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# The Wisdom of Crowds in Government 2.0: Information Paradigm Evolution toward Wiki-Government

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## ABSTRACT

This essay, exploring the peer-to-peer collaborative atmosphere penetrating Wikivism, crowd-sourcing and open-source movement, identifies a new paradigm of public information as evolution toward Wiki-government. Citizen participants can collectively create public information via various platforms enabled by Web 2.0 technologies. Under the new participatory paradigm that a large number of individual citizens and government cocreate public information, not only do Wiki-oriented government agencies benefit from crowd wisdom, but citizens also learn from their colleague citizens. Crowd-sourcing to collect the wisdom of crowds is categorized into four types by matching between the quantity and the quality of participation: civic-sourcing, mob-sourcing, professionalism, and fiasco. For Wiki-government, a mass of well-informed and concerned participants in civic-sourcing make more desirable outcomes for a society than fewer, poorly-informed and unconcerned people. Thus, civic-sourcing promises greater advantages for government over professionalism and mob-sourcing. Three strategies for civic-sourcing (Wiki/open-sourcing, contest, or social networking) can be employed through different working mechanisms, with different motivators for participation, and under different approaches to human nature of key participants.

## Keywords

Information paradigm, Crowd-sourcing, Civic-sourcing, Wiki, Wisdom of crowds, Web 2.0 technology, Government 2.0

## INTRODUCTION

Information communications technologies (ICTs) change the manner by which we produce, use and manage information. Web 2.0 technologies, characterized as bi- and multi-directional digital connections, enable people to engage in participatory creation of information via networks online. Changes pioneered by the private sector and civil society are gradually occurring in the public sector with newly developed views on citizens as coproducers of public information. Now, government stands on the road to a new information paradigm.

This exploratory essay of an ongoing trend encapsulated by neologism such as crowd-sourcing,<sup>1</sup> open source,<sup>2</sup> and Wikipedia<sup>3</sup> identifies a newly emerging paradigm of government information as a movement toward Wikification<sup>4</sup> of government—“Wiki-government” (Noveck, 2009). Not only do Wiki-oriented agencies benefit from the wisdom of crowds, but citizens also learn from their colleague citizens. Much public information is available for a Wiki-like or Wikified government, which seeks to gather the wisdom of crowds. Web 2.0 technologies offer government new opportunities for hearing from crowds with wisdom as well as inviting them into decision-making processes.

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<sup>1</sup> The term was coined by Jeff Howe (2006). According to Wikipedia ([en.wiktionary.org/wiki/crowdsourcing](http://en.wiktionary.org/wiki/crowdsourcing)), crowd-sourcing is defined as delegating a task to a large diffuse group, usually without substantial monetary compensation. The presence or absence of monetary compensation makes different types of motivation (material vs. immaterial) of participation in crowd-sourcing.

<sup>2</sup> Open source describes practices in production and development that promote access to the end product’s source materials ([en.wikipedia.org/wiki/open\\_source](http://en.wikipedia.org/wiki/open_source)). The term originated from software development is being now broadly used in various contexts. Wikipedia defines open source culture as the creative practice of appropriation and free sharing of found and created content. Open source politics relates to the development of public policy under a set of rules and processes similar to the open source software movement (Hindman, 2007). The term is used to describe a political process that employs Internet technologies such as blogs, email and polling to provide for a rapid feedback mechanism between political organizations and their supporters.

<sup>3</sup> Wikipedia refers to an open-content online encyclopedia, collaboratively developed over the Web ([en.wiktionary.org/wiki/wikipedia](http://en.wiktionary.org/wiki/wikipedia)).

<sup>4</sup> “Wiki” is a collaborative website which is directly edited using a web browser by anyone with access to it ([en.wiktionary.org/wiki/wiki](http://en.wiktionary.org/wiki/wiki)). “Wikify,” thus, means making into a Wiki, using a Wiki approach, using or participating in a Wiki ([en.wiktionary.org/wiki/wikify](http://en.wiktionary.org/wiki/wikify)).

The main body of the paper is organized into three themes: the evolution of information paradigm, the typology of crowd-sourcing, and strategies for Wiki-government. First, tracing the trajectory of change in the governmental information paradigm, the paper commingles traditional discussions about the nature of public information with new perspectives on the emerging wave of Wikis and the open-source movement. Next, the typology of crowd-sourcing will be presented to identify possible scenarios of new information creation modes enabled by Web 2.0 technologies. The following section will frame governmental strategies for driving the newly identified information paradigm. Finally, challenges and concerns surrounding preliminary ideas for Wiki-government will be addressed as concluding remarks.

**GOVERNMENT INFORMATION PARADIGMS**

An information paradigm reflects a variety of social and organizational impacts, but the most prioritized value as a major trigger to a paradigmatic shift in perspective and approach is recognized. Figure 1 sketches the evolution in government information paradigms, illustrating four aspects: 1) normative value of public information; 2) the symbol or the leading motto of a state or government; 3) the main mechanism of information production and information flow; and 4) the basic principle of information production. The presentation of transitional information paradigms does not imply mutual exclusiveness among phases. The paradigm-to-paradigm transition is neither an all-or-nothing change nor a monolithic pattern of historical progress. All paradigms exist concurrently. The illustration, nevertheless, provides a historical snapshot of the shift in a priority value of public information.

A symbolic motto of government has changed over time. Fitting in the most conventional paradigm (need-to-keep), the powerful symbol “maximal state” seeks to gather information from societies so as to maintain social order, security, national secrecy, and welfare. In the regime, the most basic role of government for public information is to keep and hold it safely in a storehouse. All non-governmental parties comprising citizens, groups and firms have a duty to submit the information government requires. Under the umbrella principle of control, government’s fundamental function to securely keep information is important for adequately ensuring confidentiality and privacy of citizens.

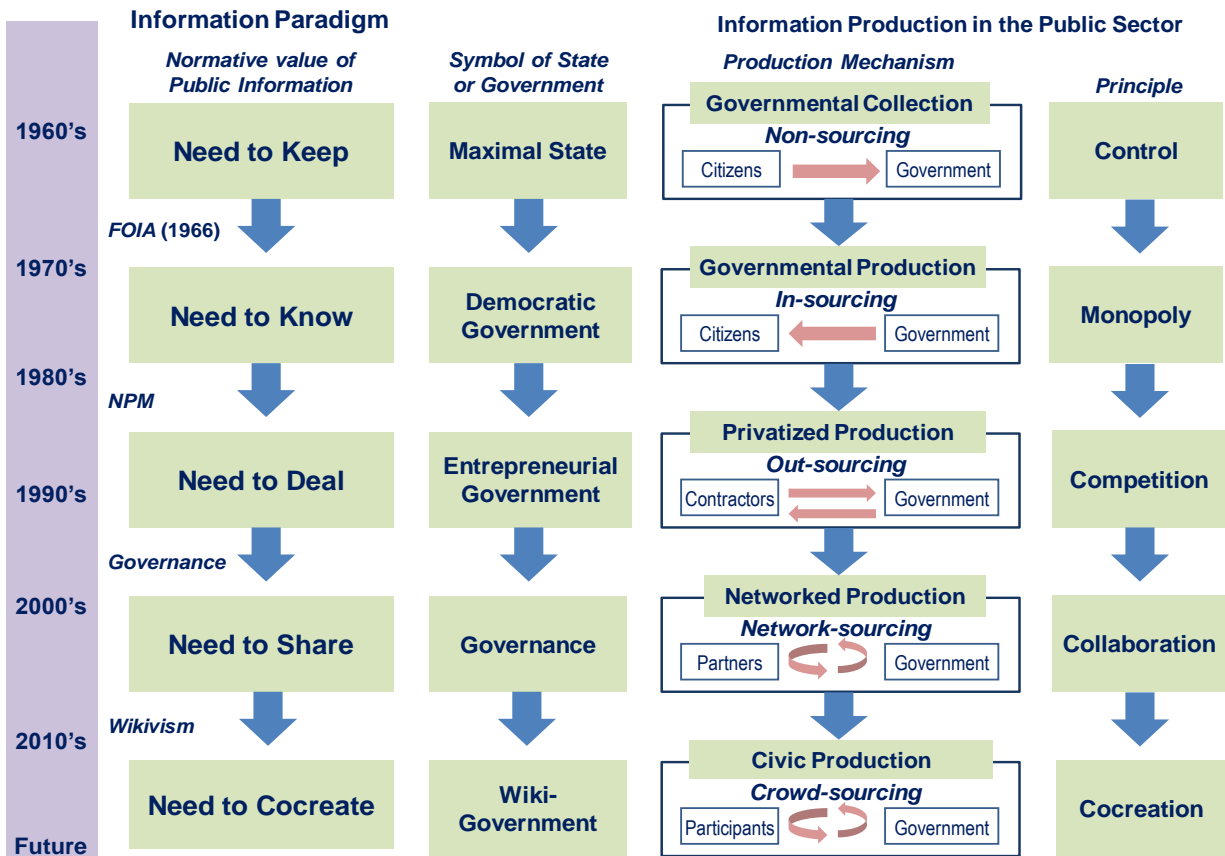


Figure 1. Evolution in Government Information Paradigm

The Freedom of Information Act (FOIA) in 1966 was a corollary by explosion of accumulated needs for the right to know. On the wave of further democratization, the Act opened the age of mandating access to government-held information (Relyea, 1986). The flow of public information shifted from mandatory citizen-to-government submission toward mandatory government-to-citizen release. To respond to information requests, government became responsible for readily producing public information (self-sourcing or in-sourcing) and immediately providing requestors with it.

The need-to-know paradigm had waned with predominance of out-sourcing mantra since the 1980s. In the Clinton Administration, the New Public Management (NPM) pushed out governmental functions other than essential cores to the private or civic sectors. The businesslike reinvention movement undervalued freedom of information as “nonessential” (Roberts, 2000), resultingly undermining the democratic paradigm of need-to-know. With the motto of entrepreneurial government foregrounding performance, production of nonessential public information has been chiefly privatized by non-governmental contractors. Either nonprofit or commercial actors can be better suited for delivering government information to citizens (Shapiro & Varian, 1997). Through public-private partnership, government teams up with private allies to do information services (McMullen, 2000). In this way, public information flows between government and out-sourcing contractors. Placing a stress on an instrumental or transactional value of information, the information paradigm of the NPM can be called as need-to-deal because public information is an object (commodity) of contracts and transactions between government agencies and mostly business actors.

Around the new Millennium, governance took over spotlights the NPM drew. Multi-directional connections and networks enabled by ICTs further extended the government-nongovernment relationship from public-private partnership to all possible forms of cross-boundary collaboration. While public information under the NPM is shared between contracting parties, all actors in a cross-boundary collaborative network for governance can produce and share information together. The two-way flow of information between out-sourcing contractors and government in the NPM evolves toward the multi-way flow among multiple partners in networked governance.

ICTs soften the need-to-know culture and replace with a need-to-share attitude (Mergel, Schweik, & Fountain, 2009). Not merely do Web 2.0 technologies contribute to the ongoing change to need-to-share (Dawes, Cresswell, & Pardo, 2009), but the new technologies also lead to the rise of a novel paradigm. Multi-way communication and user-created features enable and sometimes empower nongovernmental parties to produce public information. The technologies help create new information that otherwise could not be produced. The emerging paradigm in this age of mass/peer collaboration like crowd-sourcing, open-source movement and Wikivism is “need-to-cocreate.”<sup>5</sup> An increasing number of government agencies are benefiting from peer production by crowd-sourcing. For example, White House’s [Change.Gov](#) is recognized as a participatory tool for direct democracy and deliberative democracy in setting up a priority agenda of national policy by citizens. Electronic rule-making processes in [Regulations.Gov](#) facilitate feedback from stakeholders by using interactive functions of Web 2.0 technologies such as RSS. Local governments as well as federal agencies are adopting collaborative mechanisms for information coproduction with citizens. Open Austin ([OpenAustin.IdeaScale.com](#)), Santa Cruz City Budget ([SantaCruz.UserVoice.com](#)), and Open NASA Forum ([OpenNASA.UserVoice.com](#)) are gaining civic inputs from many citizens. Some federal agencies have launched intranet-based Wikis by which public employees can effectively share ideas, knowledge and experience (e.g., Bureaupedia of FBI, Intellipedia of CIA, Diplopedia of the Department of State, and Techipedia of the Department of Defense).

Many organizations across the public sector are kicking off new initiatives for cocreating information with citizens. Some scholars in the discipline of public administration perceive the emerging paradigm of public services as coproduction or citizen-centered production (Bovaird, 2007; Cassia & Magno, 2009). Leading to a new type of information production (i.e., citizen-sourcing), the emerging mood in public services production is now expanding in the area of public information production (Hilgers & Ihl, 2010; Lukensmeyer & Torres, 2008; Torres, 2007). Public information paradigm in government is expected to go beyond need-to-share toward need-to-cocreate. When a sufficiently large number of people can collect, reuse, distribute and create public information by peer production or mass collaboration in participatory websites such as Wikis, participants can organize information mechanisms in new ways (Tapscott & Williams, 2008). While actors in the preceding paradigms produce public information to achieve governmental goals, participants in the new mass-collaborative mechanisms create, without stated goals or beyond them, new information in oftentimes unintended or unexpected ways. With Web 2.0 technologies, the ability to mix and mash data is more widely and easily available. Engaging citizens in user-created websites

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<sup>5</sup> *Cocreation* of information by multiple actors can be interchangeably used with *coproduction*. In the field of public services, the term of *coproduction* has been used because services are produced. This explorative study lays a high value on social, public contribution of creative ideas scattered across the populace. Information production in collaborative government 2.0 mechanisms is viewed as *information creation* by self-organizing collection of novel and creative ideas. Thus, this paper uses the term of *cocreation* instead of *coproduction*.

helps government share effectively information with citizens and deliver better information to them, and furthermore helps citizens help themselves.

Evolutionary paradigms present two implications. First, the paradigm shift should not be understood as step-wise progress. Though each paradigm has an emphasis on a specific aspect of public information, government considers all information values that the paradigms prioritize. A new emphasis by a new paradigm does not replace the preceding paradigm, but governmental information policies become more complicated and intertwined with a newly emerging force. Second, the paradigmatic transition can be perceived as a governmental imperative for effectively adapting to new environmental changes and pressures. As illustrated in Figure 1, each paradigm has emerged with a social and/or technological impetus to evolution.

## TRANSFORMATIVE TECHNOLOGIES AND CROWD WISDOM

Technologies exert a huge impact on more recent paradigms, and information policies centered on classic paradigms also change with technologies. Information sharing and peer creation are facilitated by Web 2.0 technologies. In the age of networked governance, transformative capabilities of ICTs facilitate government information sharing and integration in a networked environment. The ability to share information across organizational boundaries is a prerequisite for efficient processing of citizen services and for effective decision-making in multiple collaborative settings (Gil-Garcia, Chun, & Janssen, 2009). Web 2.0 technologies lead to the emergence of the newest paradigm. New structures of online networked communication shift *modus operandi* of production from one-to-many manufacturing to distributed, participatory many-to-many creation. ICTs make possible a “third mode” of production: peer-to-peer (P2P) collaboration (Peters & Araya, 2008). Commons-based peer production utilizes digital networks to harness creative energy of crowds. Social collaboration is not just a form of cooperation but importantly itself a form of democratic, participatory practice (Benkler, 2006). Peer collaboration enabled by Web 2.0 technologies falsifies the traditional dichotomy of production vs. consumption (Steele-Vivas, 1996) by fueling “prosumerism” (producer plus consumer), which denotes an active role as an individual consumer gets more involved in the production process, contrasting her traditional passive role (Tapscott, 1995; Toffler, 1980).

The rationale of crowds wisdom is that the wise crowds insist on the presence of non-experts or dabblers. The success of a solution counts on its emergence from a large body of amateur solvers. Under the right circumstances, “groups are remarkably intelligent, and are often smarter than the smartest people” (Surowiecki, 2004). Crowds can be “talented, creative, and stunningly productive” (Howe, 2009). According to Lévy (1997), “no one knows everything, everyone knows something, and all knowledge resides in humanity.” The logic underlying the wisdom of crowds is preferable over market capitalism because it is derived not from averaging various emergent solutions but rather from aggregating them (Brabham, 2008a).

Digital technologies become central in aggregation of far-flung genius. The wisdom of crowds can be collected by the Internet because the Web provides a technology capable of aggregating millions of independent, disparate ideas more effectively and sometimes more efficiently than in the way market mechanisms and voting systems do. The Web helps create public information by mixing a variety of wisdom from numerous participants, and it enables an incumbent issue to be viewed from their diverse lenses and standpoints.

## TOWARD WIKI-GOVERNMENT

Platforms for mass participation via Web 2.0 technologies have recently drawn much attention as an effective tool to collect the wisdom of crowds. Contemporaries see the fast mushrooming of three approaches: Wikis, crowd-sourcing, and open-source movement. Wikipedia, the original coinage firstly including a new prefix “Wiki-,” strikingly contrasts against traditional information creation modes, thereby bolstering a new paradigm for peer collaboration (S. L. Bryant, Forte, & Bruckman, 2005). Wikification contributes to creating civic commons for collaborative works on the Internet (Johnston & Stewart-Weeks, 2007). Crowd-sourcing refers to “the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call” (Howe, 2006). It makes “light work of sifting through mountains of data by focusing thousands of eyes on a particular set of data” (Brito, 2008). It also activates the transformative power of today’s technologies (Howe, 2009).

Crowd-sourcing has two meanings in practice. Broadly, it is a general term of representing a new out-sourcing method to collect the wisdom of crowds. Its narrow definition denotes a business model that leverages power of online communities for profits and motivates people by bounty such as prizes (Brabham, 2008a). When crowd-sourcing refers to a business model, it essentially differ from open-source production, which emphasizes the common good (Bonaccorsi & Rossi, 2004; Lancashire, 2001) and hobbyist interest (Ghosh, 1998). This conceptual difference highlights why the wisdom of crowds for creating public information should not be called as crowd-sourced but rather as citizen-sourced wisdom. Thus, citizen-sourcing or civic-sourcing is distinct from the more usually used (business-oriented) term of crowd-sourcing in the point that

volunteerism is not for material returns. Open-source production, however, also differs from citizen-sourcing because it is basically a hacker ethic manifest (Himanen, 2001). Nevertheless, a strong common spirit among those terms exists; “the world is full of talent, two heads are better than one, and a million head can move mountains” (Brabham, 2008a). Rather than distinguishes Wikis from other participatory mechanisms like crowd-sourcing and open-source collaboration, the new prefix “Wiki-” catches such a common spirit, which is an advocacy for collecting and learning from the wisdom dispersed to the public by means of Web-based technologies.

When crowd-sourcing is a general term of representing a new out-sourcing method to collect the wisdom of crowds, it falls into four categories exhibited in Figure 2. The typology of crowd-sourcing matches between two dimensions: the quantity (the number of participants) and the quality (the level of their concernedness and informedness) of participation inputs. While the northwestern direction toward the larger number of participants and the higher quality of participation is “Wikish” (desirable for Wiki-government), the southeastern direction toward fewer participants and the degradation in the quality of participation inputs can be called “wicked” (undesirable for Wiki-government). Online collectivism of dispersed insights has Janus’ faces: disruptive power vs. creative power. When many concerned citizens actively participate with high quality of information, the type can be called as “civic-sourcing,” which clearly distinguishes their civicness from crowd psychology. Previous research dubbed it as citizen-sourcing (Hilgers & Ihl, 2010; Lukensmeyer & Torres, 2008; Torres, 2007). This paper places an explicit emphasis on positive outcome made by citizen participants’ civic minds and attitudes, so the type is named as civic-sourcing rather than citizen-sourcing. Smart crowds self-organize without organizations through technology-mediated, intelligent emergent behaviors (Harkin, 2008; Rheingold, 2002; Shirky, 2008). The type where many people’ participation results in negative outcome is “mob-sourcing,” provoked by political mobocracy and technological populism of the mis-concerned mass (Harkin, 2008). Those participants are unconcerned for a whole society, mis-informed (insufficient information for committed participation), and mal-informed (wrong and misleading information not conducive to public interests). Contrasting against mob-sourcing, civic-sourcing consequently becomes “smart”-sourcing (Rheingold, 2002).

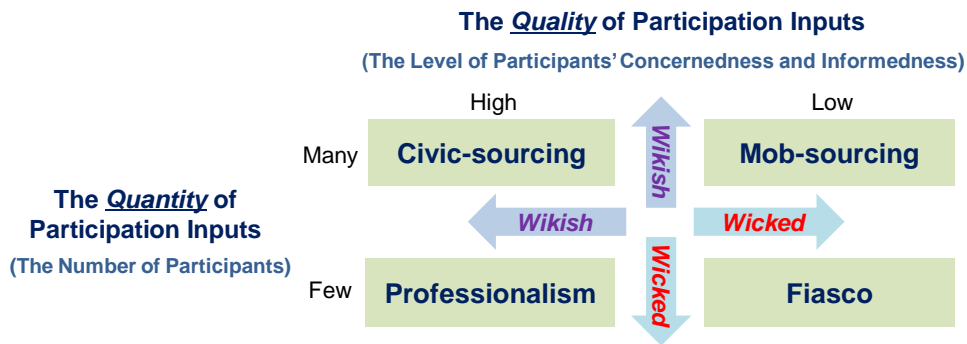


Figure 2. The Typology of Crowd-Sourcing

Another wicked direction is the move to a low level in the quantity of participation inputs. Although fewer people’s participation is disadvantageous for deriving the wisdom from crowds, high expertise from participation by a small number of professionals can make good consequence contributory to problem-solving and decision-making in the public sector. The type is categorized as professionalism or elitism. The worst scenario made by few participants is fiasco due to both inactivism and unconcernedness across crowds. Two scenarios except the best and the worst deserve deeper discussion. The two types along the line of a wicked move may differ in an aspect of procedural democracy. Many citizens’ participation may confirm procedural rationality (for mass democracy and pluralist democracy) at the sacrifice of substantive rationality (Lindblom, 1959, 1965; Simon, 1976). Outcomes of mob-sourcing are undesirable and negative, but political justification by participatory procedures may facilitate citizens’ compliance to public decisions made by crowd-sourcing.

Contrasts among four types in the typology hint that crowd-sourcing does not necessarily guarantee a good outcome. It is not always a cure-all. If crowds lack information for and interests in participation, professionalism is often preferable over civic-sourcing, but it can endow too few hands with too much power. Web 2.0 enables smart amateurs to share their knowledge with government, but it sometimes gives “too much power to a guy sitting in his living room in his pajamas” (Colford, 2004). Brabham (2009a) reported the story that crowd-sourced ads outperformed commercial films produced by advertisement professionals. In such a relatively non-serious and interesting problem as making an ad attractive to the mass, more people’s opinions promise better results because participants become potential consumers. However, the world of policymaking and public administration is different from business. If a public problem is not comprehensible to the average population, only professionals may be qualified to solve it.

Notwithstanding, ordinary people possess information to enhance governmental decision-making regardless of their professional status (Brabham, 2008b, 2009b, 2009c; Noveck, 2009). Given opportunities to make opinions on government, citizens offer something more than regular voting, opinion polls and surveys. In contrast, professionals are often unsuccessful at making informed explanations, dampening “communicative democracy” (Stacey, 2008) for discussing public concerns.

Trust in institutionalized expertise is fraught with political controversy. Where some influential digerati and many citizens participate together, professionals likely become opinion leaders who are influential in formulating initial agendas, setting goals, and resolving disputes. Their small group exercises substantial leverages on setting the agenda, coordinating discussion, and smoothing over disagreements (Olson, 1965). Accordingly, ordinary participants might perceive procedures to be less democratic (Hindman, 2007). Three compelling pieces of evidence corroborate the considerable likelihood for crowd-sourcing to get less democratic. First, under the name of government-citizen cocreation, governmental staffs involved in a designed website may predetermine agenda and procedures. Second, when government utilizes existing popular websites, it may heavily hinge on netizens’ tendency to favor a few popular sites over all the rest. Merely several outlets grab attention from most citizens, decreasing diversity of voices. Users on a handful of websites can wield disproportionate influence over those on others. Lastly, participants in solving a serious problem tend to possess educational and occupational backgrounds of typical social elites (Hindman, 2007). They are not average of the population.

While relying entirely on experts or professionals is problematic, ordinary citizens’ direct participation is not a panacea, either. More participation does not necessarily result in a better outcome when the problem is complex and controversial. In citizen-driven production of public information, elite-centered participation and mass participation have a tradeoff in our judging who (elites or crowds) is credible for the crowd-sourcing process. While new, innovative ideas created by digital literati might lose broad supports from the public, the logic underlying crowd-sourcing does not guarantee that production by the mass would result in innovation by the mass (Leadbeater, 2008). The rationale of civic-sourcing arises from meaningfulness of both “mass” and “innovation,” by which the mass leads to innovative creation of information. The success of civic-sourcing requires enthusiastic participation by a sheer number of concerned, well-informed and activated citizens.

## WISDOM FROM WHOM?

Since the consequence of crowd-sourcing depends on crowds with wisdom as well as the wisdom from crowds, “who is likely to be a Wikivist?” is an important inquiry that should be raised to boost social commitment to creating public information. Motivated people (Wikivists) participating in a collaborative mechanism create a collective good of human ingenuity. Rafaeli and Ariel (2008) presented dichotomies useful to view Wikivists’ participation: professional vs. non-professional, constructive vs. confrontational (vandalistic), continuous vs. one-time, and anonymous vs. identifiable. The first two dichotomies correspond to two axes in the aforementioned typology of crowd-sourcing. While business-driven crowd-sourcing for producing an end-product can be organized for a one-time or short-period event, civic-sourcing for collectively solving a public problem requires participants’ continuous engagement in a relatively long haul. Even though anonymous participation is generally allowed in many crowd-sourcing sites, irresponsibility due to anonymity may cause vandalism and low quality of posted information.

There are three different configurations of online civic engagement in peer collaboration for public information creation: Wiki or open-source, contest, and social networking. First, participants in Wikis and open-sourcing projects are motivated by nonmonetary reasons. Amateurism (pleasure-oriented commitment to hobbies) plus altruism (voluntary contribution to societies) are the biggest motive for Wikivism and open-source participation (Bonaccorsi & Rossi, 2004; Ghosh, 1998; Hars & Ou, 2002; Hertel, Niedner, & Hermann, 2003; Moore & Serva, 2007; Nov, 2007; Peddibhotla & Subramani, 2007; Rafaeli & Ariel, 2008). Second, motivators for business-oriented crowd-sourcing (contest type) are quite extrinsic because material incentives and career opportunities invigorate activism (Brabham, 2009c). Third, social networking sites that can be a new genre for information creation motivate participants chiefly with human relationship (Burke, Marlow, & Lento, 2009). These websites also serve as a source to share and obtain information, using networks of friendship.

The tragedy of the digital commons<sup>6</sup> is less likely to appear in Wikis and social networking sites than in contest-type civic-sourcing projects. A free rider problem depends on a human being as *homo economicus*, who is purely rational and

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<sup>6</sup> Information has characteristics as public goods, which are non-exclusive and non-rivalrous (Samuelson, 1954). Public goods often lead to “the tragedy of the commons” (Hardin, 1968), where demands from free riders are overcrowded relatively to supplies (Hess & Ostrom, 2007; Olson, 1965; Ostrom, 1990). The traditional theorem works for “information commons” (Steele-Vivas, 1996). Some virtual information commons recently failed in sustaining a community due to the lack of voluntary contributors to information sharing and production (Rafaeli & Ariel, 2008). Online environment is overloaded with empty communities filled with lurkers. A problem rooted in human nature (*homo economicus*) with self interest does not differentiate online commons from offline ones. Individuals who use P2P file-

individualistic. Bounty-seeking participants in crowd-sourcing websites are close to *homo economicus*. Human nature in capitalism often wins over civic mind, but not always (Stacey, 2008). Most manias of social networking sites are *homo sociatus*, who is a social being and prioritizes relationship with others. On the other hand, activists in Wikis and open-source sites are *homo ludens*—“Man the Player” (Huizinga, 1955, 1971), whose first value is play. The wisdom of crowds, therefore, comes from three types of human beings.

The Way to Collect Crowd Wisdom	Human Nature	Mechanism	Motivator
Contest	<i>Homo Economicus</i>	Contest	Material
Wiki Open-sourcing	<i>Homo Ludens</i>	Open-source	Hobby
Social Networking	<i>Homo Sociatus</i>	Network	Relationship

Figure 3. Strategies to Collect the Wisdom of Crowds

**STRATEGIES FOR THE NEW PARADIGM**

Developing a sense of historical flow in government information paradigms, this essay discussed *what* government can gain from *whom*. This section addresses *how* government should ride on the new wave. Three types of collecting crowd wisdom are identified from current usage of Web 2.0 technologies in the public and business sectors. Figure 3 matches among strategies, types of human beings to be main participants, mechanisms for collecting the wisdom of crowds, and motivators for creating better information. Three strategies can be established to tackle actually different problems.

First, business-oriented strategies contribute limitedly to establishing governmental strategies for collecting crowd wisdom via Web 2.0 technologies. Material motivation like cashes and prizes is powerful to encourage more active participation in crowd-sourcing contests. In Doritos’ nationwide contest of user-created contents to select the best ad video, monetary incentivization easily brought countless ideas to the firm’s marketing decision process. The public sector now pays attention to the fact that the wisdom of amateurs oftentimes outsmarts professionalism even at a much lower cost. The U.S. General Services Administration launched contest of videos about its website’s most useful features in February of 2010. The U.K. Conservative Party offered £1million prize to crowd-source a new governmental crowd-sourcing platform. The contest-type civic-sourcing may be more expansively adopted by many government agencies in near future than now.

Second, hobby- or fun-oriented self-motivation in civic-sourcing such as Wikis and open-source mechanisms is quite disparate from its social, altruistic consequence. Voluntary contribution of fun-goers and hobbyists to creating public information can be vast. The just-for-fun, hobby-driven and amateurism motive ironically helps government solve serious public problems, and helps citizens solve common problems raised by other citizens. Many platforms for civic-sourcing are available as freeware for government (e.g., IdeaScale, IdeaStorm, UserVoice, Wiki, etc.). [OpenGovTracker.com](http://OpenGovTracker.com) provides the statistics of tracking federal agencies’ *Share Your Ideas* initiatives for open government that use IdeaScale platform. Top three active agencies in the number of ideas, votes, comments and authors of ideas are NASA ([OpenNASA.IdeaScale.com](http://OpenNASA.IdeaScale.com)), EPA ([OpenEPA.IdeaScale.com](http://OpenEPA.IdeaScale.com)), and Veterans Affairs ([OpenVA.IdeaScale.com](http://OpenVA.IdeaScale.com)). There are also some good examples of collaborative idea sharing in local governments. The Crime Incident Map of Saint Louis County in the State of Missouri ([StLouisCo.UserVoice.com](http://StLouisCo.UserVoice.com)) is a map service website for interactive, collaborative, and participatory mapping of crime sites in the locality. Citizens provide information and facts that they found and observed in their local lives. Ideas For Seattle ([IdeasForSeattle.org](http://IdeasForSeattle.org)) is full of hot debates about diverse urban issues (e.g., allowing on-street parking of scooter in downtown, expanding light rail, installing sidewalks, and revitalizing a public park). Seattle citizens share their own experience and ideas with other citizens, and the city government learns from what they present in the website.

Third, human relationship is a primary motive for activism in social networking sites. Governmental use of the sites can make active visitors fans for governmental agencies. Hearing from fans in the sites is basically similar to getting new information from informal, casual communication with close buddies and neighbors. As such, careful attention to social networking sites helps government develop how to build social consensus on and mobilize emotional supports for what it is

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sharing networks (e.g., Gnutella) have experienced “the tragedy of the digital commons” (Adar & Huberman, 2000; Hughes, Coulson, & Walkerdine, 2005).



doing and plans to do. For better e-democracy, governmental commitment to social networking sites facilitates acquisition of grassroots information (Ramos & Piper, 2006). A desirable spillover effect is that committed fans of a government agency can play a civic role as its ambassadors who voluntarily inform other citizens of governmental programs. NASA and EPA have respectively about 40,000 and 8,000 fans in their Facebook sites. Some of those fans use the agencies' Facebook to discuss issues in stake, share ideas with other fans, and get feedback from the agencies. This site does not only act as top-down media to let more people know better about what a government agency currently does, but it also plays as social, interactive media to engage them in chatting and sometimes discussing the agency's policy issues.

## CONCERNS AND CHALLENGES

Government may confront challenges in employing civic-sourcing projects and becoming Wiki-government. Importantly, political concerns differentiate civic-sourcing from crowd-sourcing. Howe's (2009) statement that (business-based) crowd-sourcing promises perfect meritocracy—demographics and occupations no longer matter—is not realistic but rather idealistic and rhetorical. Unlike contest-type crowd-sourcing that needs wisdom only from smart people, civic-sourcing in public decision-making is sometimes advocated by anonymous crowds for political, procedural legitimation, or it often reveals dominant participation by a small number of people with typical demographic and occupational characteristics of social elites (Hindman, 2007). Another rhetoric behind successful business-oriented crowd-sourcing—substantively different from civic-sourcing in the public sector—is that “a community of like-minded peers” creates better products than a corporate behemoth (Howe, 2009). However, huge discrepancies across policy preferences of laypeople may lead to no conclusion.

Government can collect the wisdom of crowds by holding the Wikish direction and protecting the “participatory agora” (A. Bryant, 2006) from wicked pulls. Excessive reliance either on professionalism or on mass opinions might be counterproductive, resulting in undesirable consequence of crowd-sourcing. What government really needs is wisdom not from all crowds but from smart crowds, but government cannot select and discriminate between potential contributors and non-contributors to useful information beforehand. This situation does not necessarily drive government into a conundrum because wisdom can be ultimately extracted from a self-organizing, democratic mechanism of peer participation. Besides, the effect of social learning among citizens can be huge on Web-enabled networks.

A government agency should clarify the problem it hopes to solve before launching a new project of gathering the wisdom from crowds. Different public problems would require different strategies. Adapting to various contexts and circumstances in the public sector, available strategies need to be further diversified. For several public organizations, the wisdom of crowds can be already an actual outcome made by engaging citizens in governmental information processes. For many other agencies that consider adopting Web-based tools of peer collaboration, this paper delivers a somewhat unpleasant but realistic lesson. The bottom line is that poorly prepared government would fail to actualize the ideal of crowd wisdom and harness collaborative potentials of Web 2.0, facing unhelpful voices from unwise mobs or apathetic citizens with little interests in participation. However, with proper design and management of technological tools, the new technology-enabled paradigm of government information would offer public agencies more hopes and feasibilities over fears and challenges.

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