Editorial: Digital Democracy: 25 Years Look Back, Look Ahead

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It is with great pride and pleasure that we present this open access inaugural issue of the *ACM Journal on Digital Government Research and Practice*, an interdisciplinary journal featuring social scientific and technical research and practical case studies that investigate the impact of technology, data, and innovation on governance and the transformation of public institutions. The journal's intended goal is to create a repository capturing new thinking—both theory and practice—to address current and potential challenges faced by modern governments in the digital age. This collection is meant to support digital governments that need to continuously respond to and proactively prepare for technical advancements, new citizen demands, and emerging global challenges.

In an effort to chart a course for the use of technology in government over the next 25 years, the inaugural issue features a series of reflections on the past 25 years of digital democracy and government collected from pioneers in the digital democracy field. This collection of articles, drawing on the insights and vision of the pioneers who were there “in the beginning,” explains which early forecasts came to fruition and how they viewed the prospects for digital government and democracy. In particular, all of these multi-disciplinary thinkers concerned with democracy and conversant with technology do more than look back. They offer radical and creative designs for the future of public institutions and public discourse.

DIGITAL BIG BANG

The invention of large computers and computing to perform human tasks with software programs heralded dramatic changes to our society. With the rapid growth of personal computers and the Internet, we witnessed a Digital Big Bang that fundamentally transformed our society, ushering in an online world that seems to continuously expand, in application domains as well as geographic boundaries. This online world is changing every aspect of life, work, and play.

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According to our authors, the Eighth Continent, as Jeff Jarvis refers to cyberspace, both mirrors physical reality and portends new ways of governing, better citizen services, stronger and more robust citizen participation, and potential changes in who wields power. In addition, all of the authors also warn of impending risks and negative consequences.

IMPACTS OF THE DIGITAL BIG BANG

In his extended interview, Internet co-creator Vint Cerf reflects on the evolution of the Internet from a computational to a social medium and the evolution of his own thinking about the democratic implications of the Net. He emphasizes the role of the Internet as a *humanitarian tool* that allows people to express their opinions and listen to others, creating a two-way medium for information exchange. By the same token, he expresses concerns about the spread of disinformation and the way that the negative feedback loop created by such innovations as rating systems encourages the propagation of sensationalism and falsehood. He critically reflects on the outsized role of private corporations and wonders about the Pandora's Box we may have opened by privatizing the Net, arguing that strengthening democracy requires critical thinking by individuals and more democratically governed, bottom-up, and consensus-based institutions.

In 1994, decades before modern e-commerce, Richard Sclove prophetically described the “cybernetic Walmart effect,” where a few big electronic commerce companies would dominate the online market. Sclove argued that this would be similar to the effects that Walmart and other big-box stores had as they gradually decimated the downtown shopping areas of many small towns and cities during the 1980s. He foresaw that this displacement would hollow out face-to-face social life and civil society in general, which are building blocks for a healthy democracy. He lamented that in a commercially dominated Internet, individuals may not influence important matters shaping their lives, because more and more decisions that affect them are made somewhere else by powerful profit-seeking companies, posing a threat to democratic civil society.

His fears were realized in the early 1990s when Russians exploited social media platforms to manipulate the U.S. election in 2016. In his view, a barrier to a reasonably effective democracy may have been created by profit-seeking online companies. These powerful institutions and individuals might not care about a robust and equitable democracy. Thus, he advised that societies develop healthy technology assessment capabilities and adopt policies to reset that balance between commerce and civic life.

Douglas Schuler observes that digital systems, as they are currently employed, will continue playing an important role as integrated parts of democratic systems worldwide. He emphasizes that digital systems should accommodate meaningful citizen engagement. To achieve this, citizens need civic infrastructure (technology) but also civic culture. The *presence of citizens*, the “users” of the democratic systems, is essential, and by all rights they should be involved in any integration of technology into democratic systems—including their design. The collaboration between social scientists and technologists is an essential ingredient for achieving the interdisciplinary nature of democracy. We bear a collective responsibility for improving democracy through public problem solving and civic intelligence. He warns of many indicators of major attacks on democracy, such as fake news, a massive corporate intrusion into every aspect of our personal lives, the monetization of data, and the rise of technology-enabled authoritarian governments.

Jeff Jarvis envisions an Internet that could enable government and media to be more democratic. The Internet could enable a process of re-learning how society deliberates internally and enable citizens to reclaim the ability to converse instead of being “talked at” through one-way, top-down mass media. Even though Internet-mediated communication via social networks is suffering from a noisy cacophony of hate postings and trolling, the Internet has also provided those communities that were long under-represented in mass media with a chance to speak. The author warns against the reflex of “cleaning up” the noisy conversations on the Net through regulations but urges all contributors to work on building a civil society online, by asking critical questions such as what is missing and needed, and urges us to redefine journalism's goals for the online world.

John Gastil and Todd Davies foresaw the technological evolution from the mass media age (1970s–1990s) to the public Internet age (1990s–early 2000s) to what they term the *social media age* (mid 2000s–present). Although social media provide opportunities for citizen participation, there are significant barriers to entry for non-commercial providers. They explore the next age, which they characterize as the public software stage, where non-commercial, privacy-protecting technology used by civil society groups fosters online deliberation. But getting there will require significant investment, including the creation of a corporation for public software as a funding vehicle.

Hans Jochen Scholl introduces the evolution of the digital government research community, which started with funding from NSF around 1998. The funding opportunities sparked interest from a range of disciplines, such as computer science and engineering, human-computer interaction, data visualization, information systems, communications, and geographic information systems. Ironically, traditional public administration scholars showed less interest in technology and government early on. The infusion of funding also created many conferences, including dg.o, IFIP e-government, and several journals devoted to the topical area of digital government, attracting scholars from different parts of the world with similar interests, but different perspectives and skill sets. This culminated in the formation of an official professional society called the *Digital Government Society* in 2006. He also lists leading scholars in the field as measured by citation counts.

Oren Perez investigates “deliberative e-rulemaking” as a specific e-democracy exercise, which uses digital consultation platforms that seek to facilitate public deliberation about policy or regulatory proposals. The challenge of citizen participation, however, is how to digest vast amounts of e-commenting data (i.e., a “needle-in-the-haystack” and a “forest-for-the trees” problem). In response, he proposes a collaborative e-rulemaking platform, where users can join to create a single text and “talk” with each other, and discusses design principles such as simplicity, eliciting sufficiently rich data about the debated topic, motivation to participate, soft intermediation for accommodating participants’ differing views, and respect for diversity of opinions. In addition, he explores the idea of a new generation of social bots: intelligent e-democracy bots that receive the political preferences and epistemic views of their principals as input, and on this basis participate on their behalf in digital consultation processes, exploiting sophisticated NLP and AI algorithms. Citizens can then choose the dialogues they will participate in themselves (investing more effort) and the dialogues in which they will entrust this task to their political e-agents.

Kim Andersen, Jungwoo Lee, and Helle Henriksen distinguish between two different eras of digitization: the first wave, in which the digital government has failed to produce administrative transformation, and a second digital wave, in which advanced technologies, such as AI, Blockchain, cloud computing, and robots may *excessively* transform governance. Powerful technologies for automation may induce what he calls *digital sclerosis* that could cause irreversible situations where machines win over humans and humans lose control if we do not design them with human values in mind.

LOOKING FORWARD

Taken together, these thoughtful and reflective essays offer an urgent call to action to take charge of the design of our technology over the coming 25 years. Otherwise, as Thoreau famously said, we risk becoming “tools of our tools” and accelerating power imbalances, privacy risks, the spread of dis-information, and other challenges to democracy of digital technologies.

As the authors explain, the promise of stronger democracy and better governance may only be realized if we anticipate and are prepared for these risks and adopt new ways of thinking, or even radically different assumptions and institutions. The editors hope that this inaugural issue will contribute to renewed reflection about the impact of technology on democracy and on governing and spur more research, deliberation, and experimentation over the coming 25 years.