

Transformation 2.0 for an Effective Social Strategy

MIKAEL HAGSTRÖM, SAS

In addition to its impact on our pocketbooks and wallets, the global economic crisis has undermined our confidence in many of the organizations to which we traditionally turn for leadership, support, and assistance in troubled times.

We are all familiar with the problems: high levels of unemployment, increased need for public services, aging populations, rising budget deficits, falling tax revenues, and political divisiveness. Pulled in several directions at once, governments and organizations are hard pressed to mount effective responses to the many urgent challenges facing them. These issues, while largely confined to Western economies, are also affecting many developing countries and hampering the growth-centered policies of a number of nations aspiring to play a larger role in the global economy.

Government agencies, departments, and ministries tend to respond to volatility and uncertainty in three general ways.

First, there are those with knee-jerk reactions, who respond by halting programs or instituting cutbacks to alleviate anxiety, even when those actions adversely affect service levels for citizens, increase unemployment, and negatively impact the country's competitiveness.

Second, there are those who take a wait-and-see approach and operate as though it is "business as usual," waiting for a return to "normal." What they are not acknowledging is that the current times are the new normal, and that the old times will not come back.

Third, there are leaders and organizations who view this moment in history as providing a prime opportunity for building a stronger future and preparing better systems for supporting the needs of citizens in a rapidly evolving global economy.

It is in this third group that we place our hope. Among the members of this group are the visionary leaders and thinkers who actively promote innovation and transformation as essential components of comprehensive solutions. They see the potential of leveraging newer technologies to improve the lives of citizens and strengthen the bonds of society. In a way, they are the true natural supporters of the information and communication technologies (ICT) Transformation 2.0 agenda.

In this chapter, we will refer to many government and public-sector agencies from around the world that fall into this third, forward-looking category. But first we will touch on the history of analytic decision making and discuss its evolution in the public sector. After providing an inspirational list of examples, we will conclude by helping envisage a future where data-driven decision making can play an important role in transforming governments and societies. Our goal is to inspire readers with these ideas and proactively work to leverage analytics as the doorstep to the digital age.

Box 1: Understanding where to improve

For governments to tackle the monumental changes they face, one must gather, identify, and get insight into different roads to improvement. Looking at static reports and doing things the way they were done before is moving backward. Improvements should result from the following approaches:

1. *Reduce non-core tasks.* Outsource where you can: examples include road building, facilities improvements, communications, and computer hardware.
2. *Improve tasks that cannot (or will not) be outsourced.* Such tasks include managing inspection agencies and introducing new, horizontal tax-collection principles.
3. *Invest in business case-like opportunities that generate new (indirect) income.* Examples include new areas of foreign investments as well as soft infrastructure improvements in labor laws or educational reform.
4. *Invest in business case-like opportunities that generate innovative new services.* One example is a 360-degree service for citizens with the local government as the front office.

These approaches can be used to improve healthcare, public safety, and quality of life—and many of the other areas discussed in the main text.

The evolution of data-driven decision making

Since the inception of the ICT age, data management has been one of its cornerstones. However, its place, role, and usage have evolved quite dramatically. The recent evolution of data management can be broken into three distinct periods. During the first period, the private sector largely drove the adoption of new technologies and processes for quantitative analysis. During the second period, the public sector began using analytic technologies and applied many of the lessons learned in the private sector. At the same time, the private sector intensified its efforts to leverage the increasing amounts of data being generated, captured, and stored.

Today, we are just embarking on the third period, in which both the private and the public sectors are investing heavily in analytic capabilities and driving the development of newer techniques and technologies, including high-performance computing, data integration, and complex event processing. In many areas, governments are realizing that, with the help of these technologies, they too can be a source of innovation and change—and they can partner with private organizations and their own citizens to transform society together.

Not every organization embraces change at the same pace. The reasons for resisting change are myriad, and many are deeply rooted in the human psyche. However, we are clearly at a point in history where newer technologies can help us fulfill our responsibilities as leaders in an increasingly complex world.

There is a clear consensus that one of the most significant traits of the Transformation 2.0 age is the exponential use of billions of sensors, computers, mobile phones, and other tools by private individuals, associations, corporations, and governments all over the world. These smart devices cover every possible aspect of our everyday lives. In turn they are producing a staggering quantity of data, largely exceeding the current storage capacity. Interestingly, a fair number of these data are the result of individual uses of ICT, which represents a clear break from the past. No geographies are spared by this trend. As shown by a recent study produced by TNS, “When looking at behavior online, rapid growth markets such as Egypt (56 percent) and China (54 percent) have much higher levels of digital engagement than mature markets such as Japan (20 percent), Denmark (25 percent) or Finland (26 percent).”¹

One of the key issues increasingly looming for the ICT community is the need to make sense of this data explosion, and, in particular, the need for governments and public institutions to rethink their policies and programs based on hard and undisputable data. Success in that field will ensure that the Transformation 2.0 agenda is a winning one.

The role of analytics in Transformation 2.0

For many years now, the science of data management has provided us with numerous tools for improving the way we make decisions, allocate resources, and monitor the progress of the projects and programs we undertake.

In the past, the major challenges of data management often centered on collection, storage, retrieval, and reporting. Now that these challenges have been largely overcome, the next logical step is extracting value from the data themselves. Or, putting it more bluntly, having data is nice, but using data is better.

Analytics—software and processes that effectively convert data into actionable insights—is poised to play an increasingly valuable role in the Transformation 2.0 era. Analytics enables us to transform mountains of data from meaningless bits and bytes into valuable information that we can put to work in a variety of ways.

Most important, we can use analytics to spot patterns and predict future trends with far greater accuracy than ever before. For many years, data management has been a backward-looking process. Thanks to analytics, data management is now a forward-looking process. To use a trivial analogy, data management has been like trying to drive your car while peering in the rearview mirror.

Now, with analytics, you can imagine driving your car while looking ahead through the windshield.

Analytics gives you the ability to see forward, peek into the future and make meaningful judgments that result in better outcomes. In times of constrained public spending and increased public pressures, we believe that analytics has a crucial role to play in that regard, notably for governments (see Box 1).

Data-driven strategies for a better world

Smart, sustainable societies need strategies that enable governments, nonprofits, and businesses to work cooperatively and productively. When these strategies are in place, the results are impressive: increased safety, a greater sense of well-being, and an improved quality of life for all citizens.

In the past, many of these results were achieved through various combinations of ad hoc programs and initiatives. The general belief was that even the most intractable problems could be resolved with the proper mixture of good intentions and adequate funding. But intuition, instinct, and gut feelings have proved insufficient for coping effectively with the challenges and complexities of modern societies. Globalization— together with economic, social, and political tensions— has placed intense pressures on governments, agencies, and nonprofits to accomplish more with fewer resources.

In a world whose needs are increasingly measured in gigabytes, terabytes, and exabytes, the ability to achieve results requires rational, logical strategies that are built on firm foundations of science and fact. Sorting fact from fiction is the natural role of the data scientist, a new breed of knowledge worker who uses sophisticated analytic techniques to crunch through mountains of data in search of the truth. We believe the data scientist will play an increasingly important role in the Transformation 2.0 age, mirroring the role of the programmer in the Transformation 1.0 period.

We look now at some specific examples of how advanced data analytics is helping organizations improve healthcare, reduce crime, improve public safety, and increase transparency into government services, among its other achievements.

Transformation 2.0 for healthcare

The Swedish healthcare system is often held up as a successful example of universal care. Today, continued healthcare reforms in Sweden focus on giving patients full authority to choose healthcare providers. Referred to as *free-choice reforms*, goals for these programs include improving access to care and providing better services for the amount of money spent.

To succeed, the reforms require new analytic systems for multiple stakeholders, including providers, politicians and officials, healthcare and social service payers, and patients. Each of these groups will benefit

from monitoring tools that assist informed decision making. The changes will also require county councils and purchasing offices to forecast healthcare needs, visualize the supply capabilities, compare outcomes at multiple medical facilities, and simulate that on new payment models. Healthcare providers will need tools for benchmarking and for visualizing where to establish new centers to meet unfulfilled healthcare needs. Politicians will need reporting solutions to review the overall effects of reform on areas such as patient satisfaction, financial effects, patient pathways throughout the system, care quality, and access to care. Ultimately, the success of a free-choice program hinges on the ability of patients to make informed choices about their healthcare and healthcare providers—and those choices will be enabled by analytics.

Transformation 2.0 for fighting drug abuse

As any public servant knows, the best efforts to help people in need often require cooperation from multiple agencies and organizations. When those agencies can share data in their efforts to solve problems, they can often make improvements more quickly and provide help to even more constituents.

One successful example is the London Borough of Croydon's Drug and Alcohol Action Team (DAAT), a multiagency effort that uses analytic software to achieve better results in its efforts to:

- get more people into drug treatment,
- reduce drug-related crime, and
- empower the local community to resist drug misuse.

In particular, analytics enables DAAT to deliver services more effectively and to target the borough's resources where they can have the biggest impact. As a multiagency public-sector partnership, Croydon's DAAT unites representatives from the local council, health service, police and criminal justice system, and volunteers. Analytics helps DAAT plan treatment modernization services that deliver effective treatment structures for substance misuse and ensure that the efforts of local agencies and cross-agency projects are integrated successfully.

Analytic software also helps DAAT to automate statutory "Green Reports" for the National Drug Treatment Monitoring System as well as key performance indicator reporting against national Home Office targets. As a result, operational effectiveness at the local level is improved by cutting administration time from over a week down to half a day.

Transformation 2.0 for tax collection

In its role as a tax collection agency, the Bureau of Internal Revenue (BIR) in the Philippines is an essential pillar of the nation's economy—it generates 70 percent

of the government's income. In the late 1990s, tax collection was in freefall, resulting in lower governmental revenues and higher budget deficits. To successfully fulfill its mission and to effectively turn around the tax revenue collection process, the BIR turned to analytics. The use of analytics helped the BIR improve tax administration by analyzing and processing a large number of transactions across sales and purchases of the entire taxpayer base. This project was called RELIEF (Reconciliation of Listing for Enforcement). During the initial implementation of the RELIEF project, the BIR experienced an amazing turnaround, achieving what amounted to a 400 percent return on its investment.²

The BIR also established the Revenue Watch Dashboard (RWD) program and the Local Government Unit Revenue Assurance System (LGU RAS). The RWD allows key officials at the BIR to continuously monitor the progress of collection, identifying any unusual pattern of tax declarations, long-running and unresolved notices, and audits. The LGU RAS is a web-based revenue-monitoring tool that provides data matching capability and uncovers intelligence through local government data. The system uncovers non-registrations, mis-declarations, under-declarations, non-filers/stop-filers, and fictitious identities. Both programs have received praise for increasing transparency into government activities while at the same time improving effectiveness.

Transformation 2.0 for international development

Powerful analytic software might seem a low priority for deeply impoverished nations, where safe water is scarce and electricity for computers is unreliable at best. But it could make all the difference in the world.

Under an innovative program managed by Statistics Norway, the country's central agency for official statistics, a growing list of underdeveloped nations receive analytics software for building and supporting statistical capacity, enabling governments to support the fundamental needs of their populations.³ Through its international development division, Statistics Norway has cooperated with sister organizations in developing countries for more than a decade and contributed to the development of their statistical systems and capacity building. This contribution involves strengthening the skills of individuals as well as developing the national statistical offices as institutions.

High-quality statistics contribute to economic growth, poverty reduction, good governance, democracy building, and international comparability. The partnership program offers low-income or low-middle-income analytics software, and Statistics Norway provides staff members to travel to the recipient country and remain on-site to provide the necessary installation and knowledge transfer so the statistics offices can identify their populations' needs and disseminate the information to

the necessary government, public, private, and nonbusiness organizations.

Five countries—Eritrea, Uganda, Albania, Malawi, and Moldova—have currently received analytics and are working with on-site Statistics Norway staffers.

Transformation 2.0 for energy management

In Eastern Denmark, the Elkraft System has the overall responsibility for the electricity supply. Electricity must be used at the same moment it is produced, or the surplus product goes up in smoke. Any imbalance can be expensive and, in the worst case, the reliability of supply is threatened.

Elkraft has 16 partners responsible for making sure that the consumption and production of energy remains in balance. Every day of the year, the partners must report planned consumption and production of electricity—including wind turbine power—to Elkraft. This forms the plan for anticipating power consumption and producing the right amount of electricity, hour by hour over a 24-hour period.

Several years ago, Copenhagen Energy was approved by Elkraft as a balance partner. Annually, Copenhagen Energy handles up to 3 terawatts per hour, corresponding to 3 billion kWh, or approximately 10 percent of Denmark's annual electricity consumption. The company relies on sophisticated data analytics to predict the next day's consumption of electricity hour by hour. Copenhagen Energy quickly recouped their investment because its newer analytics-based forecasting solution is faster, better, and less expensive than its previous system, which involved external forecasting services. In fact, the solution was up and running in just two months and forecasting accuracy has doubled.

Transformation 2.0 for disaster response

When disaster strikes, anything governments can do to provide aid quickly is a huge relief to citizens. Currently, the International Organization for Migration (IOM) is applying analytics to enhance efforts to help millions left homeless by the worst floods in Pakistan's history. The floodwaters, likened by the UN Secretary General to "a slow-moving tsunami,"⁴ started in the north of the country in early August 2010, and swept southward toward the Arabian Sea in a wave of destruction. The IOM provides displaced flood victims with tents, plastic sheets, blankets, and household items lost to the floods. It handles incoming flights of aid donations, receives relief items and ensures they clear customs. It also works with the government's National Disaster Management Authority alongside more than 40 local and international agencies to distribute aid to people most in need. The IOM is using analytics to better manage and share data with partner agencies providing emergency shelter. For example, the agency is developing a structured data repository that can handle such analyses as behavioral trends, forecasting, and creating multidimensional views

of data that can be shared with humanitarian and other UN agencies.

The innovative public-private partnership will explore additional uses of analytics and develop tools to aid in humanitarian disaster response worldwide. These tools could become the foundation of a valuable and freely accessible institutional archive of coordinated activities.

Transformation 2.0 for managing citizens' needs

Analytics will open the door to a new age in which governments and organizations function more efficiently, more openly, and more effectively to serve the needs of all citizens (see Box 2). Analytics can empower individuals, increase transparency, and create new opportunities in a rapidly changing world.

When we talk about that modern theme of improving citizen insight, we are not just talking about reports and figures. We are talking about using analytics to reveal true insight into the needs of citizens, with a focus on increasing efficiency without compromising effectiveness. Areas that can have the most impact on citizen insight include creating a single view of the citizen, providing the citizen with a coherent window into government functions and enabling individual, real-time interaction. For example, the People's Association plays an important part in Singapore's nation-building efforts. It creates opportunities for people from all walks of life to meet and form friendships essential to mutual trust and cooperation. By encouraging people to take ownership of their community, the People's Association brings people together to create a more cohesive and resilient Singapore. Because the People's Association offers such a wide range of community activities through a network of more than 1,800 grassroots organizations, the agency collects a huge amount of information about participants, such as the sorts of activities each of them enjoys as well as demographic information.⁵

Working with an enterprise-wide intelligence platform, the People's Association puts those valuable data to use for analyses that help the agency hone its community-outreach efforts.

Transformation 2.0 for public safety

Data integration is a key to public safety in the current world. Governments that can combine multiple databases to better understand crime are seeing real and fast impact on citizens' stability and safety, improving the trust that citizens have for them. The Gloucestershire Constabulary, one of 43 police forces in the United Kingdom, has used this approach to reduce crime and improve citizen trust.⁶

The data integration solution helps Gloucestershire to ensure the quality and accuracy of data; the insights gained inform the police force's management, governance, and performance. Recent results have borne out Gloucestershire's approach. When Her Majesty's

Box 2: Four ways to improve government transparency

Governments are under more pressure than ever to become more transparent, collaborative, and participatory—all traits seen as best practices for sound public finances, good governance, and overall fiscal integrity. The public, too, is demanding increased visibility into government decision making, particularly regarding where and how taxpayer money is spent—and with what results. If one can access timely, accurate, and relevant data, one can:

1. *Create a single version of the truth* by consolidating data from all relevant sources, cleansing the data and transforming them so that they are ready for analysis.
2. *Gain insight into the long-term economic impact of expenditures* and make better, more reliable decisions with large-scale forecasting and optimization.
3. *Clearly communicate the value and results of programs* by developing a performance management system that has meaningful, targeted outcome measures.
4. *Provide valuable insights and essential decision-support information* to stakeholders and policymakers by delivering accurate and timely reports on spending and program effectiveness.

Inspectorate of Constabulary assessed all 43 police forces in 2010, it highlighted the way Gloucestershire has reduced overall crime in the last two years, with notable success against violence and robbery, and achieved excellent detection rates.⁷ It also indicated that public confidence is improving, a finding backed by the British Crime Survey that showed an increase from 45.8 to 51.5 percent in the number of Gloucestershire people confident that their police and council were effectively dealing with anti-social behavior and crime.⁸

Transformation 2.0 for social network analysis

One especially exciting emerging area in analytics is that of social network analysis. By looking at historical data (contact information, addresses, telephone numbers, acquaintances, and referrals) associated with various types of transactions, investigators are able to recognize behaviors that might indicate fraud or other kinds of criminal activities.

Banks, for example, can use social network analysis to undercover patterns of fraud. They accomplish this by linking transactional data with demographic information—as well as the times at which the transactions

occurred—and creating a social graph that identifies communities or groups of connected people within the network. These communities could be friends or family groups who live in separate homes—or groups of individuals organized to commit fraud or money laundering.

In California, Los Angeles County is using social network analysis to identify fraudulent activities, enhance investigations, and prevent improper payments to those who would take advantage of the public assistance system. The solution detects suspicious activity and then prioritizes and routes the resulting alerts to the appropriate decision makers. The county uses social network analysis to uncover previously hidden linkages among participants and providers engaged in fraud to facilitate the investigation, capture, and display of key information pertinent to a case. The technology can actually detect and prevent fraud before it occurs by using patterns and characteristics associated with fraud to create models that score individuals on the likelihood they will commit fraud in the future.

Transformation 2.0 for improving quality of life

Organizations such as the Danish National Board of Health use analytics to provide better patient care at a lower overall cost—and to dispel potentially harmful myths quickly. The board uses an active information technology (IT) strategy in order to, among other things, give Danes access to statistical information on health and illness. The latest access point is a website where Danes can find statistical information relating to such subjects as hospital treatments, incidences of cancer, number of births, and causes of death.⁹

The board develops and uses a wide range of registers within the health sector that are used for health monitoring and planning, as well as research and administration. On the basis of the extensive data contained in the registers, the board compiles comprehensive health statistics that are now available online. Statistical information previously only appeared one or more times a year in publications on the Internet or in book form; now there is access to dynamic data around the clock. The information is developed and updated continuously. The users themselves are, to a large extent, able to define tables and determine the graphic presentation, or transfer the data to Excel spreadsheets and process it further.

Politicians and administrators are able to make use of the website as a tool for submitting important questions regarding the healthcare sector. They are able to screen local information in order to investigate why a particular illness pattern looks the way it does in their own part of the country. This can provide the inspiration for a particular effort locally if, for example, there is an over-representation of specific illnesses. Or one can view things from a financial angle and look at the connections between the hospitals' staffing and activity levels. The website makes it possible to create tables with regard to

relevant factors such as gender, age, geography, and diagnoses, among others. The website is also very user-friendly, and the objective is to make health data available to everyone, and not just specialists.

Transformation 2.0 for managing and mitigating climate change

The Hague in the Netherlands is using analytics to calculate the CO₂ emissions in the city and set strategies for reducing them. This is not as easy as it sounds. The Hague's council organization—in other words, city government operations—became CO₂-neutral effective as of January 1, 2010. As a town, The Hague wants to be climate-neutral by 2050. The interim objective is for emissions across the city to be reduced by 30 percent by 2020. These ambitions have been included in a strategic plan.

According to The Hague's Climate Policy Advisor, *climate-neutral* means the municipality will be generating 70 percent of its energy requirements in a CO₂-neutral way; the remaining 30 percent will be compensated for in The Hague Climate Fund. The council organization's emissions have been established using an energy and emissions management tool that is part of a larger sustainability management solution. Initial analysis of current energy usage amounted to 41,000 tonnes of CO₂ equivalents. This is an amount that cannot easily be eliminated or compensated for, and it was in fact an impossible task before the implementation of the analytics solution.

In some cases, the information for this solution was not exactly easy to come by. The fuel information relating to The Hague's 550 city vehicles was largely available via the lease companies, but these companies each used various different systems. The energy usage within the buildings was harder to map. Managers could supply only outdated, fragmented details in many cases, or the data were applicable to different years. What remained was a very rough estimate. Although the estimate was sufficient as a starting point, officials believe that unequivocal and reliable information was needed to effectively safeguard the project's progress. Robust data analytics is essential to this goal.

Acting on the data

Of course, the real objective of all these programs and initiatives is to improve the lives of citizens. Leaders strive to provide higher levels of safety, security, and well-being for the people who have placed their trust in them.

Analytics cannot replace judgment. Nor can it replace an innate sense of right and wrong. But analytics can help leaders and policymakers make better decisions that lead to better results for more people. The most important thing is not only to capture information and knowledge about citizens but also act on it.

Governments everywhere harness analytics to propel themselves forward into the digital age, and it is very encouraging to see more leaders becoming advocates for analytics and using this tool now to start building a better future.

There are also practical political reasons for using analytics: without the transparent view of effectiveness that data analysis provides, social projects are not understood as contributing to national and international progress. Without data that verifies program results, social projects can inspire internal competition for limited resources, and—in some cases—the projects themselves are seen as the proximate cause of social unrest and disagreement. Intelligent analysis can support civil stability by transparently showing progress toward mutual goals. When properly planned, tracked, and measured using advanced data analysis, projects can yield a much higher probability for success at significantly reduced costs. Advanced data analysis can help to remove the speculation, the assumptions, and the hidden reality in order to accurately evaluate the feasibility of a project and understand the critical role of human performance in its successful implementation.

Governing data in a Transformation 2.0 world

The rise of data science coincides with another phenomenon: the rapid convergence of cloud, mobile, and social computing. As more and more people use technology to interact with each other and with organizations, the data created by these myriad interactions will continue growing. Adding grid computing and super computers to the mix will only accelerate the arrival of a globally networked society that lives—virtually, at least—in the cloud.

Thanks to the growing ICT use over the past 30 years, data have become an intrinsic part of our lives. Web-based services for consumers, corporations, and citizens are growing extremely rapidly. Reports show that the global amount of data created, collected, and shared in 2009 grew by 62 percent. In 2010, it is estimated that 1.2 zettabytes have been created and shared.¹⁰ In 2020, this number should reach 35 zettabytes.¹¹

These vast quantities of data have different origins: commercial, personal, and governmental—but they represent only one of the catalysts for innovation. More than machines, data are at the core of many of today's business and personal real-time interactions. Entire business strategies are established around data to better run supply chain processes, fine-tune their pricing strategies, improve relationships with customers, calculate risks and fight fraud rings, or optimize maintenance cycles, to name but a few of their uses. The development of the so-called Internet of Things—the trend toward connecting objects to the web by tracking and sensor devices that log and transmit data in real time—will also contribute to the preeminence of data in the business world.

The exponential rise of social networking brings another dimension to this issue. Hundreds of millions of people worldwide use social networking sites on a daily basis, and the amount of information they post has largely contributed to the current explosion of data. The proliferation of mobile devices, from smartphones to netbooks, is adding to this situation as an increased number of these devices can be used as data points to support a number of applications, ranging from geo-location or determining an address to evaluating pollution levels.

New ways of using the existing global ICT infrastructure is reinforcing this trend. Cloud computing, for instance, is a powerful example of a service that allows data to be exploited seamlessly by organizations, independent of their size, their geographical location, or their reliance on a huge infrastructure. The role cloud computing can play to help emerging economies leapfrog to higher levels of technological and economic development is among the positive examples of cloud computing potential.

In this context of rapid technological evolution, which is such a crucial element for supporting global growth, the debate around data privacy is very much topping the agenda of policymakers and business leaders worldwide. In Europe, in the United States, and in organizations at the global level—such as the Organisation for Economic Co-operation and Development, the International Organization for Standardization, and so on—privacy principles, guidelines, and regulations are debated, or will soon be.

While there are no doubts that regulations and global guidelines governing data privacy must be in accordance with fundamental rights and civil liberties and reflect the current technological state of play, they also must foster the digital economy and its positive impacts for citizens, consumers, and society as a whole. Protecting privacy and encouraging the flow of global data are not exclusive objectives. On the contrary, they need to go hand in hand, so the maximum number of people can harness the possibilities offered by digital technology to make their personal and professional lives better.

Without adequate policies, strategies, and tools to manage increased flows of information through government, there is a risk of compromising the privacy and safety of its intended beneficiaries. The balance must involve citizen empowerment and engagement in the information life cycle.

Conclusion: Looking ahead

As we move forward into the era of transforming governments and societies, the possibilities afforded by new information technologies for collaboration, personalization, and productivity gains will continue to influence government thinking. Wikipedia, Facebook, and Google

are only a few of the many platforms now enabling many-to-many, bottom-up engagement, co-production, and innovation. These platforms are rich with information about citizens' needs, and ideal for working together to develop short- and long-term solutions to society's problems.

The Internet is increasingly becoming the central nervous system of our economies and societies. In this new world, the roles of citizens, businesses, and governments are shifting and the boundaries between state and society, government departments, and even citizen collectives and businesses are becoming increasingly blurred. Mobile Internet increases access and accelerates the pace of change. In such circumstances, perhaps the government is just a node in a network of actors who cooperate and collectively gather, provide, and exploit necessary information for these services.

There is an opportunity to reinvent government by intensifying its interaction with civil society, but government leaders need to ask themselves some fundamental questions about how they collect, analyze, and exploit data in this new world. We are only just beginning to realize the transformative potential of analytics in enabling social and economic innovation.

Analytics is not a panacea, but it is part of the solution. At a time of diminished resources, heightened expectations, and a seemingly inexhaustible supply of data, analytics can help us make the best of what we have.

The timing seems especially propitious for emerging and developing economies. Unlike their more developed cousins, these are not burdened by cumbersome legacy systems and aging infrastructures. Newer technologies (such as cloud, mobile, and social computing) can enable these emerging economies to leapfrog over older economies and leverage the potential of analytics to accelerate the pace of projects and programs in both the public and private sectors. As seen in the examples cited above, analytics can do more than just crunch numerical data—analytics can be used to plan, predict, model, monitor, evaluate, and optimize the multitude of processes and operations required to develop, launch, and manage large-scale projects successfully.

Some have said that what oil was to the 20th century, data will be to the 21st century. If that comparison is valid, then analytics is the refinery that transforms the raw material of data into something of tangible value.

Notes

- 1 TNS 2010.
- 2 FutureGov Asia Pacific 2009.
- 3 SAS 2009.
- 4 guardian.co.uk 2010.
- 5 SAS 2011b.
- 6 SAS 2010b.
- 7 HMIC 2010.

- 8 Ipsos MORI 2007.
- 9 SAS 2010a. See www.sst.dk.
- 10 A zettabyte equals 1 trillion gigabytes or 1,000 exabytes. To use a metaphor most consumers would understand, it would take 250 billion DVDs to store 1 zettabyte of data.
- 11 IDC 2010.

References

- Cisco. 2010a. "Cisco VNI: Forecast and Methodology, 2009–2014." *Cisco Visual Networking Index*, June 2. Available at http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-481360_ns827_Networking_Solutions_White_Paper.html.
- . 2010b. "Hyperconnectivity and the Approaching Zettabyte Era." *Cisco Visual Networking Index*, June 2. Available at http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/VNI_Hyperconnectivity_WP.html.
- FutureGov Asia Pacific. 2009. "How the Philippines Grew Tax ROI by 400 Percent." December 22. Available at <http://www.futuregov.asia/articles/2009/dec/22/philippines-bureau-internal-revenue-reduces-federa/>.
- guardian.co.uk. 2010. "Pakistan Floods Are a 'Slow-Motion Tsunami' — Ban Ki-moon." August 19. Available at <http://www.guardian.co.uk/world/2010/aug/19/pakistan-flood-ban-ki-moon>.
- HMIC (Her Majesty's Inspectorate of Constabulary). 2010. Police Report Card: Gloucestershire. Available at <http://www.hmic.gov.uk/PoliceReportCard/Gloucestershire/Pages/ReportCard.aspx?BCUID=0&ForceID=14>.
- IDC. 2010. "A Digital Universe Decade — Are You Ready?" 2010 Digital Universe Study. Available at http://gigaom.files.wordpress.com/2010/05/2010-digital-universe-iview_5-4-10.pdf.
- Ipsos MORI. 2007. *Anti-Social Behaviour: People, Places and Perceptions*. June. Available at http://www.ipsos.com/public-affairs/sites/www.ipsos.com/public-affairs/files/documents/anti-social_behaviour.pdf.
- SAS. 2009. *Transforming the Public Sector. Intelligence Quarterly Journal of Advanced Analytics*, Fourth Quarter 2009 issue. Available at http://www.sas.com/news/intelligence_quarterly/q409.pdf.
- . 2010a. "Danish National Board of Health Uses SAS® Activity-Based Management to Provide Citizens with Improved Health Care Services without Increasing Costs," March. Available at <http://www.sas.com/success/dnbh2.html>.
- . 2010b. "People First Policing: Constabulary Cleans Up Its Data and Gains New Intelligence," June. Available at http://www.sas.com/offices/europe/uk/solutions/customer_successes/GloucestershireConstabulary.html.
- . 2011a. "Social Innovation in the Public Sector." *Intelligence Quarterly Journal of Advanced Analytics*, First Quarter 2011 issue. Available at http://www.sas.com/news/intelligence_quarterly/q111.pdf.
- . 2011b. "People's Association: Singapore Agency Strengthens Communities with SAS®." Available at <http://www.sas.com/success/peoplesassociation.html>.
- TNS. 2010. "Global 'Digital Life' Research Project Reveals Major Changes in Online Behavior." Press Release. Available at http://discoverdigitallife.com/downloads/pdf/press-release/Global_Digital_Life_Press_Release.pdf.