

Participation, Collaboration, and Community

The Role of the Network as the Platform

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Introduction

The years since the global financial crisis began in 2007 have been difficult for businesses and governments worldwide. From a public sector perspective, initial impacts are obvious: declining tax revenues, growing sense of urgency to cut programs (and difficulty in deciding which ones to cut), and increasing need for public assistance. Beyond the demands of crisis management and rising austerity is a growing and unsettling sense of vulnerability to powerful transitions associated with rapid demographic shifts, new threats such as cybercrime, and persistent implications of global climate change. For businesses, limited resources, financial constraints, macroeconomic uncertainty, and a lack of holistic regulatory frameworks are likewise curtailing efforts to ignite demand and economic growth.

The ability to navigate, at unprecedented scale and speed, complex and distributed communities (networks) of information, people, and things is key to developing effective strategies for resilience, innovation, and productivity. By tapping the power of these networks, people can quickly and effectively share ideas, expertise, and knowledge, encouraging richer levels of participation.

Increased use of pervasive, distributed information systems and, more important, the practice of co-development and co-production are changing the rules within government and beyond traditional state policies and governance boundaries. Citizens and community organizations are embracing bottom-up collaboration to achieve “public utility”—a benefit to society independent of hierarchies and controlling elites. This knowledge base of power and decision making is also becoming democratized, as technology augments social reach, increases social inclusion, and improves government transparency.

“The success behind companies offering digital services is a relentless focus on the end users, because they know that at a moment’s hesitation the user will switch if they can find a better service elsewhere. For a government to think like that and create products like that is a radical transformation.”¹

Mike Bracken
Digital Director, U.K. Government

To address resilience in a world of complex and distributed risk, governments must redefine the relationship between the center, where power and authority often reside, and the edge, where creativity and innovation ignite and flourish.

New Approaches to Participation and Democracy

Six key trends are reshaping citizen participation and democracy. Governments and communities can explore them to design, develop, and deliver better policies, regulations, and services:

1. Open data and the use of information for innovation and transparency
2. “Big data”—heterogeneous data sets and better methods for analyzing big data for major social, economic, and environmental challenges
3. Open innovation and peer production
4. User-centered design thinking
5. Value of networked place-making
6. Investments in trust through better engagement and participation among citizens and communities

Each is examined briefly, with real-world examples that illustrate their significance and potential impact.

Open Data

Open data is free data that anyone can share and combine in new and often unexpected ways, unlocking economic and social value.² Open data, which can translate to public sector transparency, is a powerful lever of 21st-century public policy. Open data enables accountability, improves outcomes and productivity, transforms social relationships, and drives economic growth.

Open data and transparency can create a platform for comprehensive public debate and citizen engagement. Providing access to public data—such as information related to education, healthcare, and transportation—enables individuals and businesses to transform public services and make new, serendipitous connections.

“The coolest thing to do with your data will be thought of by someone else.”³

Rufus Pollock
Director, Open Knowledge Foundation

Case Studies

Urban Data Sets. DataSF⁴ is a clearinghouse of data sets available from the City and County of San Francisco. The goals behind making the data sets accessible are to 1) improve access to data, 2) help the community create innovative applications, 3) understand which data sets are in demand, and 4) get feedback on the quality of the data sets.

Similar initiatives are under way in major cities, including New York,⁵ Vancouver,⁶ and London;⁷ in developed countries, including the United States,⁸ United Kingdom,⁹ and the Netherlands;¹⁰ and in developing countries such as Kenya.¹¹

Data Apps. Initiated in 2008, Urban EcoMap,¹² a collaborative effort between Cisco® and the City and County of San Francisco, is an interactive application that provides neighborhood-based environmental data on energy, transportation, and waste. Urban EcoMap helps San Franciscans reduce their carbon footprints by enabling behavioral changes in, for example,

home energy usage or transportation methods. Amsterdam has since adopted Urban EcoMap, and future versions are in development with several other cities.

DataSF App Showcase. Building on Urban EcoMap, the DataSF App Showcase¹³ is a collection of applications developed by individuals and organizations using data sets published by the City and County of San Francisco. *SFpark*¹⁴ and Mom Maps¹⁵ are two initiatives resulting from individuals and organizations having open access to city data.

Big Data

New insights, services, and applications develop rapidly when data sets from businesses, individuals, and crowds are connected. The growth in big data—data that exceeds the capacity of existing databases to manage and interpret—includes the rising importance of connected objects, or the “Internet of Things.” Interest is growing in using analytics to turn this often-hidden resource into a powerful tool that can enable identification of, for example, important trends in business, crime, or healthcare.

In his book, *What Technology Wants*, Kevin Kelly notes: “The manipulation, storage, and processing of information is a central theme of life.”¹⁶ Kelly argues that evolution uses information and knowledge to drive progress and creativity as much in the technical world (or “technium,” as he describes it) as it does in the natural world.

Economic and social value is realized by layering heterogeneous data to reveal new connections and meanings. In the European Union public sector, McKinsey Global Institute estimates that up to US\$418 million (EU€300 million) of economic value and 0.5 percent of productivity growth can be realized over the next 10 years through use of open and big data.¹⁷

Case Studies

Spatial Sensing and Decision Spaces. Many projects are under way that use sensors to collect data. For example, Cisco’s Planetary Skin¹⁸ provides real-time information about the planet, enabling organizations and governments to respond proactively to climate change and natural disasters. Other possibilities include embedding sensors into physical infrastructures such as bridges and tunnels, enabling city planners to monitor usage, evaluate developing problems, and diagnose responses.

Data Aggregation Platforms. Pachube¹⁹ is a platform-based approach to data management that connects people to devices, applications, and the Internet of Things. It facilitates storage, distribution, and discovery of real-time sensor, energy, and environmental data from a wide range of networked objects, devices, and buildings. Pachube illustrates the possibility of a consumer-oriented service for smart objects in addition to commercial applications—the platform has been used in the latest versions of Urban EcoMap with building owners, utility companies, home energy devices, and a smart parking lot pilot in Barcelona.²⁰

Open Innovation and Peer Production

In an open innovation model, organizations capture ideas—externally and internally—to create value within and outside the operation. At the extreme end is an open-source commons²¹ licensing model based on shared resources that represents a prevalent mode of economic production. The wave of innovation currently unfolding is based on mass collaboration and commons-based peer production.²² Under the circumstances of

1) modularity of information, 2) granularity of task, and 3) low-cost integration, peer production can provide an efficient method of production beyond the market or organizational hierarchy.

Peer production for commons or commercial use not only presents significant opportunities, but also some threats to existing market and organizational business models. The challenge for both public and private sector leaders is to determine the commercial impact of peer production and decide whether to drive disruptive change or exploit commercial opportunities. Applications of co-produced (consumer and business) initiatives include operational support, services development, community networks, and user-generated content.

Case Studies

Crowdsourcing with Cisco I-Prize. While prizes for innovation are no substitute for the expensive, painstaking R&D that is the lifeblood of many companies, they are a low-cost way of generating valuable ideas from around the world. The global community is a comprehensive resource for creativity and innovation. Given that, Cisco launched its I-Prize event in 2008.^{23,24} Born from Cisco I-Zone, an internal web-based workspace where employees can submit new ideas, I-Prize enables Cisco to tap the global community to identify major business opportunities. Participants can submit ideas in four categories: 1) future of work, 2) Connected Life, 3) new ways to learn, and 4) future of entertainment.

Crowdsourcing Countries. In February 2010, the Republic of Ireland, in partnership with Cisco, launched a global competition, “Your Country, Your Call,”²⁵ to find two ideas that would transform Ireland’s economy by creating jobs and opportunities. Participants submitted proposals online in nine different categories.

Following the Arab Spring protests—a series of demonstrations across the Arab world that began in December 2010—network-enabled citizen activism has reached new levels. In Egypt, for example, citizens provided input for a draft of a new constitution using the Wathiqah²⁶ platform from Cloud to Street.²⁷ The platform was a result of a “hackathon” at Stanford University.

In the Republic of Iceland, following the start of the global financial crisis, a new constitution was needed to ensure that such crises do not reoccur. The draft proposal, submitted to the Icelandic Parliament for review and developed outside the standard political process, has been crowdsourced online at <http://stjornlagarad.is/english/>.

Cloud Services in Busan. In South Korea, the city of Busan’s “Green u-City” vision is a combination of green-growth initiatives and information and communications technology (ICT) infrastructure based on Busan’s “u-City” model.²⁸ In u-City, ICT is integrated into housing (home automation), economic, transportation, tourism, safety and security, environmental, and other city infrastructures and systems, putting more power of choice into citizens’ hands so that they can select better options for greener ways of living.

Crisis Commons. Response from the Humanitarian OpenStreetMap Team²⁹ following the Haiti earthquake in 2010 is a remarkable example of what is possible when volunteers, open-source software, and open data intersect. Haiti was a country with ineffective maps, a situation that presented challenges to relief efforts. Web designers, network engineers, and

IT specialists created a mapping platform so that relief agencies working on the ground could easily access expertise and knowledge.

Mapping “Informal” Communities. Kibera, the largest slum in Nairobi, Kenya, was a blank spot on the map until November 2009, when young Kiberans created the first free and open digital map of their community. Map Kibera³⁰ has grown into an interactive community information project where citizen “mappers” provide geotagged local information to increase awareness and representation of Kibera’s neighborhoods.

Economic Production. San Francisco’s Quirky, Inc.³¹ combines global social networking with product development. People submit their ideas and, for a fee, receive feedback from the Quirky community. Ideas are sometimes chosen for prototyping, and some make it to the marketplace.

User-Centered Design Thinking

People and communities are at the heart of the way cities are designed, managed, governed, and renewed. Investors, policymakers, city designers, and builders often disregard social perspectives on urban sustainability. Designing with users in mind and including them in the community design process typically encourages higher levels of engagement, ownership, and participation.

User-centered design is important, whether for transportation, healthcare, and education applications or services, or for specific social groups. Many public/private institutions, however, are not asking the right questions when it comes to such design. For example, is transportation just a transactional process for getting from point A to B? For specific groups such as commuters the question often is, “How can I access public services?” or “How can I work more effectively?” The real question, however, usually has to do with mobility and access, not transportation.

Case Studies

New Communities in Songdo, South Korea. Residents in Songdo International Business District can learn to cook a new dish or take a yoga class in the comfort of their homes.³³ A managed services company called u-Life Solutions will soon deliver Smart+Connected Community services over the Cisco Unified Service Delivery platform.³⁴ Such Smart City solutions comprise advanced home networking systems and Cisco TelePresence® ultra-high-definition video collaboration conferencing technology. The solution will also enable residents to control lighting, air conditioning and heating/gas systems, curtains, and other home elements using touchscreen wall pads, mobile remote controllers, smartphones, computers, and tablets. Songdo anticipates that this user-centric master-planning model will increase connections among citizens and benefit investors.

Renewing Barcelona’s 22@District. Since its beginnings in 1992, Barcelona’s ongoing transformation from an industrial economy to a productive and profitable knowledge-based economy is becoming evident in suburban areas such as 22@District. The district is part of the city’s “Barcelona 2020” vision, an initiative that uses technology as an enabler to help transform Barcelona into a blueprint for modern urban development. Previously the heart of the Barcelona industrial area, 22@District is now home to new, innovative companies and a “living lab for new infrastructures and services,” said Barcelona Mayor Jordi Hereu.³⁵

Wisdom, Wealth, and Well-Being Program.³⁶ The belief that communities have huge, untapped potential is the key driver of this program, developed by Cisco, across communities in Europe and the United States. Its people are a major asset, with the 45-to-65 age group a fast-growing and powerful cohort. Examples of user-centered design thinking include Cisco partnerships with Cornwall Council and Torfaen Local Council Board, both in the United Kingdom, to develop initiatives that reveal citizens' motivations and needs, while enabling community participation.

Networked Place Making

Place making is the process of creating physical places that attract people, such as parks and plazas. Today's environments include creative clusters and incubation centers in urban spaces, which serve a latent need in the marketplace to form places that stimulate creativity and innovation. By creating vibrant, organic, and physical environments, social innovators, new-media experts, artists, makers of physical outputs, and entrepreneurs can live, work, connect, and incubate ideas.

The convergence of place and technology is creating a new type of innovation—one that is multidisciplinary, global, and local. The seamless merging of physical and virtual environments with cloud-enabled platforms, presence-based systems, social media tools, high-speed broadband, and gaming platforms grounded in well-designed urban “places” creates, in effect, an incubation environment without walls.

Networked place making is central to enabling a new generation of disruptive and participative innovation. It provides a social environment that extends physical boundaries to distributed virtual clusters where knowledge, expertise, initiatives, and human networks can be accessed and shared.

Successful places exist in vibrant urban neighborhoods, suburbs, and towns, and in city centers and hubs. Improving the social life of cities,³⁷ however, must result in changes that people can see and experience.

Case Studies

5M Project. The 5M Project is a four-acre multi-phase, mixed-use development project in downtown San Francisco. It is designed to encourage collaboration for the creation of a successful environment that ultimately will enhance the city's potential and become an urban model for strengthening the community and growing the local economy. Launched in January 2011, the project's goal over the next 10 years is to become a mix of low-, mid-, and high-rise buildings for office use, housing, public spaces, and community venues. Today, 5M provides a range of flexible, networked environments for different types of work. Artists, “makers,” students, change makers, entrepreneurs, techies, local food purveyors, non-governmental organizations, residents, businesses, and other community representatives can share resources, knowledge, programs, connections, and infrastructure.³⁸ Thousands of people use 5M not only to exchange ideas, but also to prototype and test new designs, attend inspiring events and workshops, launch companies, source funding, and access new markets. Tenants (including Twitter's founders) research and co-create ideas for new ventures with social entrepreneurs at co-working spaces such as The Hub³⁹ and Tech Shop⁴⁰ (two of 5M's partners).

Studio-X. Initiated by Columbia University, Studio-X is a place to invent, test, and celebrate new ideas.⁴¹ The global network of Studio-X spaces provides a new type of international workshop where the best minds from Columbia University can collaborate with cohorts in Latin America, the Middle East, Africa, Eastern Europe, and Asia. By day, Studio-X is an open and creative environment for workshops; by night, it's a social hub for intense debate and participative design. The first Studio-X was established as a pilot in New York City in 2008. Today, Studio-X thrives in Beijing, Mumbai (India), Rio de Janeiro, Amman (Jordan), and Moscow.

Toronto Waterfront. A consortium of state, federal, city, real estate, and citizen stakeholders is revitalizing the long-neglected Toronto waterfront.⁴² The project combines innovative approaches to sustainable development, urban design, and advanced technology infrastructure. The project's goal, in part, is to provide ubiquitous and pervasive broadband, fiber to the home, and a living lab to enable next-generation physical places where talent, industry, capital, and innovation come together. Businesses located in this new cluster (healthcare, media, gaming, education, intelligent buildings, sustainability, and others) utilize the networked ICT foundation, which enables citizens, government, and the private sector to build applications over a common virtual platform.

Community and Trust

In an increasingly global and knowledge-driven economy, organizations must make decisions based on trust—among employees, external partners, and the general public. Knowledge, insights, expertise, and investments necessary to anticipate and respond to new risks and opportunities are widely dispersed throughout society. Therefore, entrepreneurship and the ability to find and connect distributed resources are key. Entrepreneurs in the private/public sector or social enterprise will spark new thinking and practices, fueled perhaps by frustration or lack of progress in trying to solve a problem for a particular community.

Trust is central to a new age of public service engagement. How can the public sector engage citizens when cultural norms and pervasive network technology are changing the way services are consumed? A tacit contract must be forged among institutions, businesses, and individuals regarding the use of data sources. Too often, people are asked for personal data when engaging with organizations, without any feedback loops that illustrate how the data is being used, let alone how it can benefit individuals and communities.

An increasingly networked world makes it easy and attractive for people to engage and contribute. Societal resilience relies heavily on the widespread capacity for authentic collaboration, making it easier for people to discuss, share, and debate for the common cause. Resilience implies that we have access to the right tools and platforms, and familiarity with social norms of pervasive connectedness and standards of quality. There are promising new examples of systematic ways to provide a resilient outcome, including open data, innovation competitions, and crowdsourcing tools.

Case Studies

Citizen-Led Network. Harringay Online is a citizen-led network focused on the Harringay neighborhood⁴³ in the London borough of Haringey.⁴⁴ The site aims to 1) build a sense of place in the neighborhood; 2) build social capital, networks, norms, and trust that enable

people to act together; 3) empower locals to take action in shaping their neighborhoods; and 4) engage people in local democratic processes.

NATO Policy Jam. In 2010, when NATO conducted its first “policy jam,” 4,000 people in more than 120 countries engaged in a facilitated conversation over five days to identify priorities and initiatives for a new strategic policy framework. This method of using pervasive connectedness to provision assets/service capabilities and respond to people’s inherent behavioral patterns is characteristic of effective government and a modern public sector.

Preschools for Toddlers in India. Entrepreneur Madhav Chavan pioneered a simple, effective way to help young women in Mumbai’s poorest areas set up preschool centers in their own homes. With basic training, minimal rules and structure, and incentives for quality and growth, Pratham⁴⁵ preschools have grown in scope and geography, reaching out to millions of Indian children in rural and urban areas.

Online Volunteer Community for Live Mapping.⁴⁶ Through a partnership between the United Nations and The Standby Task Force, a community of software developers and other technologists can quickly develop platforms to which people and organizations can post information during disasters or emergencies. Within a couple of days, a solution can be up and running for gathering and presenting easily accessible, real-time intelligence about rapidly changing conditions. Recently, this approach has been applied in Haiti and Libya.

Keeping Tabs on the U.K. Parliaments and Assemblies. Built by a small group of volunteers, TheyWorkforYou⁴⁷ is a prime example of a useful application that engages citizens in holding local authorities accountable and for promoting citizen engagement.

Role of the Network as the Platform

The trends discussed in this paper illustrate how transitions in technology have transformed the way people interact, with both the world and each other. However, intensive networking, which has enabled new and powerful ways to connect and innovate, has spawned its own challenges, resulting in a deluge of data that often is not matched by a similarly rising capacity to discern, interpret, and act effectively. More important are omnipresent cyber security and related privacy issues. Therefore, it is critical that interconnected infrastructures and services provide the platform for a resilient, innovative society.

Connecting for Resilience

The ability to connect highly distributed networks of people, expertise, and assets for common and shared action is becoming critical in a world of transitions and turbulence. Socio-networked resilience is key to a new organizing principle for how the network intermediates, facilitates, and increasingly leads human interactions. Socio-networked resilience is an idea that combines two dimensions: 1) the traditional approach of “bouncing back” from adversity and unexpected shock or emergency, and 2) the less-traditional notion of “bouncing forward” to anticipate, prepare for, and, as far as possible, avoid the worst excesses of the next disruption.

A Networked Sandbox

Innovation and community participation are enabled through public-private vehicles, providing an experimentation “sandbox” for new models of collaboration. Networks and related IT systems—including sensors, data centers, and IP-connected devices—provide a

solid, secure, and reliable infrastructure over which individuals, businesses, and governments can deliver innovative, scalable solutions (applications, services, and new business models) that address challenges and help form resilient communities. In this way, government and enterprise become enablers of public value creation through multi-stakeholder public-private partnerships. Furthermore, network investments through public and private means provide the foundation for civic operations, service delivery platforms, citizen applications, and open innovation.

Call to Action

In addition to the ideas discussed in this paper, there are three key actions public and private sector leaders and individuals can take to achieve economic, social, and resilient outcomes:

1. **Design, build, and test** new systems, platforms, practices, and provisioning processes so that governments and communities can learn the practice of “connectedness.”
2. **Grow and nurture communities of influence and practice** (thinkers, practitioners, senior public leaders, innovators, and entrepreneurs) to encourage discussions on and the practice of open and connected governance models.
3. **Monitor and measure** the transition to multi-stakeholder, participatory innovation and understand how governments and public sector institutions are performing as they combine innovation and productivity in the search for resilience.

Turning the networked society concept into practical initiatives that governments and communities can adopt relies on 1) new business and organizational models for innovation and productivity, and 2) new approaches to analyzing the interactions among data connections, applications, and communities to achieve resilient outcomes. An open and organic governance model is crucial to the success of public-private sector partnerships and co-creation initiatives. Rather than prescribe how data, collaboration, and the network should be utilized, governments must enable others to engage and participate. The challenge is in designing a framework that encourages serendipitous connections. Therefore, technology and governance models must place citizens at the center—designing services with *their* needs in mind and engaging them in the design and innovation process.

Further perspectives on public sector innovation are provided at:
<http://www.cisco.com/web/about/ac79/ps/index.html>

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