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Big Data's Big Future — But for Whom?

When we ponder on the future, scenario-based planning is one of a number of approaches we can employ to consider the "what-might-be" possibilities. These are plausible scenarios that let us peer into the future, not with certainty of what will eventuate but with a spirit of consideration and preparedness.

Recently, Katina was invited to participate in Australia's Prime Minister & Cabinet series of workshops on the *state-society* relationship. A number of fundamental questions were posed at the workshops relating to *futures*. Some of these are highly pertinent to the thought-provoking Special Section guest edited in this issue by the studious Associate Editor Jeremy Pitt, Ada Diaconescu, and David Bollier, addressing matters of the digital society, big data, and social awareness. The questions included:

1) What can *governments* use crowdsourcing for?
2) How does *government* operate in a networked environment?
3) Can Big Data help *government* solve problems?
4) How will *government* respond to the empowered individual?
5) How can *governments* effectively manage cities to meet the challenges of urbanization?
6) How will the *government* communicate with its citizens given instant communications?

To some degree answering one of these questions provides insights into answers for others. For the purposes of this editorial, we'd rather ask:

1) What can *citizens* use crowdsourcing for?
2) How can *companies* effectively manage cities to meet the challenges of urbanization?

It should come as no surprise that in the last 12 months, *T&S Magazine* has published articles on a variety of themes relevant to the above-mentioned questions, relating to smart grids, smart homes, smart meters, energy monitoring, public technical means, public sector information, open government, big data, geosocial intelligence, the veillances (*data-, sous-* and *uber-*), future government, crowdsourcing, collective awareness, participatory government, and design science and development.

What binds all of these topical themes together is the emphasis on finite resources available to serve a growing highly mega-urbanized networked *glocal* population that places immense pressures on the natural environment. Take for example the Beijing-Shanghai corridor fueled with several megacities that are each suffering dire environmental problems. Scientists internationally have especially attempted to raise alarm bells as they report on increases in carbon emissions and air pollution, on rising sea levels (e.g., Jakarta), on changing weather patterns (El-Niño), on dying species of plants and wildlife, on the need for recycling and unacceptable means of waste disposal (especially e-waste), and on the fundamental necessity for clean drinking water.

There is no such thing as the "land of plenty." Pristine artesian wells are being drilled as a last resort to supplying water to the impoverished. Oil reserves are fast depleting but stockpiles are in the hands of the accumulators. Rich minerals like coal and iron ore are being mined amidst a flurry of research activity into affordable renewable energy sources. Categorically our present actions will have a direct impact on our livelihoods (economic, health, social), and those of our children, and our children's children.

But we are living in the "upgrade generation" fueled by mass production, instantaneous consumption, and enough waste generation to land-fill entire new nations. The core question is whether technology

PetaJakarta.org team survey damage along the Cili-wung River using GeoSocial Rapid Assessment Survey Platform (#GRASP) via Twitter, as neighborhood children look on.

can help solve some of the biggest problems facing our earth or whether the rhetoric that says using technology to correct economic externalities is a misnomer.

Let us ponder on the affirmative however. What role can big data play in civic infrastructure planning and development? Can citizens contribute data via crowdsourcing technologies to help service providers and government have better visibility of the problems on the ground?

For example, in the Chinese megacities that have emerged, capturing data that indicates where there is a pressing need for cleaner drinking water is imperative for the health and welfare of citizens. Doing this systematically might mean that citizens contribute this knowledge via a text message or through the use of social media, giving municipal and provincial governments and specific agencies in charge of waterways, such as environmental protection authorities, an ability to better plan and respond in a timely manner.

Similarly, if we can monitor zones prone to flooding that affect tens of millions of people, we might be able to lessen the burden on these citizens by informing civil infrastructure planners in the government to respond to the underlying problems perpetuating the flooding during monsoon season. Refer here to the work of Etienne Turpin and Tomas Holderness of the SMART Infrastructure Facility www.petajakarta.org. Here citizens send a text message using Twitter, some with location information and others with photographs attached, allowing partner organizations such as NGOs to get a complete picture of trends and patterns at a dwelling level, and collectively assess areas of major concern affected by *banjir* (i.e., floods). Is it possible to use this data to drive change?

Socio-technical systems in their purest form are there to fulfill user-centered aims, and not to act against an individual's freedom and human rights. Will we be able to convert the present senseless surveillance fueled by mega-companies and governments to a net-neutral opt-in detection and alert system toward access for basic needs and longer term sustainability for communities far and wide? At what point will citizens be able to donate their mobile and Internet and general utilities data without the risk of potential harm to themselves and their families? Or are we blindly being led down a utopian scenario that will ultimately be used to control or manipulate the masses even further?

Additionally, what will be the repercussions on private enterprise? To date utility companies have been taking advantage of their own inability to offer services that run on efficient energy redistribution to their subscribers. Of course it has never been in their best interest to "rob from the rich to feed the poor," precisely because by offering this kind of redistribution, utilities companies would negatively be impacting on their bottom line. What will all this big-data achieve? An ever-greater ability to scrutinize the subscriber, based on smart meter data, in order to generate even more revenues for private companies who have taken on once government-based responsibilities.

We must not be myopic – big data can be used *for us* or *against us*. This issue presents the positive value of "collective action," a fundamental ability to commandeer resources together, often self-organized, toward the benefit of our community at large. This is not a new phenomenon but with the aid of technology, both data collection and analysis have become possible at granular levels of detail. It is up to us to anticipate the risks associated with such engineering design principles, and introduce safeguards that will make such an approach work.

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