TNO

STRATEGY & CHANGE

BIG SOCIETY, BIG DATA. THE RADICALISATION OF THE NETWORK SOCIETY

THE HAGUE CENTRE FOR STRATEGIC STUDIES AND TNO

TNO

STRATEGY & CHANGE

BIG SOCIETY, BIG DATA. THE RADICALISATION OF THE NETWORK SOCIETY

THE HAGUE CENTRE FOR STRATEGIC STUDIES (HCSS) AND TNO

PAPER Nº 2011•06
ISBN/EAN: 978-94-91040-53-5

Author: Prof. dr Valerie Frissen, TNO/Erasmus University Rotterdam

This paper is published as a Vision Paper for the TNO and HCSS Strategy & Change program (see http://www.strategyandchange.nl/). In modified form it has also been published in Dutch as a chapter in: Kwakkelstein, T. A. van Dam & A. Van Ravenzwaaij (red.) *Van verzorgingsstaat naar waarborgstaat. Nieuw kansen voor overheid en samenleving*. Den Haag; Boom, 2012, pp. 99-112.

Graphic Design: Studio Maartje de Sonnaville, The Hague

HCSS, LANGE VOORHOUT 16, 2514 EE THE HAGUE
T: +31 (0)70-3184840 E: INFO@HCSS.NL
W: STRATEGYANDCHANGE.NL

BIG SOCIETY, BIG DATA. THE RADICALISATION OF THE NETWORK SOCIETY

THE HAGUE CENTRE FOR STRATEGIC STUDIES AND TNO

TNO

STRATEGY & CHANGE

The TNO and *The Hague* Centre for Strategic Studies (HCSS) program Strategy & Change analyzes global trends in a dynamic world affecting the foundations of our security, welfare and well-being.

The program attempts to answer the critical question: what are the policies and strategies that must be developed to effectively anticipate on these emerging challenges?

Strategy & Change provides both a better understanding and feeds the agenda for a sustainable future of our society.

BIG SOCIETY

During the British election campaign of 2010 , which resulted in a Conservative victory, incumbent prime minister Cameron produced the idea of the 'Big Society' as a cornerstone of his political agenda. This idea is key to the policy vision of the current British government and figures prominently in the speeches of Cameron. At the core of the idea is a stronger civil society and local community coupled with a more withdrawn government. Or, in a more throbbing political tone: 'to create a climate that empowers local people and communities, building a big society that will take power away from politicians and give it to people'.[1] Although many commentators have dismissed this message as an embellishment mainly intended to mask the British government's economical drive, this does not do the notion enough justice. The big society certainly does exist. We see society at present rapidly emancipating, and citizens being increasingly better informed and in many cases quite capable of taking care of themselves. In some cases they are even better able to fulfil public tasks than government itself. The welfare state may not yet be over, but its viability is certainly a legitimate subject for debate. We find ourselves in a period of transition from welfare state to a state that only provides a basic form of social security[2].

This involves, a shift in the distribution of tasks and responsibilities between state, market and society, a trend which is now going on for some time. While in the past decades we have seen a clear shift of public tasks to the *private* sphere due to deregulation and privatisation, recently more emphasis has come to lie on *society's* own responsibility. A parallel trend

1 Number 10 (2010, May 18). http://www.number10.gov.uk/news/big-society/ CabinetOffice (2010, May 18). http://www.cabinetoffice.gov.uk/news/building-big-society

2 See the title of the book referred to in the colofon.

is a transition from a neatly ordered, stable society – and a belief that government policy can shape social change – to a much more fragmented, fleeting, restless and intangible society. The shift towards a big society is certainly not just a clever trick of governments geared to cutbacks but is, in the first place, a development set in motion by society itself. The highly intensive use of the internet strongly underpins this empowerment of society . This essay places the trend towards a big society in the context of this far-reaching digitisation of society. Digitisation enables today's citizens to position themselves radically different towards the state than they did before. Moreover, we are only at the beginning of this trend and – as this trend continues – we will see a *radicalisation of the network society*.

THE BIG NETWORK SOCIETY

The big society is a society which shows a greater degree of self-awareness and independence. This fits in with a trend that has been signalled for some time now, namely a shift towards horizontalisation, and, by extension, a considerable pressure on the traditional, vertical government-society relationship. Modern citizens are more and more well informed, assertive and alert. In traditional government-citizen relations , citizen participation has been restricted to consultation procedures or in some cases interactive policy-making. However, these instruments have never fitted citizens very well . Currently, citizens decide for themselves – assisted by the powerful tool of the internet – what they want to concern themselves with and which issues they are prepared to stand up for. The authority of experts and high ranked officials is no longer a given. Representatives of government are increasingly being called to account and are being given less and less of an opportunity to hide in the backrooms of public administration and the obscurity of bureaucracy. In the broad spectrum of resources and networks that citizens now have at their disposal, traditional politics – from a citizen's perspective – is becoming increasingly marginal.

At the same time, those citizens also often stay with one foot firmly put in the welfare state when it suits them. They are very adept at seeking attention and pointing out government faults but are not always as keen to accept the responsibility that goes with being fully-fledged citizens in a democratic society. When something goes wrong, it is always the fault of the government, experts and authorities. Responsibility for covering or mitigating risks is usually a very one-sided affair. The horizontalisation of

society has thus only been partly realised. Horizontalisation, after all, also implies horizontal *responsibility.* The knife must cut both ways: when it comes to taking and managing risks or to be transparent and open, citizens need to be accountable as well. In addition, it is also clear that the big society does not lead *per se* to a new, stable structure of well-defined societal organisations, that can be held accountable for tasks and responsibilities. Thus, the balance in the relationship between state and society has indeed shifted, but where to exactly is still – in many cases – completely unclear.

This means that we are not so much confronted by a simple reclassification of tasks and responsibilities, as the rather naive arguments of British conservatives would have us believe, but by a more serious disruption of traditional societal relationships. The redistribution of public tasks and responsibilities has entered a dusky zone where experimentation is rife. Now and then highly promising innovations arise. An interesting example can be found in new forms of financial self-organisation of citizens, based on crowd funding, micro-funding or P2P-lending. These have provided alternative models for development aid, for funding start-ups or for art financing[3]. This shows that on the one hand, these powerful impulses have given citizens self-organisation and produced a healthy redistribution of responsibilities. But on the other hand we may also see the emergence of a power vacuum, sometimes bringing about flagrant misuses of the new freedom, followed by social tensions and misplaced control reflexes and risk avoidance behaviour.

The example above illustrates nicely that a key driver behind this cluster of transitions has been the information and communication technology (ICT) revolution of the past few decades. In 1996/97 the Spanish sociologist Manuel Castells wrote his famous trilogy *The Information Age*. Using a large quantity of empirical material, he convincingly showed how, on the threshold of the twenty-first century, ICT networks have become inextricably bound with every major social and economic network and all the vital physical infrastructures upon which our society rests. Therefore, in his eyes, there is no better way of characterising modern society than as a 'network society'.

3 Nice examples of this can be found at http://www.kickstarter.com and http://voordekunst.nl/

The breakthrough of social media in the first decade of the twenty-first century has, moreover, made it abundantly clear that social networks are merging with digital networks in such a way that any distinction between the two is no longer relevant. The combination of both network dynamics has given the big society wings.

The breakthrough of ICT has manifested itself in the past decade predominantly in *society*: in this respect, the *institutions* are lagging far behind. The average citizen, certainly in the highly digitised Dutch society, has access to a splendid digital infrastructure as well as to the very latest devices and gadgets and state of the art software. Citizens have developed into apt and sophisticated ICT-users who are well able to turn the technology to their advantage. The contrast with the average institution or organisation is stark. Institutions still have to manage with ponderous and inflexible ICT-systems containing an enormous legacy, and with equipment that even a toddler would turn his nose up at. Citizens have gone through a complete digital emancipation in the past decade.[4] Even the presumed victims of the digital divide, such as senior citizens, can no longer do without internet and mobile telephony. Internet banking, shopping and dating have become commonplace. Yet more importantly in terms of emancipation, internet has become one of the key tools for *empowerment*. Self-organisation, mobilisation, participation and activism have taken on a whole new meaning.

This was demonstrated quite vividly throughout the Arab world in 2011. In Japan during the earthquake of 2011 the digital networks of citizens proved to be of key importance in times of crisis, providing high-quality and reliable information on the whereabouts of possible victims. In the same year, in the Netherlands it also became painfully obvious that the digital networks of citizens sometimes work better than those of the government. During a major fire at a chemical plant in the town of Moerdijk, the government networks pretty quickly failed and the crisis communication was more or less taken over by fanatically twittering citizens. 2011 was also the year of the WikiLeaks cables, which made it perfectly apparent that the secure secrecy

4 As reported by Time Magazine in 2006 when 'You' (the ordinary ICT user) was voted person of the year.

of traditional public administration has had its day. Despite the best efforts of government to control and secure information, that secrecy is always relative and there is always a leak at the edges of the carefully guarded government information systems. Because the big society is digital, citizens will make optimum use of this, and will more and more wring openness and transparency from government and public administration. Finally, we should certainly not forget that also the riots in London in 2011 were, to some extent, made possible through the use of digital media, and that an infamous Dutch paedophile arrested in 2011 was able to propagate his macabre successes mainly on the internet. Digital emancipation has many faces.

Today's big society is thus fundamentally a *digital* big society, a fact which is too often overlooked and the potential implications too often underestimated. If we look at the agenda of the British Conservatives, we see, for instance, relatively little focus on the digital dimension of the big society. British policy is geared strongly to a shift of responsibility to the community (local communities and neighbourhood organisations, clubs and associations, civic organisations and social entrepreneurs) and to the encouragement of self-organisation, voluntary work and charities, but it has hardly any reference to the crucial role of digital media in that self-organisation.[5]

BIG DATA

Another trend which is recently gaining much attention is that of 'Big Data', a term that indeed points to the name itself: huge collections of data and the issue of how we have to deal with it all in the near future. Data expert EMC has calculated that the planet will have around 35 zettabytes of data stored by 2020.[6] The big data trend presents us with all kinds of challenges, for example in the area of storage (cloud computing), meta-dating, interpretation, searchability and visualisation. At the same time there is a tremendous acceleration in the way that data are collected, as the 'internet of things' increasingly starts to gain a foothold. The integration of digital technology in physical objects and materials is causing a rapid digitisation of the physical environment that we live in. Just think about

5 Only making government data accessible and encouraging reuse of these data (open data) are cited explicitly.

6 Computerworld, 24 May 2011

RFID, sensor networks, intelligent camera systems and mobile devices equipped with ubiquitous information-sensing possibilities. The physical environment more and more extends to 'human objects'. In the human body, too, digital technology is being increasingly integrated in the shape of smart networked drugs or implants and prosthetics that can be operated externally and via deep brain stimulation. The internet of things is thus just as much an *internet of living things*[7].

This big data trend is even more important when we look at it from a big society perspective. In the light of these developments the digitisation of society, along with the resulting digital empowerment, is actually only in its infancy. We stand on the threshold of what could be termed the 'big data society', in which the internet of people – largely illustrated by the breakthrough of social media in recent years – will completely merge into the internet of (living) things. To illustrate this, a couple of examples.

THE QUANTIFIED HUMAN

23andMe is an American company – named after the 23 pairs of chromosomes that make up a normal human cell – that enables ordinary people to acquire detailed genetic information about themselves. In exchange for a bit of spittle and 99 dollars[8] the company provides a personal DNA profile, analysed in terms of a large number of markers. Coupled to this is a 9 dollar-a-month subscription that gives you updates of information that is relevant for your genetic profile. One of the founders of the company is Anne Wojcicki, wife of Sergey Brin of Google, who is also one of the main investors in the company. In an article in *Time Magazine*[9] Wojcicki claims that the company represents higher interests such as the democratisation of health care. With permission from its customers, 23andMe has created a gigantic database that provides a treasure trove of information for medical research (among other things). 'We could make great discoveries if we just had more information.' Wojcicky says. 'We all carry this information, and

7 This term was coined by Andrew Hessel. See for instance his chapter on 'open source biology' in: Di Bona, C., Cooper, D., & M. Stone (eds.) Open sources 2.0. The continuing evolution, Sebastopol: O'Reilly Media, 2006

8 The price of this test has fallen over 5 years by a factor of 10, from $999 to $99.

9 Time Magazine,2008, October 28. http://www.time.com/time/specials/packages/article/0,28804,1852747_1854493,00.html

if we bring it together and democratize it, we could really change health care.' The DNA data collected currently facilitate research into Parkinson's and Alzheimer's disease. The 'Roots into the Future' initiative investigates the link between DNA data and diseases that are common among Afro-Americans. The company's website also offers customers the possibility to share data with each other, for instance because of a shared interest in genealogy or to search for information about hereditary diseases. The site contains success stories of people that have managed to trace lost family members thanks to the data or have been able to combat certain diseases at an early stage thanks to 23andMe ('Don't stand between me and my DNA!').

23andMe is a nice illustration of what is called *consumer* or *retail genomics*. On the one hand, this development fits in with a broader trend of increasing convergence between technology fields such as biotechnology, genomics and ICT. On the other hand, it illustrates the societal trend of individuals being more and more able to make better and smarter use of the possibilities of the network society. These individuals use technology to keep themselves up to date and thus strengthen their position – in this case, for instance, as a (future) patient. Where DNA data not so long ago were the exclusive domain of institutions, and were stored away deep in the closed off databanks of research institutions, hospitals and investigation services, they are now becoming an everyday consumer item. Digitisation makes such data not only much more widely accessible but also usable and reusable in all kinds of ways. Data have become the ultimate tool for empowerment. The time-honoured maxim 'knowledge is power' can increasingly be translated in the modern network society as 'data is power'. Data is the new capital. Not merely the economic capital on which the icons of the new capitalism like Google base their powerful position, but also the new social, economic and cultural capital of citizens and consumers.

This next stage in the digital emancipation of citizens also means that they will demand greater 'liberalisation' of and more control over their personal data, certainly when more and more personal data are being collected in a less than transparent way. On the other hand, those same citizens are also increasingly transforming themselves, willingly or not, into walking databanks. They publish and share an incessant flow of data about themselves, their relationships, their hobbies and personal history.

They are most often surprisingly carefree about their whereabouts, who they are with and what they are doing. And, in the same unconcerned way they lay themselves bare, so casually do they breach the personal space of others by – uninvited – monitoring and peering at them, by recording, saving, connecting and, disseminating data. While there is the call for the user himself to be more in control of his personal data – and hence the need to 'liberalise' stored personal data – the data of others are increasingly becoming public property. It is not only industry and government that are pushing the 'datafication' of society, citizens are doing exactly the same. Moreover, this is happening more and more unnoticed through the internet of things, and without us being aware of the scale and possible impact of this.

This radicalisation of the big society becomes manifests when we take a look at a global network of people who are interested in *self tracking,* labelled 'The Quantified Self'. This global network makes a point of collecting as many (personal) data as possible, and using this to develop applications that may lead to self-insight and self-organisation. All kinds of variations of 'personal tracking' are used to create a rich arsenal of tools & apps[10], like apps supporting athletes based on data on training patterns and physical performance, which are than translated into personal training and fitness advice. Or an app called 'Daily Burn' that keeps data about weight, food and exercise and thus helps users to manage their health and weight. Another example is 'Pachube', a network that gives people access to all kinds of real-time data that may be relevant to them, data that can be collected via sensors, RFID or GPS. Pachube invites everyone to make use of these data, for instance, to translate air quality data into custom-made advice to asthma sufferers. Furthermore, the linking of similar applications in other countries enables a real-time worldwide system that can monitor air quality. A comparable application is the Japanese 'Geigermap', which is a mash-up of real-time data on radiation values and a Google map. These data that are collected by two hundred sensors spread throughout the country. The data, personal or otherwise, that are collected by the Quantified Self community and translated into new services and applications are very diverse. From data stored in all kinds of social media and data on locations

10 As can be seen on http://quantifiedself.com/guide/

and movements of people to data from medical records, DNA data or data on physical conditions, performances or reactions: everything is collected, shared, aggregated, (re)interpreted and (re)used.

What we see here is a parallel and interlocking development of 'big data' and 'big society'. On the one hand, the trend continues unabated with ICT increasingly becoming entangled in everything we do. Every dimension of our daily lives has or acquires a digital counterpart, a heavy digital shadow composed of huge quantities of extremely detailed data. On the other hand, we see the rapidly changing position of citizens themselves who can now organise themselves immediately if required and gain access to all sorts of processes from which they had previously been excluded. It is precisely the combination of these two developments that has a potentially disruptive effect. The radical and large-scale access of data in combination with the enormous potential for user empowerment means that we can speak of a *radicalisation of the network society*.

IN CONCLUSION

The big data trend provokes a number of questions that cannot easily be answered. Questions like: Who owns the data anyway? What conditions apply to using the data, especially personal data? Who decides? Is this a government issue or is the authorisation shifting more and more to citizens themmselves? Can we even speak of personal data for that matter? How do we know what data about us are collected? Where does the line between data and information lie, and do we have any kind of grip on that? If smart technology is increasingly able to interprete, learn and think for itself, what does that mean for the quality of information and especially for the quality of behaviour and decision-making that follow from that?

The questions prompted by the interlocked trends of Big Data and Big Society go one step further. The trend towards an even greater self-organisation and independence of society (and declining government influence) will not, as already suggested, lead by definition to a clearer redistribution of tasks and responsibilities. Society will organise itself more easily than before, that is true, but not in a nicely ordered, predictable and manageable way. It is precisely the interlacing with digital trends that has given citizens new tools to organise themselves, excersise pressure and make demands. This trend too prompts all kinds of questions about how this will take shape in the near

future, what it means for social cohesion or for reshaping the relationships between citizens and government. Or for the future of (representative) democracy, which, because of these trends, seems to be taking on a much more activist shape. The 'social fabric' is constantly in motion; it can be as tough and intransigent as it can disintegrate. Data increasingly form the primary raw material within that capricious and active fabric. People use data as the new weapon in the 'battle'.

On the government side we see, moreover, a move to take more distance from and increasingly cast off public responsibilities. This fits in with the policy of releasing public data for use by third parties. The focus on open-data policy is growing, for instance represented in a new European directive[11]. This directive was announced by commissioner Kroes as a great promise for the future: 'Just as oil was likened to black gold, data takes on a new importance and value in the digital age.' Open government data, according to Kroes, form the raw material for numerous new information products and services, with an expected direct and indirect economic value of 140 billion euros. In societal terms open data generates more transparency and better decision-making, Kroes believes. The directive should be seen, according to her, as a 'vote of confidence in the people of Europe. We trust you will do good things with this data.' It is very nice to see the political leaders of the moment, like Cameron and Kroes, having great confidence in society. This is justified in many respects as society – especially the network society – continuously displays the power of its resilience and self-organising capacity. In that sense it is high time to leave the era of the welfare state behind us and to seek new concepts for the 'state' of the future. At the same time, our leaders appear to be somewhat naive and the potential impact of far-reaching datafication of our society has not got through to them enough.

In *Wired Magazine* in 2010 the question was asked whether it was time to add a new shoot to the stem of cyber security, namely 'neuro-security'. Over the coming years it is expected that there will be greater use of brain implants for deep brain stimulation (for example, in the treatment of people suffering from Parkinson's disease or to operate wheelchairs or prosthetics).

11 European Commission, Digital Agenda: Turning government data into gold, 12/12/2011, http://europa.eu/rapid/pressReleasesAction.do?reference=IP/11/1524&format=HTML&aged=0&language=EN&guiLanguage=en

The implants have largely wireless connections so that they can be programmed via external computers. A research team from Massachusetts Amherst University has revealed how ridiculously easy it is to hack in to those computers and reprogram such an implant remotely. This made it clear that the security of neuro-implants had been considerably neglected up till that point. These digital connections actually make the gateway to the human brain wide open. This is no longer simply a matter of protecting personal medical data: it is also possible to influence and manipulate the physical and mental performance of others via these connections. Brain security has to be one of the topics for discussion if we consider the Big Data Society. Perhaps not the most obvious one, but the example does make crystal clear the need to profoundly think through the consequences of the Big Data Society. On the one hand, the datafication of our daily lives enriches the repertoire of what we can do and fortifies our position as a citizen. However, on the other hand, it also increases our dependence and thereby restricts our autonomy. So, the big society is not a clear point on the horizon but rather a misty perspective that now and then allows us a glimpse of what is possible but mainly prompts many questions and uncertainties.

It is high time to engage in serious debate about the Big Data Society.

HCSS, LANGE VOORHOUT 16, 2514 EE THE HAGUE
T: +31 (0)70-3184840 E: INFO@HCSS.NL
W: STRATEGYANDCHANGE.NL