/files/pdf/2040/DiscussionGuide.pdf.

[106] Transportation issues may also involve aesthetic dilemmas (e.g., the new Calatrava bridge at the entrance to Jerusalem discussed previously).

will receive very few web-mediated comments, and the few that will be sent will receive little weight in the formation of the draft strategy. TransLink will probably rely on the work of its internal team, as well as on the input received in the face-to-face meetings with stakeholders. The situation may change at the second phase, in which comments will be solicited to the draft strategic plan.

The most innovative feature of the TransLink consultation framework is TransLink's On-Line Advisory Panel.[107] This tool allows TransLink, in effect, to distinguish between committed and non-committed participants, and to give more weight to the views of committed citizens– those who are willing to invest more cognitive resources in forming their comments. Citizens seeking to join the Advisory Panel are asked to complete a profile questionnaire. By opting-in to the On-Line Advisory Panel, participants enter into a draw to win one of two prizes of $500 each.[108] TransLink sends the Panel members surveys each month, which take five to ten minutes to complete.[109] In the context of the Transport 2040 consultation process, TransLink will use this mechanism to solicit input on the draft strategy in the form of public opinion polls. Because the Advisory Panel is used mainly for polls, and does not allow for "open" comments or for interactive dialogue, its deliberative potential is quite limited. Nonetheless, it highlights the potential benefit of distinguishing between different classes of participants according to their willingness to invest in the study of sought-after information.

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[107] *See* TransLink– South Coast British Columbia Transportation Authority, https://www.translinklistens.bc.ca/Login.aspx?fg=1 (last visited Jan. 2, 2009).

[108] The draw took place on September 2, 2008. TransLink has announced a new draw to take place on March 2, 2009. For the rules of the current contest, see: *TransLink Listens Panel Contest Conditions for Registration Recruit Draw*, https://www.translinklistens.bc.ca/skin/images/en-CA/Contest%20Rules_TransLink%20Listens%20Recruit_Phase4.pdf (last visited Jan. 2, 2009).

[109] It also promises to send each participant the results of each survey in which she takes part. The On-Line Advisory Panel mechanism raises obvious questions of privacy. TransLink states in that context that: "We will carefully protect your personal information and ensure that your e-mail address is used solely for the on-line advisory panel, in accordance with privacy legislation governing TransLink. Your opinions will be held in complete confidence." https://www.translinklistens.bc.ca/Login.aspx?fg=1 (last visited Jan. 2, 2009).

VI. CIVIC PARTICIPATION IN THE AGE OF TECHNO-INTERMEDIARIES

Recognizing the problematic political repercussions of information overload highlights a significant blind spot in the Habermasian account of democratic legitimacy. More information does not necessarily lead to a more enlightened and complex public deliberation. Rather, it points to an unresolved tension in the contemporary doctrine of transparency. While the notion of transparency draws on the paradigm of "informed citizenship," it gives little attention to the question of what happens to the information that is disclosed as a result of this legal intervention. The doctrinal treatment of transparency has been inattentive to the cognitive limitations of the human actor. The real challenge facing modern administrative law is not just to bring the government (or other players) to make more data available to the public—putting it "out there"—but to find ways that will make this immense body of information accessible and meaningful.

The question of information overload constitutes a difficult political challenge. I argued above that this problem cannot be dismissed simply by reformulating our conception of democracy. The attempt to offer an account of democracy that is based solely on the communicative intervention of political intermediaries is not convincing both because it does not give sufficient weight to deeply entrenched social intuitions regarding "good citizenship" and because it disregards the significant agency costs associated with a political intermediation.

The new nexus of cognitive-enhancing technologies described in section C offers a fascinating response to the challenge of information overload, which does not require us to abandon the faith in the idea of "informed citizenship." However, when we consider the promise of these new tools, we also need to evaluate their blind spots. The first question, which lies beyond the scope of this article, focuses on the extent to which these new technologies can actually change the behavioral patterns that characterize the contemporary political arena. While their capacity to reduce some of the cognitive burden associated with searching and deciphering political data seems beyond doubt, their ultimate impact on the political process remains at this stage an open question. Answering this question will require thorough and multifaceted empirical studies.[110] One of the more

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[110] See, for example, Coglianese, *supra* note 61, for initial (and somewhat pessimistic) study.

intriguing questions this research will have to answer is whether and how the increasing presence of the Internet in our daily life is reprogramming us– that is, reformulating the way we think.[111] This phenomenon, to the extent that it is indeed occurring, could obviously also influence the way people reason in the political sphere.

A second blind spot of these new technologies has to do with their "representation" function; that is, in the fact that these tools manipulate, in diverse forms, the raw data (broadly defined) that they claim to represent. The new Semantic Web and similar tagging techniques are based on uniform taxonomies, which reconstruct the universe of the Web through their ontological grid. User-sensitive formats hold important advantages to users, but may also impose upon them profiles or frames, which are not necessarily reflective of their psychological attributes or ideological preferences. Visual aids, such as GIS-based participatory mechanisms, are highly useful in terms of their capacity to enhance understanding. However, the translation of the raw data into maps, graphs, or charts involves various and non-transparent choices, of which the user is not necessarily aware. Deliberation support technologies may hinder deliberation by restricting the forms of argument that can be invoked in the system or by intimidating certain type of users due to complex user interface.[112]

The various cognitive enhancing technologies described above are the product of deeply opaque technical intermediation. The hidden work of the multiple technical intermediaries associated with these technologies can have a vast impact on the way in which the political process unfolds. The multiple and non-trivial selections that underlie these various representation technologies may influence in various ways the deliberation or consultation process, possibly undermining their dialectical freedom.[113] This new form of intermediation raises, therefore, new types of agency problems, and with them the obvious question: "Who will monitor the work of these new techno-political intermediaries?"

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[111] *See* Nicholas Carr, *Is Google Making Us Stupid?* ATLANTIC MONTHLY (July/Aug. 2008). Carr notes that "what the Net seems to be doing is chipping away my capacity for concentration and contemplation. My mind now expects to take in information the way the Net distributes it: in a swiftly moving stream of particles. Once I was a scuba diver in the sea of words. Now I zip along the surface like a guy on a Jet Ski." He uses the term "staccato quality" to describe the way in which the Internet has influenced his (and others) thinking.

[112] Rehg et al., *supra* note 86, at 222–23.

[113] *See* Rehg et al., *supra* note 86, at 218–24.

One possible response to this new agency problem, which draws on Habermas's deliberative framework, would be to put these various technological schemes to some form of democratic test; that is, to make their various choices and selections the subject of an open deliberative process.[114] But this solution seems deeply problematic in a pragmatic sense. First, the cognitive challenges associated with these secondary, technical questions may be even larger than those associated with the primary issues. Second, the costs of such secondary political deliberation may be prohibitive. While engaging in such "technical" deliberation may be economically feasible in the case of wide-ranging consultative frameworks such as the United States' www.regulations.gov, it seems unrealistic to expect such wide-ranging efforts in more restricted consultation processes (e.g., TransLink). Clearly, it would be unrealistic to establish a consultative process for each technical choice aiming to make the primary consultation process more accessible.

Another possible solution is re-complexification. Ramsey and Wilson argue, for example, that the designers of the deliberative process should "foreground how information resources were produced," "demonstrate that information resources have multiple interpretations," "include multiple and conflicting information resources," and "encourage critical evaluation of information resources."[115] The problem with this proposal is that while it tackles the selection-bias problem, it undermines the efficacy of these technological tools in reducing the cognitive burden generated by information overload.

A more pragmatic solution is to facilitate and encourage reciprocal monitoring between various political intermediaries– including the new type of techno-political mediators.[116] While this proposal does not reject the ideal of "informed citizenship," it shifts the focus of the democratic gaze to the level of communication. The goal of our democratic institutions becomes not the achievement of wide-ranging informed civic participation, but that of attaining a communicatively complex political arena, hosting and supporting diverse streams of

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[114] *Id.* at 224 ("AI researcher cannot avoid being drawn into critical discussion as a participant on a par with citizens-users.").

[115] Ramsey & Wilson, *supra* note 83.

[116] A similar idea was proposed by Issacharoff and Ortiz in the context of more conventional political intermediaries, but I see no reason why it should not be extended also to cover this new form of political intermediation. Issacharoff & Ortiz, *supra* note 54.

thought. Achieving such a diverse discursive environment requires the creation of a network of competing political intermediaries.

This proposal raises several challenges. First, democratic societies need to find ways to encourage the emergence of political intermediaries with the capacity to criticize this new field of techno-political intermediation. It is not clear to what extent some of the traditional observers of the political domain (e.g., journalists, political scientists, legal scholars, NGOs) have the capacity to fulfill this new task. Second—and this is one of the new challenges of contemporary administrative law—the law should create the conditions that will enable external observers to monitor the technical choices underlying the new web-technologies. In order not to undermine their "cognitive" efficacy, such technical disclosure can be implemented through some form of acoustic separation, distinguishing between the data given to different users. TransLink's On-Line Advisory Panel constitutes a crude example of such separation.

To enable such reciprocal monitoring, the law will have to change the rules governing the field of technical intermediation. First, the law should give political-intermediaries the option to voice their concerns in earlier stages of developing new technological tools (such as www.regulations.gov). While it may be unrealistic to expect wide-ranging consultation on these technical issues, it seems reasonable to demand the government to initiate proactive consultation with relevant stakeholders. Second, the law should provide external intermediaries, from academic scholars to NGOs, with the right to access the raw data, allowing them to present it in a different format that can compete with the official version (possibly under government funding). [117] Third, an important characteristic of contemporary politics is that many of the techno-political choices that influence the way political data is presented and disseminated are made by private players– from Google to Dow Jones Sustainability Indexes, AccountAbility and others.[118] Given the significant impact of these "private" selections, modern administrative law will have to develop ways to open up those "private" choices to public scrutiny.

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[117] For an interesting example which illustrates the value of alternative interpretations of raw-data, see http://www.scorecard.org, which interprets the data regarding toxic emissions disclosed in the EPA's Toxics Release Inventory (http://www.epa.gov/tri).

[118] Thus, to give one example, the way in which Google ranks and orders politically relevant data has important consequences for the political process, given its monopoly status in the search field.

Clearly, these questions—the disclosure of hidden technical choices and the monitoring of technological intermediaries—are questions that need to be answered by a reconstructed doctrine of transparency. Whether the classical doctrines of administrative law can cope with this challenge is a question that will have to be explored as the use of digital consultation broadens. Ultimately, it would be naïve to expect either law or computer science to offer an optimal solution to the problem of information overload. Maybe a change in perspective is needed. Rather than continue the pursuit of the non-attainable ideal of a fully informed public dialogue, we should opt for a more modest goal: to continuously increase (even if only infinitesimally) the discursive sensitivity of our political sphere.[119]

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[119] As Bruno Latour notes: "[I]f we are all politically-challenged, if there is no direct access to the general will, if no transparent dome gives any global visibility, if, at best, blind lead blind, then any small, even infinitesimal innovation in the practical ways to represent an issue will make a small, that is, huge difference. Not for the fundamentalist, but for the realists. . . ." Latour, *supra* note 4, at 31.