The Impact of the Internet on Institutions in the Future

Technology experts and stakeholders say the internet will drive change in businesses and government agencies by 2020 to make them more responsive and efficient. But there are powerful bureaucratic forces that will push back against such transformation and probably draw out the timeline.

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This publication is part of a Pew Research Center series that captures people's expectations for the future of the Internet, in the process presenting a snapshot of current attitudes. Find out more at: http://www.pewinternet.org/topics/Future-of-the-internet.aspx and http://www.imaginingtheinternet.org.

Overview

By an overwhelming margin, technology experts and stakeholders participating in a survey fielded by the Pew Research Center's Internet & American Life Project and Elon University's Imagining the Internet Center believe that innovative forms of online cooperation will result in more efficient and responsive for-profit firms, non-profit organizations, and government agencies by the year 2020.

Some 895 technology stakeholders and critics participated in the online, opt-in survey. In this canvassing of a diverse number of experts, 71% agreed with the statement:

"By 2020, innovative forms of online cooperation will result in significantly more efficient and responsive governments, business, non-profits, and other mainstream institutions."

Some 26% agreed with the opposite statement, which posited that by 2020, "governments, businesses, non-profits and other mainstream institutions will primarily retain familiar 20th Century models for conduct of relationships with citizens and consumers online and offline."

While their overall assessment about the internet's capacity to prompt change, many elaborated on their answer to the question with written explanations that also expressed their concerns about organizations might resist change. They cited fears that bureaucracies of all stripes – especially government agencies – can resist outside encouragement to alter their ways. Some wrote they that the level of change will affect different kinds of institutions at different times. The consensus among them was that businesses will transform themselves much more quickly than public and non-profit agencies.

Many voted for the "change" option, but said they were not sure drastic change will occur in organizations by the 2020 time frame. They think the most significant impact of the internet on institutions will occur after that.

The respondents who addressed the issue of "innovative forms of online cooperation" sometimes referred to activities between people and institutions that were post bureaucratic. They argued that people could use the internet and cell phones to create alternative, un-bureaucratic structures to solve problems and build network-structured communities.

Survey Method: 'Tension pairs' were designed to provoke detailed elaborations

This material was gathered in the fourth "Future of the Internet" survey conducted by the Pew Research Center's Internet & American Life Project and Elon University's Imagining the Internet Center. The surveys are conducted through online questionnaires to which a selected group of experts and the highly engaged Internet public have been invited to respond. The surveys present potential-future scenarios to which respondents react with their expectations based on current knowledge and attitudes. You can view detailed results from the first three surveys here: http://www.pewinternet.org/topics/Future-of-the-internet.aspx and http://www.elon.edu/e-web/predictions/expertsurveys/default.xhtml. Expanded results are published in the "Future of the Internet" series published by Cambria Press.

Respondents to the Future of the Internet IV survey, fielded from Dec. 2, 2009 to Jan. 11, 2010, were asked to consider the future of the Internet-connected world between now and 2020 and the likely innovation that will occur. They were asked to assess 10 different "tension pairs" – each pair offering two different 2020 scenarios with the same overall theme and opposite outcomes – and they were asked to select the one most likely choice of two statements. The tension pairs and their alternative outcomes were constructed to reflect previous statements about the likely evolution of the Internet. They were reviewed and edited by the Pew Internet Advisory Board.

Please note that this survey is primarily focused on eliciting focused observations on the likely impact and influence of the Internet – not on the respondents' choices from the pairs of predictive statements. Many times when respondents "voted" for one scenario over another, they responded in their elaboration that both outcomes are likely to a degree or that an outcome not offered would be their true choice. Survey participants were informed that "it is likely you will struggle with most or all of the choices and some may be impossible to decide; we hope that will inspire you to write responses that will explain your answer and illuminate important issues."

Experts were located in two ways. First, several thousand were identified in an extensive canvassing of scholarly, government, and business documents from the period 1990-1995 to see who had ventured predictions about the future impact of the Internet. Several hundred of them participated in the first three surveys conducted by Pew Internet and Elon University, and they were re-contacted for this survey. Second, expert participants were hand-picked due to their positions as stakeholders in the development of the Internet.

Here are some of the respondents: Clay Shirky, Esther Dyson, Doc Searls, Nicholas Carr, Susan Crawford, David Clark, Jamais Cascio, Peter Norvig, Craig Newmark, Hal Varian, Howard Rheingold, Andreas Kluth, Jeff Jarvis, Andy Oram, Kevin Werbach, David Sifry, Dan Gillmor, Marc Rotenberg, Stowe Boyd, John Pike, Andrew Nachison, Anthony Townsend, Ethan Zuckerman, Tom Wolzien, Stephen Downes, Rebecca MacKinnon, Jim Warren, Sandra Braman, Barry Wellman, Seth Finkelstein, Jerry Berman, Tiffany Shlain, and Stewart Baker.

Here are some of the institutions in which respondents work or have affiliations: Google, Microsoft. Cisco Systems, Yahoo!, Intel, IBM, Hewlett-Packard, Ericsson Research, Nokia, New York Times, O'Reilly Media, Thomson Reuters, Wired magazine, The Economist magazine, NBC, RAND Corporation, Verizon Communications, Linden Lab, Institute for the Future, British Telecom, Qwest Communications, Raytheon, Adobe, Meetup, Craigslist, Ask.com, Intuit, MITRE Corporation

Department of Defense, Department of State, Federal Communications Commission, Department of Health and Human Services, Centers for Disease Control and Prevention, Social Security Administration, General Services Administration, British OfCom, World Wide Web Consortium, National Geographic Society, Benton Foundation, Linux Foundation, Association of Internet Researchers, Internet2, Internet Society, Santa Fe Institute, Yankee Group

Harvard University, MIT, Yale University, Georgetown University, Oxford Internet Institute, Princeton University, Carnegie-Mellon University, University of Pennsylvania, University of California-Berkeley, Columbia University, University of Southern California, Cornell University, University of North Carolina, Purdue University, Duke University , Syracuse University, New York University, Northwestern University, Ohio University ,Georgia Institute of Technology, Florida State University, University of Kentucky, University of Texas, University of Maryland, University of Kansas, University of Illinois, Boston College, University of Tulsa, University of Minnesota, Arizona State, Michigan State University, University of California-Irvine, George Mason University, University of Utah, Ball State University, Baylor University, University of Massachusetts-Amherst, University of Georgia, Williams College, and University of Florida.

While many respondents are at the pinnacle of Internet leadership, some of the survey respondents are "working in the trenches" of building the Web. Most of the people in this latter segment of responders came to the survey by invitation because they are on the email list of the Pew Internet & American Life Project or are otherwise known to the Project. They are not necessarily opinion leaders for their industries or well-known futurists, but it is striking how much their views were distributed in ways that paralleled those who are celebrated in the technology field.

A wide range of opinion from experts, organizations, and interested institutions was sought, this survey should not be taken as a representative canvassing of Internet experts. By design, this survey was an "opt in," self-selecting effort. That process does not yield a random, representative sample. The quantitative results are based on a non-random online sample of 895 Internet experts and other Internet users, recruited by email invitation, Twitter or Facebook. Since the data are based on a non-random sample, a margin of error cannot be computed, and results are not projectable to any population other than the respondents in this sample.

Many of the respondents are Internet veterans – 50% have been using the Internet since 1992 or earlier, with 11 percent actively involved online since 1982 or earlier. When asked for their primary area of Internet interest, 15% of the survey participants identified themselves as research scientists; 14% as business leaders or entrepreneurs; 12% as consultants or futurists, 12% as authors, editors or journalists; 9% as technology developers or administrators; 7% as advocates or activist users; 3% as pioneers or originators; 2% as legislators, politicians or

lawyers; and 25% specified their primary area of interest as "other." Results are divided into a column for invited experts only and a column that combines experts with general public.

The answers these respondents gave to the questions are given in two columns. The first column covers the answers of 371 longtime experts who have regularly participated in these surveys. The second column covers the answers of all the respondents, including the 524 who were recruited by other experts or by their association with the Pew Internet Project. Interestingly, there is not great variance between the smaller and bigger pools of respondents.

Main Findings: The impact of the internet on institutions

	EXPERT RESPONSES N=371	TOTAL SAMPLE N=895	
%	71	72	By 2020, innovative forms of online cooperation will result in significantly more efficient and responsive governments, businesses, non-profits, and other mainstream institutions.
	26	26	By 2020, governments, businesses, non-profits and other mainstream institutions will primarily retain familiar 20th century models for conduct of relationships with citizens and consumers online and offline.
	3	2	Did not respond

One of the long-running hopes of technology supporters is that the internet and cell phones would bring change to hidebound institutions of all kinds. This tension pair was designed to assess those hopes. While this largely pro-technology group expressed overall enthusiasm for the change that they hope will come to all kinds of organizations, respondents almost universally wrote narrative answers that hedged their hopes with laments how far and fast the changes might come. Government agencies are conservative and protective of their prerogatives, the respondents noted. Changes that are driving commercial firms to upend traditional business models and practices are not necessarily being felt in the public sector with the same urgency. Here are some of the major themes that emerged in their answers:

The imperatives and expectations created by the internet will force change in institutions, no matter how resistant they are. There is simply too much pressure from the ground up for institutions to remain as they are. Media companies are classic examples of organizations that have to respond to the new digital realities. The place all institutions will have to start is listening more intently to their stakeholders. "Molecular democracy" is asserting itself.

- "Online cooperation will only increase. The means are already there, and will only become more numerous and functional. Institutions that adapt to the Net's cooperation-encouraging technologies and functions will succeed. Those that don't will have a hard time. Having it hardest right now are media institutions, for the simple reason that the Internet subsumes their functions, while also giving to everybody the ability to communicate with everybody else, at little cost, and often with little or no intermediating system other than the Net itself.

    "Bob Garfield, a columnist for *AdAge* and a host of NPR's "On The Media," says the media have entered what he calls (in his book by the same title) *The Chaos Scenario*. In his introduction Garfield says he should have called the book "Listenomics," because listening is the first requirement of survival for every industry that lives on digital bits.

So, even where the shapes of institution persist, their internal functions must be ready to listen, and to participate in the market's conversations, even when those take place outside the institution's own frameworks." – **Doc Searls**, co-author of "The Cluetrain Manifesto"

- "Having been a senior executive at some of America's largest corporations I am convinced that model is ultimately doomed. An entity that lasts forever and grows forever is just not possible and is silly anyway. It is a waste of resources. Society deserves a better model for the organization and deployment of resources to provide products and services. Scale is still important. Companies like Cisco have shown how to continue to innovate by acquisition but the big question is how do corporations gracefully end? How can we break the cycle of Wall Street, a strong financial services industry is simply not good for society. Wall Street does not improve productivity, the model is parasitic, transferring huge resources out of the system. I am looking forward to the next phase of the industrial revolution." – **Glen Edens,** former senior vice president and director at Sun Microsystems Laboratories, chief scientist Hewlett Packard

- "By 2010 we are seeing many of these institutions and industries crumble and rise again from the ashes in new forms. What is happening to newspapers will happen to retail, advertising, many sectors of manufacturing, education, and government. There is no going back. There is no protecting the past." – **Jeff Jarvis,** prominent blogger, professor, City University of New York Graduate School of Journalism

- "Businesses (and to a lesser extent, government) will wise up to the fact that the strongest motivations online are extra-market: not directly related to money, income, or costs. This will shake up notions of marketing in fundamental ways." – **Stowe Boyd,** longtime technology strategist, writer, promoter

- "It has already started, and other institutions will be forced to offer similar features to keep up. The remaining battlefield will be in countries with repressive, controlling regimes: will they open up to compete with freer countries, or clamp down in an attempt to prevent their citizens from seeing what is going on elsewhere?" – **Peter Norvig,** Google Research Director

- "The Internet has forever changed our expectations in the workplace, in media consumption, and in communication: placing a high priority on real-time information and omnipresent accessibility. There's no reason to suspect that won't bleed over into our expectations for our institutions." – **Christopher Saunders,** managing editor internetnews.com

- "Institutions have, by and large, always been astute at reshaping themselves to account for new forms of knowledge and economy and, indeed, to use their social power shape the uses of technology. Already, universities are enthusiastically buying into video-styler broadcast and conference models of e-learning because they enable the 'lecture / tutorial' model to propagate across the Internet (and thus ensuring universities remain institutionally powerful); so alternative models, that challenge institutions (eg crowd wise knowledge networking) are squeezed out by the power of institutions to say 'this is what the technology does and is for'. That said, the date is the main problem - institutions will change, but perhaps on a longer timeframe than 10 years." – **Matthew**

Allen, Department of Internet Studies, Curtin University of Technology, Australia, and past president of the Association of Internet Researchers

- "We can already see that institutions offer internet based services for a variety of consumer services besides shopping, including financial, medical and governmental. As broadband penetration progresses, a large variety of cloud-based 'self-service' and 'tele-service' offerings will emerge from various institutions. Standardization and certification of information and transactions will ultimately enable knowledge-sharing between institutions via the internet, which will enable even better and higher quality services." – **William Luciw,** Managing Director, Viewpoint West Partners LLC

- "I think this question has it backwards. Online co-operation will force conventional institutions to become more responsive, because there will be a continuous wide audience seeing what they are doing." **Charlie Martin,** author and consultant

- "Right now, there is a remarkably mixed picture, and even governments which take some very promising steps towards citizen engagement and participation on the one hand are at the very same time pursuing legislation which will have a chilling effect on online participation and innovation on the other, for example. Ultimately, I think that popular pressure will win the day, and the very inertia of many large institutions leaves them vulnerable to user-generated change which moves too quickly for them to react to…. What we are likely to see will proceed from the grassroots, I think - in politics, from small, mobile, and possibly local organisations; in business, from a changing mix of start-ups and networked organisations; in the non-profit sector through loose alliances of like-minded groups. I don't quite know where all of this will lead, yet, but I like Pierre Lévy's formulation of 'molecular democracy,' and I think we might well see that idea filled with life." – **Axel Bruns,** Associate Professor, Queensland University of Technology

- "Online communication is already increasing public participation in political, educational, and social activities and will continue to connect people in the future as more people go online. Active participation in political, health, and educational affairs will enable people to access relevant information to make informed choices and better decisions. Access to new media will give greater voice and empower increased public participation and representation in the future." – **Gary Kreps,** Chair of Department of Communications, George Mason University

- "The Internet will facilitate some forms of interaction between individuals and government, business, non-profits, and institutions. Whether it will lead to more efficient and responsive institutions remains to be seen. Older forms of personal engagement should remain important when well practiced. The older forms of cooperation may find allies in the newer, but only if the institutions themselves are willing to listen to what their interlocutors are trying to say. The willingness to hear and respond will be at least as important as the means by which the communication occurs. The illusion of direct contact cannot be long maintained if contact does not result in meaningful response." – **Mark U. Edwards,** senior advisor to the Dean, Harvard University Divinity School

- "There are simply too many technological innovations and social and political expectations for the model to stay the same. In the latter case, we increasingly live in a 24x7 world. I get annoyed when I can't talk to customer service about a banking

problem at whatever time I encounter it, late in the evening, for example. The forces are toward new models, new efficiencies, new responsiveness and new transparency. Information when I want it, in a form that I want." – **Pam Heath**, Jensen Heath communications consulting

- "I predict 3rd party political movements to start on the internet and gain share rapidly in perhaps even the next election. Institutions who don't pay attention will find themselves obsolete. I look at our present congress and wonder how much more out of touch any group of individuals could be. Bye Bye present politicos." -- **Sandra Kelly**, marketing specialist, 3M Worldwide

Institutions that redefine their relationship with their stakeholders will be the ones that succeed. Markets will drive that process in the commercial realm. Still, there will be tensions as stakeholders know more and more about the organizations that are trying to serve them.

- "Will our relationship to institutions changes?' That is an interesting question. An alternative to that question is 'Will institutions who redefine relationships with customers succeed?' Example, I have a relationship with the DMV because I have to (I own a vehicle therefore I need to have a relationship with them). I have a relationship with Wells Fargo because I want the type of relationship and products they offer in banking and financial services. I think those institutions that redefine relationships with their customers will succeed in a free market. However, government and some other institutions are not in a free market situation, and thus will be much slower to redefine the relationship." -- **Michael Nelson**, former White House and Senate technology specialist, now teacher at Georgetown University

- "Governments, businesses and NGOs will gradually become more efficient and responsive, thanks in large part to the accountability and transparency mandated by public accessibility of the data they generate. But, bureaucracies being inherently conservative, this change will happen slowly -- much more slowly than the opening-up of data. The result will be that in 2020, companies' customers will know far more about the companies than the companies do themselves. And citizens will know far more about governments than the government officials. This will lead to political and market tensions that will play out over many years." – **Dylan Tweney,** senior editor, Wired magazine

The authority and governing structure of large organizations – public and private alike – are being profoundly changed in ways that are moving power from some traditional centers to others and this is a disruptive thing.

- "I have a very unhappy feeling about the future of governance. We have seen the rise of anti-democratic structures, most particularly the rise of 'stakeholderism' (See http://www.cavebear.com/archive/rw/igf-democracy-in-internet-governance.pdf) as a kind of reversion of the discredited theories of the 1930's that a person is valuable only in regard to the groups of which he is a member. Moreover, I find the erosion of our abilities to engage in critical thinking and non-inflammatory discourse to be disquieting.

It seems as if electronic communications cause us to lose our ability to look past errors of expression and to treat one another as humans worthy of respect.

"We are in an era in which the concept of the Nation State as bounded by geographic limits is eroding. Nations are losing the clarity of where their sovereign powers begin and end or who exercises powers over matters that cross geographic boundaries. The powers are not disappearing but are, instead, flowing into bodies, often corporate but also often quasi-non-governmental, such as ICANN, that are not constructed on the lessons that were so hard-learned during the 18th and 19th centuries regarding the allocation and control of authority. The internet needs to re-learn Madison and Jefferson, Voltaire and all the rest of the people who wrestled with these questions back then." **Karl Auerbach,** Chief Technology Officer, InterWorking Labs, Inc

- "Online will demand accountability and permit close evaluation of performance, past positions, and current conflicts. This accountability will be positive to the extent it helps the public understand institutions, but negative to the extent that it assists development of mob rule. Either way, mainstream institutions will have to find different ways to manage and communicate with their multiple constituencies." – **Tom Wolzien,** longtime telecommunications analyst, Chairman, Wolzien LLC

Institutions may embrace "network structures" even if that does not much change their relationship with their constituents. A struggle will unfold between traditional organizations and networks as to which is the best way to organize people, knowledge, and commercial activity.

- "Institutions, by design, change slowly. I think we will continue to see new challenges to existing institutional structures, but that there is value to certain forms of bureaucracy, and institutions may adopt some of the network structures without it greatly changing their relationship to outside stakeholders." – **Alex Halavais**, vice president, Association of Internet Researchers
- "In our fascination with technology-driven organizational change, we underestimate the gravity of institutional power. It is far too early to make predictions, but we should expect another 50 years of tussle between 'organizations' and 'networks' and an uneven landscape that consists of both social patterns." – **Nathaniel James,** Executive Director, OneWebDay
- "This question presupposes that 'governments, businesses, non-profits, and other mainstream institutions' will continue to exist, and will either be more responsive not. In fact, by 2020, the changing nature of these institutions will have become clear, and we will be well into the process of replacing industrial-age institutions with information-age ones. It won't even make sense to talk of these institutions as 'efficient' or 'responsive' - these are economists' terms presuppose a client-server model of governance. But by 2020, it will be clear that people are governing, managing, educating and supporting themselves, not waiting for some institution to be 'effective' or 'responsive' to these needs." – **Stephen Downes,** National Research Council, Canada

Change in organizations will occur in phases in response to pressures wrought by new technology. Businesses will be first movers and governments will lag. Part of the reason is that government agencies might be under less pressure to change because their interactions with citizens are not as frequent or prolonged as business firms' interactions.

- "I have no confidence that the government will EVER get more efficient, though it certainly is nice being able to conduct business with it online. However non-governmental institutions, in particular business, will continue to leverage cross-channel customer recognition technologies and business intelligence (relevance) to provide better marketing and service to their customers. We have entered the era of the 'Marketing Democracy' and organizations that don't evolve will be left at the mercy of more nimble competitors." – **Chris Marriott,** Vice President, interactive marketing services, Acxiom Corporation
- "Some institutions will change radically (some already have) while others can't change as much due to legal and other restrictions. But the trend is toward more transparency and collaboration." – **Dan Gillmor,** Arizona State University, author, speaker
- "It is unfortunate that you lumped government and business together in one question, because I see this going two ways. Businesses need to become more responsive to survive and remain competitive. Governments do not. Especially when we look globally, and not only at North America and Europe, we see a very broad range of government responses to the Internet and other digital technologies. Government Web sites often serve as window dressing, a way to show that an agency or department is online without that agency or department actually serving the citizens any better. Often these Web sites are badly out of date. Commercial entities, on the other hand, and continually changing and updating, adapting to customer feedback, becoming more and more useful and easy to use. NGOs vary a lot in their use of the Web. Some are doing a great job at reaching out to all their different stakeholders, while others seem stuck in 1995, with nothing online but a few informational pages. I don't see much evidence that many governments or NGOs will change drastically in the coming 10 years." – **Mindy McAdams**, University of Florida, College of Journalism and Communications
- "Inertia, bureaucracy, entrenched interests, siloed structures and a lack of leadership will ensure that government and probably business will lag in the adoption of online cooperation. A handful will break out and set the precedents but most will take a wait-and-see posture so that the effectiveness and efficiency that the Internet can potentially bring will not be fully realized by 2020." -- **Daniel Flamberg,** blogger at iMedia Connections
- "The vast bulk of any corporations or governments communications takes place within it, and whilst web tools may enhance this process internally I do not believe that they will come to dominate direct communications with customers or citizens. Customers and citizens actually require only limited contact with these institutions, and on the whole would rather than government gets on with its job whilst they get on with their lives. The ability to connect on demand for one off and specific needs will grow, but not a general paradigm of continuous interaction." -- **Rich Osborne**, University of Exeter

Government agencies are cumbersome and resistant to change. The pace of progress towards opening and responsiveness will be slower than anyone would hope. In fact, the process might work in the opposite direction from the one implied by the questions here. Governments might embrace digital technologies because they will allow agencies to have *more* control over their interactions with stakeholders.

- "Having just spent some time in government, I'm less optimistic about the possibilities for change than I used to be. It takes a very long time for entrenched interests to be open to paradigm shifts, and I'm afraid to say that our era is one of great entrenchment - at least in government. No matter how much information is online and available, there will still in 2020 be some small circle of men who will be hanging on to all the levers. For years to come, they'll give lip service to openness (and they will commit to better customer service), but they won't actually change their ways. Ask me again in 2020." – **Susan Crawford**, former member of President Obama's National Economic Council, now on the law faculty at the University of Michigan
- "Institutions are good not just at resisting change but at structuring it. Don't underestimate the social inertia provided by legal systems." – **Anthony Townsend,** research director, Institute for the Future
- "Institutions know how to protect themselves." – **Barry Wellman,** University of Toronto
- "Neither, actually; online tools will change how we use governments/businesses/etc., but won't necessarily result in better efficiency and more responsiveness. Rather, the willingness of those institutions to employ online tools will be proportional to the increased control they have over the interactions with stakeholders." -- **Jamais Cascio,** an affiliate at the Institute for the Future and senior fellow at the Institute for Ethics and Emerging Technologies

Institutional change surely will come, often starting at the periphery. There are market opportunities in offering services related to responsiveness. Yet, big, traditional organizations like school systems will be slow to adapt.

- "Ten years is too little for major changes. Efficiencies will of course occur, by automating more interactions -- just as all became telephone operators, so we are increasingly all becoming travel agents, information managers, and so on. Small businesses will spring up that are more customer-centered and others will become more responsive at one level by some customized interfaces, but also more impersonal and less responsive to exceptional requests. On the whole, though, change here will be slow. Educational institutions will be the ones to watch, they are highly logical candidates for change, yet it is difficult to imagine much by 2020. By 2030, definitely." – **Jonathan Grudin,** principal researcher, Microsoft (stresses that these views are his own, not the company's)
- "There is a tipping point on the horizon between competition and cooperation. Scarcity of natural resources will require us to work together in ways we have never been required to before. It will take us a few generations to really see a significant change in the ways we currently do business, but it will come. This type of change requires us to plan for a long "now," which is antithetical to the way populist governments often work.

Change will come from the edges and work they way toward the center. First, businesses will see the value added new digital media provides in terms of access to markets and supporting quality interaction, distribution and customer feedback. This model will then be slowly adopted by government. I also believe the US is too big to govern the way it has been (thus all the red tape and claims of ineffective programming). Perhaps government would be more nimble as productive/supportive if it were to focus geographically (think Netflix or FedEx)." -- **Christopher D. Sessums**, College of Education at the University of Florida

Organizations might move towards more responsiveness and efficiency, but those moves will be limited by their natural tendency to control information and deny citizens and customers full awareness of what organizations know.

- "My optimistic selection here is probably as much one of hope as it is one of belief. The two MAJOR deterrents and dangers I see are (a) the zeal for knowledge control - both access and content - by the would-be information conglomerates, and (b) both corporate and government frenzy for choking timely public access to adequate information on which to make sound decisions about our own businesses, governance and lives." – **Jim Warren,** longtime tech entrepreneur and activist

One of the big barriers to change is that people in bureaucracies do not necessarily want to be found and want to be responsive, no matter how much their organizations say otherwise.

- "Things will slowly change, but not significantly by 2020. Tools for efficiency and transparency will keep appearing. There may be new ways for citizens, clients and others to give input, but the institutions will have to find ways to process the information and incorporate it. If the difficulty one has to find the 'contact us' icon on many websites is any indication, not all institutions want more communication." – **Ginger Paque**, educator at Diplo Foundation

Institutions might keep their 20th Century form, but their performance will be better thanks to technology adoption.

- "Both are right. Institutions will 'primarily' retain 20th century models while 'significantly' enhancing their performance. For instance, there will still be bus stops, but when we go to a stop we will be able to see exactly when the bus will arrive at that stop. Not when it is scheduled to stop; when it actually will arrive." **– Fred Hapgood**, technology author and consultant; in the 1990s, he took on the role of moderator of the Nanosystems Interest Group at MIT
- "Governments and other institutions evolve slowly, as indeed they should, and I doubt in this short time frame that there will be any radical changes in the way in which they function. I certainly think that the opportunities for interaction *with* these organisations will be vastly transformed, but within the boundaries of these

organisations, I suspect that the morphological form will remain familiar to those we experience today." -- **Dr. David M. Berry,** Swansea University

Institutional change is not the issue. People will use the internet and cell phones to create organizational structures to solve their problems and if old-school organizations cannot adapt, they will wither.

- "The boundaries of 'mainstream institutions' interrupt the flow of interaction in the interests of control. They are unsustainable in the face of experientially based distributed communities of interest or practice. We won't need as much of that "form" of organization to get most things done." – **Garth Graham,** Board Member, Telecommunities Canada
- "Crowdsourcing, blogging, and community participation are becoming the status-quo very quickly, because they provide such substantial advantages to those who take advantage of them. Better, faster, and more in-tune decision-making is just the beginning of it." – **Bill Woodcock,** research director, Packet Clearing House, a nonprofit research organization
- "Significantly more efficient and responsive' organizations and institutions? Hardly. But there will be some important developments, particularly involving government and non-profits. The Howard Dean presidential campaign showed the potential promise offered by the Internet. Hundreds of thousands (if not more) of formerly disenfranchised votes were able to actually connect with a campaign in a remarkable digital, grass roots movement. Sadly and predictably, the usual political machines have since jumped in with typical control mentalities and co-opted the promise shown by the Dean phenomenon. Even so, movements like MoveOn.org, Lawrence Lessig's ChangeCongress and others will continue to mobilize the electorate in new ways--as long as they avoid the taint of big political money.

  "The Web's ability to help non-profits is only beginning to develop in such movements as Kiva and Donorschoose. They will remain more interesting and effective than commercial or political/governmental endeavors precisely because non-profits are non-profit. Which brings us to the commercial world. Don't expect anything to improve or change the relationships between corporations and consumers. As long as profit trumps all other responsibilities of corporations, their Internet presence will always be self-serving and duplicitous." -- **Dave Rogers,** web designer and developer at Yahoo!

Institutional life will become more intense in an always-connected world. The impact of that on responsiveness and efficiency is up for grabs. Institutions can have the best of intentions, but many are already overwhelmed with the volume of new interactions they have with their customers and constituents.

- "I don't know if 'efficient' is the right word. Perhaps these institutions will be more intense. Much like music singles that explode today, but are gone tomorrow, charities will rise and fall, bureaucrats will be increasingly distracted by the scandal du jour and businesses will alter their working arrangements more rapidly. It certainly won't be a

complete upheaval in 10 years time, but indeed, life will be more subject to the ebb and flow of the day's events." – **Bernie Hogan,** Oxford Internet Institute

- "I want to be optimistic, but the truth is that research so far has shown that institutions have not changed their structure just because they have implemented social media and a means to communicate and interact with citizens. Particularly in the realm of political parties and other political actors like NGOs or youth organizations, a stringent desire to remain in control of the message is at the core of online activities. An optimist would say that social media allows institutions to listen to citizens and adapt to their wishes and perspectives. But I fail to see how this is feasible. Already organizations are struggling to get their employees to adapt to the 24-hour-a-day commitment that is social media. When one press release online results in 10,000 comments, who will sift through these views and make an informed decision? Perhaps by 2020 organizations will have appointed a team to this task, but then they would really have to care about what citizens think. I'm not convinced that they do." – **Janelle Ward,** Erasmus University Rotterdam, the Netherlands

One major change will affect the relationship between amateurs and experts. Those with institutional back and authority will not necessarily be able to wield the power they once enjoyed in the face of empowered amateurs.

- "In the early 1980's pre-internet Guru Dave Hughes talked about the transformation of government through massive electronic person-to-person connections. He had me watch while two people debated the then big issue of MX missiles on his new electronic bulletin board (pre- Internet discussion forum). As a 'sysop' we could watch as each person typed in their arguments on the value of this new military technology. They knew nothing of each other, yet Dave knew and was a friend to them both. The guy losing the debate was a two-star General in the Pentagon in charge of the program. The guy winning the debate was a 9th grade student in Colorado Springs. In conventional ways they would never have spoken, or perhaps respected each others thoughts. Transparency changes people's behavior, especially government. Our new electronically interconnected age will improve government at all levels--although often stymied by existing government desires to control information and behavior." – **Ed Lyell**, former member of the Colorado State Board of Education and Telecommunication Advisory Commission

There will be new opportunities for people to interact with and influence all kinds of institutions, but only the "time wealthy" will really have the ability to engage the institutions. The digital divide will especially matter in this realm.

- "Institutions are in dire crisis. Most institutions (schools and universities, political parties and governments, enterprises, clubs and associations) were created to lower the costs of gathering information, engaging with our peers and taking decisions or perform some tasks. When these costs drop because of digital technologies, many institutions have to re-think where are they adding value and where not, having to be

able to get rid of the value-less activities they perform and concentrate in the ones that still make sense.

"But two major risks may arise from this situation. The first one is that to circumvent institutions, or to differently relate with them and the rest of the community, a new set of skills and, over all, time, will be highly required. Though new skills might be more or less easy to acquire (though they will certainly be a driver of exclusion), time will still be scarce and a major barrier for higher levels of participation and engagement. The second, and related with the former, is that time-wealthy individuals (or the ones that can "buy" time by "externalizing" other time-consuming activities) will take advantage of their power to dialogue face-to-face with the (new) institutions.

"The danger, of course, will appear when these individuals are not representative of the majority of the citizenry and/or only representative of small elites and plutocracies. Thus, lack of engagement by many and intense engagement by a few can lead up to the replacement of old institutions by new networks which will act as the previous institutions (i.e. concentrating power) but much less transparent and accountable because of their centralization." – **Ismael Peña-Lopez**, lecturer at the Open University of Catalonia, School of Law and Political Science

- "This is one of the few aspects of ICTs that I view pessimistically because the increasing interactivity of ICTs will exacerbate digital inequality. Social, political and economic organizations will become increasingly responsive. But the target of that responsiveness will be the online citizenry.   Increasing commercialization and intellectualization of content and tools will deepen the class-based digital divide. In many forums—social and economic as well as political—public opinion expressed through technology will have a louder voice. As democratic as this sounds, it may also leave those who are not online with no voice whatsoever." – **Jim Witte,** Director, Center for Social Science Research, George Mason University

The major change will come when 'digital natives' are in control of institutions. The timeline of change will stretch out longer than this question suggests.

- "Institutions take a long time to shift. I'm not convinced that any of the fairy dust we've manufactured to increase transparency and interaction is shifting businesses or government very quickly - most of the changes I've seen celebrated are quite superficial. I think by 2020, we're going to have a lot more people in power who are digital natives, and I think the shift will follow on their empowerment, but perhaps not by 2020." – **Ethan Zuckerman**, Global Voices
- "Institutional change is slow, but networked communication media have already permeated government and business. As more people who are accustomed to using these media collaboratively begin to assume positions of power in institutions, change in the way institutions operate will begin to take place -- just as we saw with the entrance of the PC and the Internet in the 1980s and 1990s." -- **Howard Rheingold,** author of several prominent books on technology, teacher at Stanford University and University of California-Berkeley

- "Primarily but not entirely. There will be many more examples of companies and governments that "get it." I just don't think in 10 years we'll see a critical mass of changeover. Institutions don't change that quickly. Inertia is powerful, and it takes time for enough people to turn over." -- **Kevin Werbach**. Assistant Professor of Legal Studies and Business Ethics at The Wharton School; founder of Supernova Group
- "By 2020 I don't expect much change in mainstream organizations. There will be some influence from new, younger employees, but current economic situations suggest entrenchment in most large organizations. 2020 is too early to see major change. However, new, smaller organizations may arise that are better able to be Web 2.0 or Web 3.0 companies, taking advantage of an Internet way of doing business." – **Caroline Haythornthwaite,** professor in graduate school of Library and Information Science, University of Illinois at Urbana-Champaign
- "Institutions will be the last bastions of traditional communication. Their sheer size and stiff functional alignments make them incredibly difficult to change. The government will be the absolute worst as they have proved time and time again by choosing inefficiency over simplicity. I don't believe there will be hope for substantial change in institutional cooperation until Gen Y is fully in control of the institutions, assuming power and status quo does not corrupt them before such time. Any change will bubble up, not trickle down." -- **Karen Renzi**, co-owner, Beyondus Design & Marketing
- "Government bureaucracy and institutional systems are driven by human beings who will continue to make human mistakes. Mistakes like overzealous subjective decisions about what constitutes art (see: http://eurekadejavu.blogspot.com/2009/12/us-berlin-wall-against-cultural.html) will not be prevented by online cooperation because ultimately a single person or persons will be called upon to make a decision. Bureaucracy exists on some level to prevent human error, when it often protects it. The massive scale and need for control that government and bureaucracy require will prevent collaborative, cooperative reform from happening by 2020. See Al Gore's Reinventing Government." -- **Joshua Fouts**, Senior Fellow for Digital Media & Public Policy at the Center for the Study of the Presidency & Congress
- "Unfortunately I am a pessimist that institutional change will come so quickly. I believe it will take at least 20-30 years before such radical transformation occurs, from industrial to network models. Demographics is the driving factor, in my opinion. Institutions will not change until their leadership radically changes. Boomers and early Gen X'ers will still be in leadership positions through 2020, and they were largely socialized and accustomed to industrial/20th century institutions. I think the first leadership cohort of 'institutional changers' will be those who were in their early 20s by the mid-to-late 90s, who got enough online socialization to trust the organizational possibilities of technology to 'flatten' organizations, moving away from hierarchies and toward networks. If most leaders don't emerge until their 40s (especially true in large orgs and government), then we should see major transformations begin to start on the margins this decade, but not really scale until the 2020s."-- **Paul DiPerna,** researcher and editor, Foundation for Educational Choice

Efficiency and responsiveness are not the same thing. This challenge to traditional institutions is a real test for the direction of the internet's impact.

- "I find it hard to make the above choice since it is not the real choice. For example, online education can be an instructor with a small class of 30 students using collaborative learning methodologies to increase the quality of learning way beyond what can be done in face to face classes for three hours a week. Or it can be one instructor with a thousand students and 25 graders where there is no collaboration and just polished lectures and multiple choice exams to do a lot worse than a decent instructor in a face to face classroom. One approach emphasis the quality of the product and the other emphasizes the efficiency. Currently efficiency seems to be winning out more than effectiveness or quality. How we design and use systems to things like learning, responsiveness of government, employee functionality, etc will be the determining factor. Even you don't recognize that 'efficient' and 'responsive' are often in conflict and unless you factor in the cost to the persons one is being responsive to, the decision to cut internal costs to make it more efficient, will always win out." -- **Murray Turoff,** Information Systems Department, New Jersey Institute of Technology, Distinguished Professor Emeritus and Consultant
- "This is the real test of the Internet. We may be forming more rich associational modes that will enhance democracy or contribute to the gridlock of major political institutions which was not caused by the Internet but by the dominance of entrenched interests, gerrymandering, and other factors. Can the Internet take us in a new direction?" – **Jerry Berman**, chair, Center for Democracy and Technology

The release of more public data could be the most significant driver of change – and local activity might be the leading edge. Citizens will expect to have direct access to the data and information they need.

- "There has always been a difficult separation between citizens and government - and consumers and corporations. Government has tended to be a strange land, and citizens needing to interface with the government have required intermediaries. However, as information has gone online and become structured in more compelling ways, the ability of the public to interface with government without an intermediary increases. To get the news, we use to have to listen to the local news station; now we can go to NOAA directly, and download NOAA data into Google Earth. Increasingly we will be able to track the actions of government based on Web 2.0 tools. Intermediaries will still have a role, but for more select, difficult requirements such as analysis. Governments and corporations will find it more difficult to hide behind the legacy chasm separating them from the public." – **Robert Cannon,** senior counsel for internet law at Federal Communications Commission
- "How did Amazon.com, a start-up, defeat BarnesandNoble.com in 1994? They sold the same books, had the same publisher descriptions, etc., but they published user reviews and evaluations. That explicit user input, and input 'mined' implicitly from user browsing and purchasing habits, differentiated Amazon. As the Clue-Train Manifest

stated, markets are indeed conversations. Similarly, organizations which better serve and respond to the complaints, praise and suggestions of users will have a competitive advantage. At the policy level, the current US administration is committed to transparency and conversation with respect to public policy (http://cis471.blogspot.com/search/label/politics), but it is not yet clear that we can invent tools for effective collaboration among very large, general public groups (http://cis471.blogspot.com/2009/02/recoverygov-is-web-10-stimuluswatchorg.html). I do believe that during the next ten years, we will see significant increases in the online publication of government data along with tools for accessing, analyzing, presenting and summarizing it -- the sort of thing the Sunlight Foundation is pursuing (http://www.sunlightfoundation.com/). Perhaps the biggest impact of social networking on political decision making will be at the local level where smaller groups are collaborating and issues are more focused." -- **Larry Press,** California State University, Dominguez Hills

- "It is insane for government, industry (especially the health care industry) not to use technology to organize, maintain and make use of large bodies of data. Amazon would be my model. I am certain that businesses will adapt to data technology, and I hope governments, from local to federal, will make more effective use of available and new tools. I am very discouraged when I see large government entities (see California) make very expensive investments in systems that don't work, and I suspect such incompetence is a function of upper-level bureaucrats who don't know what they are doing technologically or political favoritism. These tools have major potential for much greater efficiency and job creation." – **Jack Hicks,** professor, University of California-Irvine

- "As of 2009, sites like Data.gov and organizations like ProPublica are making government databases available to everyone. People are beginning to understand the need for transparency and the technological ease of making this information available will continue to make it more difficult for government and non-government organizations to justify not making information available. Politicians who oppose transparency will find themselves in the minority, dinosaurs unwilling to embrace the wave of the future: democracy 2.0. These demands on government will create expectations for non-government institutions and organizations, who will have to meet these demands in order to remain in business." – **Jamie Wilson,** writer, journalist and web application developer

Organizational embrace of technology solutions can sometimes be a step backwards. Think: telephone trees.

- "Not so sure about this one. As they say, change is the only constant, and we have already seen considerable change in the ways in which institutions relate to individuals; it is just not clear that efficiency or or responsiveness is what we will see. Just think about automated telephone systems for customer service: Is that responsiveness?" -- – **Oscar Gandy,** emeritus professor, University of Pennsylvania

At the end of the day, humans are still in charge of institutions and their attitudes and behaviors will dictate how those organizations are run.

- "I envision that many organizations will move far beyond where they are today based on the technologies that are available. The challenge for any business is to see the value in moving to a new technology and having individuals within the business who see the opportunities and push the majority. I would disagree that ALL will do this and I would disagree with your choice of the use "responsive" because at the end of the day, the internet and the technology that is there is but a tool. The individuals behind the tool have to be responsive -- and if they have issues with doing that on the phone or via mail or even email, they will struggle with that no matter what the tool. Your questions ignore the human side of these issues." -- **Dr. Elaine Young,** Associate Professor, Marketing, Champlain College

**The final question: A triumph of networking or dashed hopes?**

- "I'm sure the survey designers picked this question knowing that its breadth makes it hard to answer, but in consequence it's something of a joy to explore. The widespread sharing of information and ideas will definitely change the relative power relationships of institutions and the masses, but they could move in two very different directions. In one scenario offered by many commentators, the ease of whistle-blowing and of promulgating news about institutions will combine with the ability of individuals to associate over social networking to create movements for change that hold institutions more accountable and make them more responsive to the public. In the other scenario, large institutions exploit high-speed communications and large data stores to enforce even greater centralized control, and use surveillance to crush opposition. I don't know which way things will go. Experts continually urge governments and businesses to open up and accept public input, and those institutions resist doing so despite all the benefits. So I have to admit that in this area I tend toward pessimism." – **Andy Oram**, editor and blogger, O'Reilly Media

About the Pew Research Center's Internet & American Life Project

The Pew Research Center's Internet & American Life Project is one of seven projects that make up the Pew Research Center, a nonpartisan, nonprofit "fact tank" that provides information on the issues, attitudes and trends shaping America and the world. The Project produces reports exploring the impact of the Internet on families, communities, work and home, daily life, education, health care, and civic and political life. The Project aims to be an authoritative source on the evolution of the Internet through surveys that examine how Americans use the Internet and how their activities affect their lives.

The Pew Internet Project takes no positions on policy issues related to the Internet or other communications technologies. It does not endorse technologies, industry sectors, companies, nonprofit organizations, or individuals.

URL: http://www.pewinternet.org
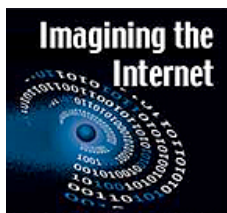
About the Imagining the Internet Center at Elon University

The Imagining the Internet Center's mission is to explore and provide insights into emerging network innovations, global development, dynamics, diffusion and governance. Its research holds a mirror to humanity's use of communications technologies, informs policy development, exposes potential futures and provides a historic record. It works to illuminate issues in order to serve the greater good, making its work public, free and open. The center is a network of Elon University faculty, students, staff, alumni, advisers and friends working to identify, explore and engage with the challenges and opportunities of evolving communications forms and issues. They investigate the tangible and potential pros and cons of new-media channels through active research. Among the spectrum of issues addressed are power, politics, privacy, property, augmented and virtual reality, control and the rapid changes spurred by accelerating technology.

The Imagining the Internet Center sponsors work that brings people together to share their visions for the future of communications and the future of the world.

URL: http://www.imaginingtheinternet.org

Methodology

The survey results are based on a non-random online sample of 895 internet experts and other internet users, recruited via email invitation, Twitter or Facebook from the Pew Research Center's Internet & American Life Project and Elon University. Since the data are based on a non-random sample, a margin of error cannot be computed, and the results are not projectable to any population other than the experts in this sample.