

Paradigm shift within the government

*Redefining the relationship between
citizens and governments*



A government provides its citizens with a broad range of services that generate and require enormous amounts of data, frequently unstructured and more and more in real time. These data originate from a variety of sources: historical data, video, audio and mobile phone signals, sensors, social media, etc. From crime prevention to the mobility issue, from defence to national security, from budgetary control to social security: the economic, budgetary and social reality compels policy makers to offer better services for citizens and companies.

A transparent government

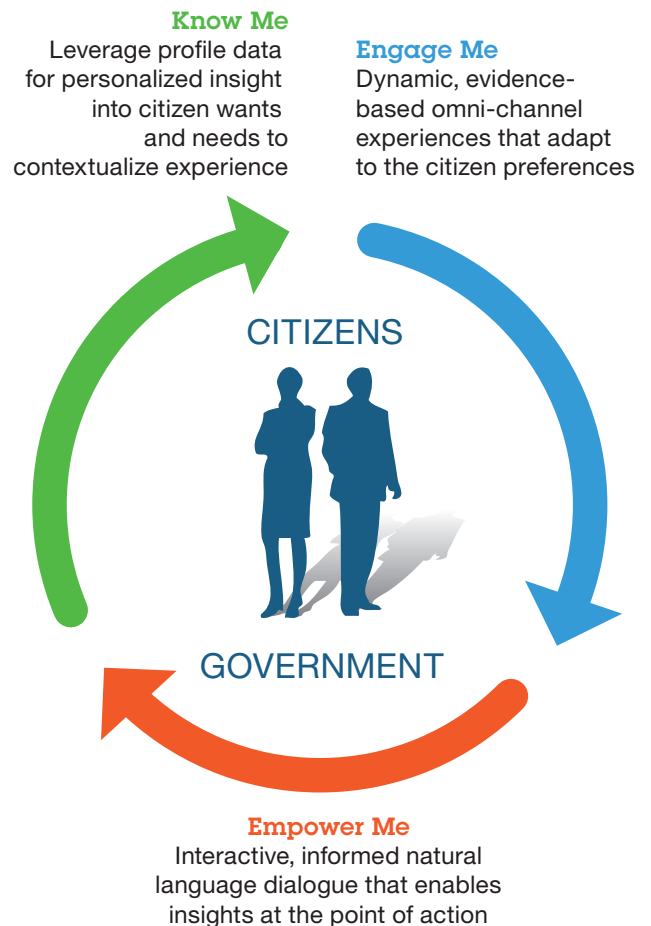
Modern citizens expect national, regional and municipal authorities to respond rapidly to social needs and issues. And they expect it to happen in a transparent and responsible manner. Fast access to information is crucial in this regard. While policy is threatening to lag behind, adequate solutions are available.

The digital citizen

The digitization of our society has redefined the way in which citizens interact with one another. Modern society is mobile. Citizens and consumers prefer to use their smartphone to surf the net and make online purchases. Thanks to social media, citizens now have a virtual seat in the corporate boardroom. People share their experiences with the products and services provided by companies and governments online. Clever organizations listen carefully to these online conversations and use them to optimize their services. The online sharing and exchanging of information, amongst others via smartphones, produces huge amounts of data in any number of formats and structures: Big Data. Some companies are pioneers in using the mobile transformation, Big Data and social media to optimize their services. Conversely, governments usually opt for solutions with a proven track record instead of resolutely adopting new technologies. Nevertheless, both the long- and short-term advantages are not to be sneezed at. The tax-on-web platform offers a wealth of opportunities with regard to Big Data and analytics but there's still a long road ahead.

Improved service

Governments are faced with a number of challenges. The road to better service will undoubtedly involve social media, mobile technology and Big Data. They will develop into a proactive service provider for every individual citizen. The relationship between citizens and governments needs to be redefined.



**This redefined relationship will be based on three pillars:
Engage me – Know me – Empower me.**

- Know me: governments will use the data they have on citizens in order to offer a personalised service based on the individual needs of every citizen.
- Engage me: governments will evolve from a reactive to a proactive model in which interaction between the government and individual citizens or organizations will take place across various channels.
- Empower me: citizens will be well-informed thanks to a targeted personal service based on interaction between governments, organizations and citizens.

This whitepaper searches for answers to the question of how technology - and more specifically mobile technology, Big Data and social media - can redefine the relationship between citizens and their government.

- How can the government boost the satisfaction and commitment of its citizens with fewer means?
- How can the obstacles in the relationship between citizens and government be eliminated?
- How can we improve the quality of the government's work as well as its flexibility and productivity?

All over the world, there are examples of governments who have successfully implemented technology to upgrade their services but also to protect citizens against natural disasters or to guarantee national security.

- In Memphis, Tennessee, the local police department analyses enormous amounts of real-time data from any number of sources. Advanced computer algorithms enable local authorities to predict which areas will be affected by crime. Since the introduction of the system, crime figures in Memphis are down by 24 percent.
- German Pension Fund Baden-Württemberg, one of 16 regional organizations that make up the German Pension Fund group, manages the statutory pension scheme for approximately 6.6 million citizens. It replaced its two paper-based record systems with a highly efficient digitized archive, providing instant access to millions of pension records. This helped speed data access by more than 99 percent, supporting better customer service. By making use of existing resources and skills, this extra functionality was achieved at no extra cost.
- The Guardia Civil handles large amounts of information every day, which it has to analyse with care so that it can be used in different fields of application, such as investigating crimes and psychology. It considers data analysis to be a fundamental part of conducting its public service work effectively and efficiently. A substantial improvement has been noted in procedures of the Crime Investigation Department, and the Psychology Department can now internally develop tests that previously had to be purchased.
- Responsible for maintaining the national civil registry, which contains personal data on all Austrian residents, the Austrian Federal Ministry of the Interior needed the ability to provide secure, real-time access to the registry as required by law.

With more than 2.300 cities and villages submitting data and changes, redundant data and registry access issues interfered with the collaboration and interoperability that the agency hoped to achieve. Without a way to manage, resolve and share this large volume of data, the Ministry struggled to gain insight into its citizens and their needs. They achieved the following: Reduced the cost of locating and readying dedicated civil defence vehicles in the event of a disaster by 40 percent - Helped engender a double-digit decrease in burglaries in Eastern Austria - Saved more than 1.1 million euros per year in school and kindergarten operations and labour costs - Protected privacy of residents by ensuring that authorized persons only have access to the data allowed to them.

- A large US medical and social benefits organization used Big Data analytics, including ad hoc queries of more than 70 data sources, to reduce the time it took to conduct analyses from weeks to just four hours. More than 100 million euros in improper payments were immediately identified, including payments made to thousands of dead people.

1. THE RELATIONSHIP BETWEEN CITIZENS, THE GOVERNMENT AND TECHNOLOGY

At various times in their lives, citizens come into contact with the government. Tax returns, unemployment or welfare benefits, applying for a home improvement grant, pensions, the reimbursement of medical expenses, etc. Today, most of these interactions must be initiated by the citizen when the government could easily take the initiative based on the data already in its possession.

Today, if a victim of an accident must prove his predicament to a variety of government bodies. There has got to be a better way. The government could organise its services from the citizen's standpoint. Based on the necessary legal documents, the government could automatically forward the required information to the various official bodies. This would streamline the process and increase citizen satisfaction.

Automated processes are crucial in this regard. This is possible via technological solutions that are available today. It is no longer necessary to create a centralised database containing all

government information. The existing databases can be linked. Such integration would enable the government to abandon its reactive system in favour of a collaborative and proactive model where the initiative lies with the government itself.

Achieving a personalised optimum service level

It should be the government's ambition to achieve a personalized optimum level of service but this requires a collaborative model. Such a government is aware of the fact that different categories of the population require different levels of service. The best example in this regard is our social security system. Today all categories of the population enjoy the same level of service from the government even though every individual, family and organization has different information requirements. This one-size-fits-all approach is no longer effective. Some organizations or citizens want to maintain personal and intensive contacts with the social security institutions. Others need very little information. A citizen may need a high service level with regard to his pension but hardly wants any information on the reimbursement of medical expenses. That is why the Curam ResearchInstitute developed the 'RightServicing' concept that creates a new perspective on social security while developing a policy to provide every individual with an optimized service level. The result is more social benefits against a lower cost.

The major challenge for governments lies in defining an optimum service level for every citizen without losing sight of the fiscal and social realities. This can be achieved through existing technological solutions.

A mobile government

The government of the future is mobile, as is the road to a personalised service. By 2020, an estimated 10 billion mobile devices will be in use worldwide. There are several examples of governments across the globe who have successfully adapted their service to today's mobile reality. Canadian, Singaporean and Australian policy makers had mobile apps developed to give their citizens access to a large number of public services.

Important points of contact between the Belgian authorities and citizens could be programmed into a mobile application. From applying for welfare benefits and the tax deduction on

mortgage interest to filling in tax returns and the reimbursement of medical expenses. A single mobile application containing important points of contact would enable the government to provide every citizen with services custom-tailored to their personal preferences. In addition, it is also important to consider which services would bring added value in mobile form. Not every service can be translated into a mobile application whereas other apps would optimize the level of service provided by the government. Add the fact that not every citizen owns a smartphone or a tablet and one quickly realizes that although a government doesn't need to be 100 percent mobile, it can optimize the relationship with its citizens by making certain crucial services available in the form of a mobile app.

Today, the authority that awards grants for home construction or home improvement projects is situated on different levels of government administration. Citizens must contact each of these levels separately to apply for a grant. A mobile application would allow the government to automatically forward the required information to each of the relevant levels. The citizens themselves would only need the mobile application, tailored to their personal needs. With this app, the initiative to automatically forward all data to the competent authorities lies with the government instead of with the citizens. Not only does this mean that citizens and governments are entering into a different kind of relationship, the automation of a number of processes also boosts the government's internal efficiency. Paradigm shift.

Tax-on-web

The Belgian government has already taken several key steps in the transformation from a reactive to a proactive service provider. Based on the data at the government's disposal, the tax-on-web platform already makes certain suggestions when citizens fill in their tax return. Nevertheless, there's still a long way to go. To date, it is up to tax payers to include tax-deductible items in their return. As a result, they often miss out on tax deductions they are entitled to because they simply don't know. The government has access to all the data needed to inform citizens on which items qualify for a tax deduction. This is the only way for policy makers to optimize the level of government services as well as citizen satisfaction. Apart from automatically filling in tax returns in advance, tax-on-web also presents the government with a powerful tool to make predictions on a macro-economic level. The trends the

¹ <http://www.curamresearchinstitute.com/sites/default/files/documents/RightServicing.pdf>, ² Economist, 2011.

³ University of Utah Center for Public Policy Administration, "Smarter eGovernment: The Economics of Online Services in Utah", 2012.

government can derive from the data contained in the tax returns can also be used to adapt the tax legislation to the budgetary reality.

The most successful example in this regard can be found in the American state of Utah. Since 1999, local authorities have consistently been installing online services that cater to the personal needs of both individuals and companies. Today more than 1.000 online services are available, ranging from car registration to birth certificates and tax returns. These services generate significant cost savings. The average offline government service costs 12,5 euros while its online counterpart costs just 3 euros. In just five years' time, Utah was able to completely digitize nine government services, achieving 33.8 million euros in savings.

RECOMMENDATIONS

- Automate processes
 - Link information from various sources
 - Set an optimum service level for every individual citizen
 - Determine which services can be optimized through a mobile application
 - Transfer the initiative from citizen to government
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2. FRAUD DETECTION

The use of analytics and Big Data enables governments worldwide to step up the fight against tax fraud. Due to its inherently complex political structure, Belgium is traditionally very susceptible to fraud. In 2012, the Belgian federal government ordered a pilot study that showed that fraud accounts for approximately 0.6% of the GDP or € 7 billion. The investment costs required to bring down these Belgian fraud figures are disproportionately small compared to the potential benefits.

The automation of tax returns through tax-on-web has created an excellent opportunity for a more forceful approach to the tax fraud issue in Belgium. At the same time, the service level towards citizens is being further improved and personalised. Without compromising banking secrecy,

analytics can help the government predict the tax return of every individual citizen, organization or company, based on past tax returns. All citizens and companies need to do is submit the supporting documents, whose validity the government can check through content analytics. Not through random spot checks as is currently the case but by examining every document through an automated procedure.

This would not only markedly reduce the instances of tax fraud in Belgium but would also alleviate the pressure on civil servants to the same extent. Analytics can boost the success rate of the individual inspections. On the one hand, the continued automation of simple audits would enable civil servants to turn their attention to tasks that offer more added value; on the other hand it would partly compensate the outflow due to an ageing workforce.

The body of data provided by citizens and generated by civil servants yields a wealth of information in both the short and the long term. Analytics use algorithms to analyse data and predict when fraud is being committed. In conjunction with other sources such as the Chamber of Commerce, the Central Enterprise Database, information on the owner of a company or administration, the algorithmic model is able to detect fraud with great accuracy.

The result of these analyses can trigger an in-depth inspection. These inspections would no longer have to be carried out on the basis of personal conviction or intuition but on facts. Analytics would enable the government to optimise the hit rate of the existing inspections for tax and social fraud.

A general practitioner discovered that a child had already undergone treatment for a rare hereditary disease under a different last name. Because the child was registered under two different names, the government unduly paid double child benefits as well as a disability allowance. Belgian legislation stipulates that the government pays allowances and spots potential fraud on the basis of samples. The use of analytics would have eliminated this type of double allowance. The government has all the necessary means at its disposal to perform targeted checks through analytics. Through analytics, the government would have had detailed knowledge of both family situations and, as a result, the double allowance would have been detected.

Smarter information sharing

Technology will not simplify the complex government structure. What it can do is automate and simplify the process of information sharing within the structures. It is crucial in this regard to set up pilot projects so governments can determine which measures offer the most added value. The next step consists of anchoring that added value in standard government processes. Governments will be forced to examine how data can optimize their level of service. It is a common misconception to think that governments must first have access to and then structure all the data before they can actually put it to use. This is not the case. The government should start using the available data without delay.

RECOMMENDATIONS

- **Predict the individual tax returns of your citizens through analytics. The tax-on-web platform is a step in the right direction.**
 - **Start small by initiating pilot projects.**
 - **Analyze all supporting documents through content analytics**
 - o Higher hit rate for inspections
 - o No more random spot checks
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3. GUARANTEEING PUBLIC SAFETY

Guaranteeing public safety and protecting citizens against crime are two key public services. Combining and analysing large quantities of structured and unstructured data from myriad sources such as sensors, satellites, video cameras, social media, chat rooms, etc. make it possible for the authorities to anticipate future crimes and threats.

All too often, governments take a reactive approach to public safety, while the citizen of the future will expect a proactive attitude. This is possible through predictive analytics, which apply sophisticated statistical, data exploration and machine learning techniques to historic and real-time data in order to discern patterns and trends in large and unstructured data volumes. Such analyses would

enable the authorities to deploy their means and workforce in a targeted manner in those areas where they are most necessary.

The main advantage of predictive analytics is that it enables analysts to add experiences, intuition and human knowledge to the mix. This makes it possible to identify suspicious patterns and adjust the analysis rapidly and accurately.

Different applications

A successful example of crime fighting through analytics can be found in Memphis, Tennessee. Since the local police department introduced Big Data and analytics, crime figures have dropped by 24 percent, not by recruiting more police officers but by a more targeted deployment. The local PD now has a better understanding of when criminal acts are likely to occur. Based on a large number of variables, a predictive model was developed to predict crime in real time. The local police can map zones of criminal activity in a short time span and link them to variables such as the weather, holiday periods or specific events. This enables police officers to anticipate possible threats with lightning speed and predict under what circumstances the crime risk in specific areas will increase.

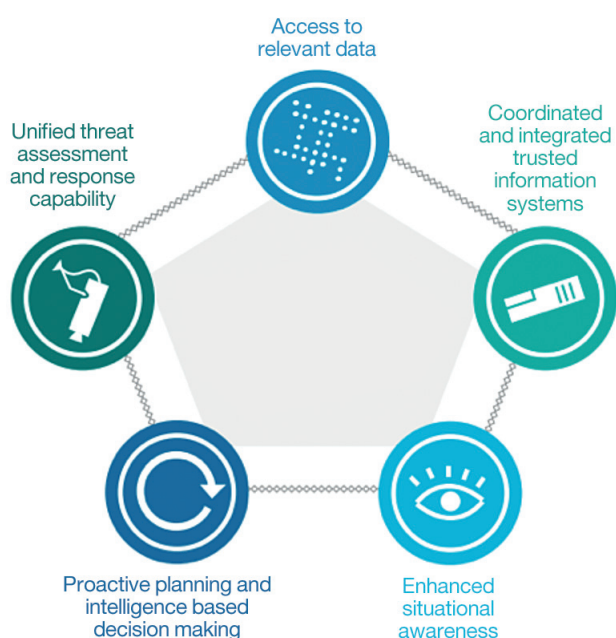
Ports, customs offices and airports are traditionally locations with an above average safety risk. Containers containing dangerous or illegal products, a suspicious delivery van or a passenger that needs to be inspected... it is crucial for the authorities to be able to identify these risks in time. Turning every vehicle that enters the country inside out is simply not possible. What is possible, however, is predicting risks involving counterfeit goods and money or drug transports. This requires the linking of data regarding the number plate, the vehicle itself, the owner and previous stops at customs.

Another example of government use of predictive analytics is the prediction and prevention of epidemics. In case of an outbreak of a contagion, instant access to health data is of vital importance to the authorities. The government in question has direct access to civilian feedback through various sources such as telephone conversations, one-to-one interviews and online questionnaires so it can determine a suitable strategy right away in order to prevent an epidemic.

Using analytics in guaranteeing public safety offers the advantage of an evolving level of maturity. The higher the inspection hit rate, the more efficient the justice department

can work. This means that in the long run, the efficiency of one service has a positive domino effect on the other.

Below you will find a visual representation of how data sharing and the use of analytics make for a smarter public safety policy.



RECOMMENDATIONS

- Analyze Big Data originating from various sources.
- Use analytics to anticipate threats involving public safety or crime.
- Evolve from a reactive to a predictive approach.

Governments have at their disposal a wealth of information that needs to be put to better use in providing a higher level of service towards citizens, combatting fraud and protecting citizens from crime and other threats. Through Big Data, mobile technology and analytics, governments worldwide can boost their efficiency. The evolution from a reactive to a proactive service provider will not take place overnight. On the contrary, it will be a steady but nevertheless indispensable process.

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Produced in The Netherlands - 09-2014

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