We cannot discuss big data unless we understand the notions of convergence and context. The foundations of our economy are changing and being re-architected. In Australia, we have a new payment platform being put in place by the Reserve Bank. And, together with the banks, the actual architecture of our payment system is changing. 5G: just think about what will soon be possible with far higher transmission speeds. The World Wide Web Consortium has changed the infrastructure of the internet to take into account the internet of things. And as we go around that wheel, we see processing power and different types of models proposed. Government’s response is usually intrusive legislation.

What will be the impact of this massive generation of capability on the basis of new infrastructure? Will it eat government service delivery, administration and policy? We should challenge ourselves. These are foundational changes happening to the very underpinnings of our society. Together with massive computing capabilities, this is driving a third wave that will hollow out many of the jobs subject to disruption through machine learning, algorithms and associated developments. Many of these jobs are found in the public sector.

In other words, we have two dimensions that we are dealing with: the re-engineering of the machinery of government, and what happens to policy and democracy when the middle class is hollowed out. To consider these dual issues, I will consider previous changes in other industries.
First, the digital disruption of transport. Once upon a time, a train would have been filled with mostly gentlemen reading their big newspapers; now all kinds of people are crammed onto trains and, thanks to portable devices, so much more is happening than merely being transported. The train itself has become a platform—rather than just leaving from a one.

The car is the same: from manual to automatic to self-driving, the car has become a data platform to inform policy. For example, Kandi is an electric car vending machine in China. You pay the equivalent of a few dollars to hire this tiny smart car, which descends from a lift, ready for you to use. Each Kandi contains a SIM so it can be located at any time. Users can rent the vehicles for an hour at a time, with the system one step towards China’s goal of 2 million electronic vehicles on its roads by 2020 in an attempt to reduce pollution (New Zealand Health and Wealth Report 2014).

The modularity and interoperability of these situations is amazing. We must always look beyond our Western economies to innovation happening in other areas. Another example comes from Vietnam, where an anti-theft SIM card is being fitted to motorcycles. In a country heavily reliant on motorcycles, if one has been fitted with this technology and is stolen, the owner simply calls the bike, which both disables it and sends them the location of the stolen bike.

What is the digital disruption of power going to look like? Windmills will play a part (albeit not if some of Australia’s current politicians have their way). Solar power, too. Consider the following scenario: if you put solar panels on your roof and install a Tesla battery, you can be off the grid. This raises questions about who owns the power and whether it is an asset for the consumer to sell. Instead of giving your power back to the grid, maybe you could sell your power back to the grid? This would usher in a completely different commercial model.

Consider now the digital disruption of education. Online education courses such as those offered by edX have surged in popularity as society has changed. Education is no longer the thing you did after school and then stopped and went into work. We are now learning continuously, in our own time.
At New York University, a comparison of the increase in college costs with the general increase in inflation has found the latter far outstripping the former. The value proposition has been demolished.

This comes in the context of Australia continuing to attract foreign students. When you put these things together, the question must be asked: what outcome does the Australian Government want? Does it understand these converging issues and could it be that in a few years our export industry of tertiary education will be completely hollowed out? Do we understand that?

Next, consider the digital disruption of accessibility. When we talk about accessibility, typically we mean websites and having letters that are bigger than one another. In the United Kingdom, Microsoft Guide Dogs UK are behind a catapult initiative looking to use wi-fi and information beacons to help blind people navigate certain cities. With the help of headsets, users will be able to access things like the bus timetable or whether there is a gap between a particular platform and the train. Those who have already benefited from this initiative say it has changed their lives, because it reduces their anxiety of simply moving around every day.

There is also the actual meshing of technology with the human interface to consider: I was blind and now I have bionic eyes. This involves fitting a blind person with a pair of online, camera-equipped glasses hooked up to electrodes that are implanted on the eyeball and feed the brain visual information.

Let us move on to the digital disruption of retail. One need only to visit deadmalls.com, a website chronicling the fall of American shopping malls in the face of online shopping. But don’t blame the internet—it is the bloated business models that failed to change that has led to the demise of many malls. The customers are still in the stores. And there they are experiencing a deep immersive customer experience augmented by data.

For example, one of Tesla’s greatest innovations is to sell their products in pop-up stores inside shopping malls, much like Apple does. Another development in this sphere is augmented reality. This is now an economic reality. In Singapore, I have tried on an augmented reality dress, a phenomenal experience. When you think about the levels of infrastructure that are changing to make this happen, what does it mean for us?
The digital disruption of retail will provoke the pop-up stall to become the pop-up wall. Everybody wants to have that customer interface whether at Australia Post or Volvo. In the future, when you buy a new Volvo car, it will come with a capability whereby, through secure communication between a deliverer and the car, your groceries, for example, can be delivered straight to your car.

The next issue is the digital disruption of information and payment. Consider the example of M-Pesa in Kenya. ‘M’ is for mobile and ‘pesa’ is payment in Swahili: under this electronic payment system (using pre-smart phones), when an exchange of value is communicated between two parties, the value is taken off the buyer’s SIM. It is tantamount to branchless banking, and the wider Kenyan economy has flourished because of this very simple messaging service. I think M-Pesa provides a lesson about the value of simple messaging.

It gets better, because M-Pesa has become a platform. USAID, the American equivalent of AusAid, has been working with M-Pesa to deliver health information over this platform, specifically maternal health information, because typically Kenyan women own phones. This is an example of health outcomes delivered in context with economic outcomes. All this without using a bank. This is not about money, but about the exchange of information. Compare this to the BasicsCard, a PIN-protected card allowing access to income-managed money in some parts of Australia. This was developed as a new payment tool; many in government still think about payments as a transactional type of a process rather than as a strategic tool.

Digital disruption with the internet of things is all made possible by the changes in the infrastructure. Increasingly, things are implanted with sensors to communicate with each other. Take as an example the sheath on the heart with sensors that can communicate to the doctor information about abnormal heart movement. But how does digital disruption affect what is happening in government? In 1997, the Howard Government decided it wanted to address red tape and, particularly, the $17 billion-a-year burden of compliance. They came up with three measures. One, that there would be a single point of entry for business to government, the business entry point. Two, there would be a unique business identifier (the ABN). Three, that there would be authentication between business
and government. What was not fully understood at the time was that these initiatives represented platforms. So how have we gone in the 20 years since?

Today, that burden is worse, not better. This is because in the year 2000, the Australian Government declared that everything must be put online, forgetting that what matters is platforms. In practice, this meant that in 2000, everything was put online but the government still delivered its citizens written documents and faxes. Fast forward to the year 2013 and the Coalition’s policy for e-government said exactly the same thing: we are going to put everything online and you can even still have it in hard copy. The thinking has not advanced: we are still taking this agency-by-agency approach. The missing component in both 2000 and 2013 were transformation and the client experience.

As a result of that, federal government agencies did what they were instructed to do, spewing out PDF forms on websites. This accounts for some of that $248 billion. What does it look like? A scenario not that different from a 1950s train, full of men reading big newspapers. And when, like this, the digital and paper worlds collide, it is the customer that bears the greatest brunt.

For example, in Australia, a hairdresser requires 27 different forms, applications and licences just to run a hairdressing salon. If they wish to serve coffee, for example, they have to have a food safety plan. We know from standard business reporting that 90 per cent of the time any particular hairdresser spends interacting with government entails providing data to government. My contention is: what would that hairdresser’s business be like if it were reversed—if government was providing that hairdresser 90 per cent of the time with data back?

One of the most phenomenal innovations in government, I believe, has been standard business reporting. I like it because it broke the thinking. It dared to develop a taxonomy that the software industry could buy into and map the product development of their business application software to this taxonomy. Then you have businesses operating software that can transmit reports back to government seamlessly.

As a consequence, all those forms on the website that the businesses would have to fill out and send back to government are now done machine-to-machine. This is an example of software eating service delivery. Of course, the problem is that because it is a platform but agencies are
Open government silos, not all agencies are buying into this. I will return to this challenge for government administration later in the chapter. Sense-T, out of Tasmania, is another phenomenal example of innovation. This involves putting sensors onto oysters to detect their heartbeats—a proxy for water quality. This information is transmitted in real-time back through the system. Otherwise, oyster farmers are required to continually take water samples, fill in a form and send it back to the department.

These are new ways of conveying information. But what about payments, which is typically what government does? In a world moving towards digital payments, plastic cards continue to proliferate. We need to think about payment as a platform.

We must keep thinking about what it is about operating as a platform and how that changes what we do. Take the example of online accounts, which are excellent. But how many accounts do citizens really need or want? The New South Wales Government recently established another one for citizens. But the more online accounts, the more online authentications will be needed. We are not reading the signs.

The last couple of decades have seen innumerable audits, reviews and reports that have said all sorts of things about information and communications technology (ICT) projects. We are not reading the signs because the very essence of government, which is data, is described in a jumble as all being ‘ICT projects’. But they are not all ICT projects; there is no such thing as an ICT project. When we talk about big data, there is confusion around the assurance process in government when it is called ‘ICT projects’.

Worse than this, the agency capability reviews, which are on the Public Service Commission website, tend to focus on data issues such as possible breaches. We are experiencing all these bad data issues, and they usually result in some sort of data breach. But in an era when the machinery of government is struggling, there was no mention of digital in the Australian Public Service leadership core skills strategy for 2015. It is time for a phase change in the way we are doing things.

When we talk about big data, we should consider the opportunity to identify patterns that may not otherwise be observed. Consider the case study of the Great Ormond Street Children’s Hospital in London collaborating with the Ferrari Formula One racing team (Naik 2006). An unlikely collaboration. The hospital had observed clusters of post-
surgical neonatal deaths in London, but they couldn’t figure out what the problem was. They chose to collaborate with Ferrari because Ferrari is phenomenal at data analytics. Instead of observing common patterns in a race-car driver—called ‘high-risk handoffs’ where time is of the essence—Ferrari helped the hospital apply this technique to little patients. As a result, incidents of post-surgical deaths plummeted.

We need to relook at what we do, and ask what can be eliminated. The imperative should not be to put more red tape online, but to take it off. There are already some examples. Registration stickers have gone electronic, as have bank passbooks. Because of big data and analytics, there is an opportunity to look at things differently. What would government service delivery look like if Google designed it? Speaking of websites, why not forget them too? Because very soon, they will be replaced by virtual assistants.

I have Cortana, the ‘intelligent personal assistant’ on my Samsung Android mobile phone. She knows a lot about what I do; perhaps we could ask Cortana for help about interacting with government? In the future, algorithms and automation—of which Cortana is one example—will hollow out jobs like office and administrative support, sales, data entry and document preparation. Not all such jobs will be automated: there will be the opportunity to refocus areas in frontline service delivery where it is most needed. We need a fundamental rethink of the operating model and the machinery of government through the lens of platforms and data.

In summary, the most significant battle surrounding big data is between platforms and silos. We still live in an era of authority of the agencies, with public administration still practised as it was in the 19th and 20th centuries. We rely on ICT systems and policy frameworks that are clearly not working. We talk about data intake, data retention and data management, yet we still have data pay walls and intrusive control; payments are considered simply transactions rather than platforms. Without a capability architecture, we have duplicated investments widely.

We must update our conception of shared services, procurement and government’s view of the citizen. In the 21st century, the architecture of platforms will become dominant. Data will be released dynamically. It will not be released when we are ready, but when it is. Taxonomies will be published. Data will be exchanged instead of forms. We have to think
about the connected citizen, the connected society, and we have to move beyond the government’s view of the citizen to the citizen’s view of the government—where it is the citizen who has choice. When we look at it that way, we see that data for the last many decades, if not a century, has been a servant, giving information to government. It should be the other way around.

The citizen of the 21st is empowered with software and data. I think that will change the relationship between government and the citizen in a way that government will not be able to control. When we see this divergence between platforms and silos—as with Uber and other instances where the consumer is empowered with software and data—we need to think about what the government and public administration response will be when we have a software-empowered consumer.

References

