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# FUTURE NEWS

TO CONNECT, TO INFORM AND TO INSPIRE

## IN THIS EDITION



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# Future Proofing the State:
## Lessons for Government in Minimising Risk

**Bridget M Hutter***

Managing risks and preventing disasters are inextricably related in the modern world: good risk management is seen as the key to disaster prevention. This is all part and parcel of a very modern expectation that we can govern the future, that risk management approaches allow us to anticipate, control and manage risk. Yet each year we learn of new disasters –outbreaks of food poisoning, natural disasters – floods, bushfires, earthquakes – diseases, factory explosions. Is this because governments, businesses and regulators got it wrong? Or is there more we should be attending to in order to understand the complexities of proofing the future?

We do regularly encounter new risks and some of the more traditional risks we think we should be in control of have new twists. Science and technology regularly present us with new ideas and exciting innovations but these can also become potential risks as unintended consequences emerge which may be damaging or the public becomes alarmed about the paths science is taking: witness the furore about 'Frankenstein foods' that accompanied the development of GM foods. The debate about nuclear power still rages, is it a wonderful source of energy or do the risks outweigh the benefits?

Some of these new risks are transnational and do not fall neatly into any existing jurisdictions. Indeed, many demand the co-operation of many different players and nation states. A clear example here is climate change which requires collective action across the globe to manage the risks, action from very unequal societies and economies, and action from governments and publics who may not want to adapt lifestyles and production in the short term to benefit the environment into the future. Cyber risks are another area where transnational co-operation is crucial and may be very difficult to achieve in part because governments themselves may be implicated. Yet governments, industries, infrastructures, global system and individuals are all highly vulnerable from transnational computer attacks and cybercrime.

The greater interconnectedness of the world presents us with opportunities to travel, to source exciting and varied foods but it also carries risks – for example, the risk that dangerous viruses and illnesses travel too. Concerns about the ebola virus are a recent example. Our global supply chains can add new twists to well-known risks. For example, in May 2011 Germany witnessed the deadliest *E. coli* outbreak in recorded history. The source proved hard to trace, at first cucumbers imported from Spain were blamed and eventually on 10th June the cause was found to be contaminated sprouted fenugreek seeds, imported from Egypt in 2009, before being distributed throughout Europe. The complexity of this example is a theme in disasters. As organizations become more complex so the chances of security diminish: there is an inevitability that things will go wrong and that we will not fully appreciate what can go wrong until it happens.

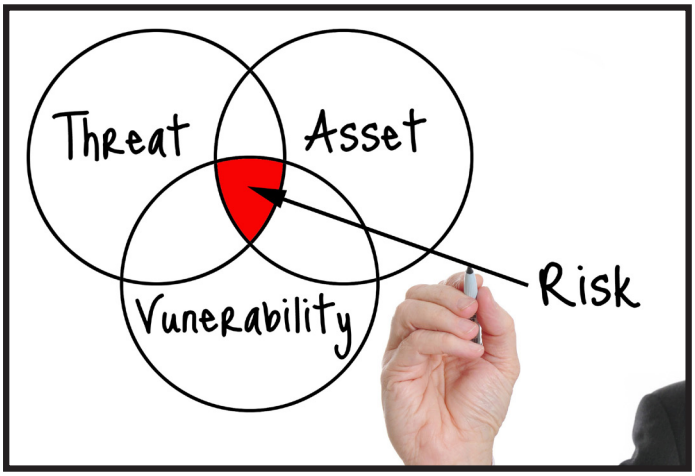
So at the macro level there are a number of issues that make risk anticipation and future proofing difficult, indeed we might want to challenge the notion that all risks can be anticipated. To go further, the view that we can anticipate risks and control the future is loaded. It implies that this is achievable and that failures could have been prevented. Following any disaster there will be a run of media and academic articles arguing that vital clues were missed and particular organizations and individuals are to blame. Witness the financial crisis 2007-09, arguably still continuing, where the blame game was ferocious not least because it was a transnational system failure involve multiple governments, financial centres, businesses, regulators and economists. Part of the reasons for their failures are outlined in the examples above but in this case, as in many others there are other important obstacles to proofing the future. Very complex social, political, economic and technical decision-making - and the social and organizational worlds within which this occurs - can make the task of risk management difficult and at times nigh on impossible.

We have already touched on the 'costs' and 'benefits' trade off that risk management involves. This is a crude heuristic for a much more intractable and complex set of decisions. At the heart of risk management is the fact that we are controlling not eliminating risks – typically we want to control the adverse risks and retain the upside benefits. And here we are confronted with a fundamental of risk management, namely that the decisions made are political and ethical as much as they are technical and 'objective'. Risk management decisions about future proofing involve difficult decisions about social and economic costs and benefits and how they are distributed. Scarce resources have to be allocated and how they are allocated depends on very differing views about the role of the state in promoting different interests, and different conceptions of equality or inequality. You only need to look to the last changes of governments in Australia and the UK to see how different these decisions can be within the same country let alone between nation states.

Competing interests also exist. Big organisations may be government stakeholders who have the power to shape the debate about what is taken to be risky and what is not, and how we respond. Consumers and potential victims may have less power. What we

* © Bridget M. Hutter is Professor of Risk Regulation at the London School of Economics and Political Science. She is author of numerous publications on the subject of risk regulation. This paper draws on her edited collection *Anticipating Risks and Organizing Regulation* (2010, CUP); her article 'Lessons for Government in Minimising Risk:' in Boston, Wanna, Pritchard and Lipski (eds.) *Future-Proofing the State* (ANU Press, 2014); and her recently completed monograph with Professor Lloyd-Bostock *Regulatory Crisis: Interactions Between Disaster, Crisis And Risk Regulation*. Her current research is engaging with risk based approaches to regulation and with issues of risk, resilience, inequality and environmental regulation. She has an international reputation for her work on compliance, regulatory enforcement and business risk management and is regularly involved in policy making discussions, with international bodies, business organizations and regulatory agencies.

**Bridget will also be our guest at our October futures forum on 15 October in Melbourne**




do know is that different stakeholders have differing objectives. We also know that they can shape notions of what constitutes a risk for what does constitute a risk may not be clear. There may be debates and disagreement about what is risky. And we do not always have the data to really tell us with any certainty what the risk may be.

An example which illustrates many of the points made so far is climate change. Decisions about the risks posed are contested and in some instances politics has become embroiled with science to the extent that some groups, and even some governments, have contested the existence of climate change and its effects on the environment. Even amongst those who are very concerned about climate change risks there are uncertainties about these risks and effects. Indeed, we know that the past may not be such a good indicator of what will happen in the future because climate change may be increasing the incidence and the patterns of natural disasters. So we cannot look at our historic data and think that that is going to be a good predictor of the future. Managing these risks very much depends upon the relative value that is given to collective goods and to present as opposed to future generations. And these choices become particularly stark with respect to poor nations when the amount of investment you have to put into future proofing detracts from dealing with acute imminent problems which need resolving in the present.

Expectations that it is possible to govern the future can lead to strong moral and political imperatives. There are moral imperatives to protect publics, but there are also political imperatives to avoid blame. So there may be pressures to act as if we are in control: by producing elaborate planning documents, relying on complicated models and using a range of techniques to apparently transform uncertainties into risks than we can then manage. The danger, of course, is that this leads to the wrong policy choices and contributes to the very disasters we are trying to avoid. Indeed, it is perhaps because of this that is has become more apparent to governments that we have to consider scenarios where zero risk may not be achievable. Hence we have seen terms such as mitigation; adaptation; and contingency planning enter the vocabulary. These are particularly discussed with reference to natural hazards where there is much discussion of resilience - which is meant to be a more flexible, devolved and democratic way of responding to disasters. The focus must be on selecting appropriate strategies according to the evidence we have. Crucial here is the importance of information.

Risk management decisions depend upon information – information about the likelihood of a risk occurring, and about the probable damage that might occur should this happen. The knowledge base upon which that policy is formulated is absolutely crucial. There may also be significantly less information available than we suppose. Sometimes policy makers – but especially the media and the general public – do expect that we are able to do things that we are in fact not able to predict. It really depends on the sort of risk and the sort of disaster involved. To return to the example of natural disasters, there will clearly be confidence in the location of a volcano and relatively high knowledge of the spaces vulnerable to a lava flow. This will be much more certain than, for example, the location and occurrence of hurricanes and wild fires. But how volcanic ash disperses and the effects on air travel are less certain as Europe discovered when European air space was closed down in April 2010 for just over a week, and then intermittently thereafter, because of the eruption of the Eyjafjallajökull volcano in Iceland. Weather conditions remained static and the ash blowing across northern Europe shut down air space at one of the busiest times of year. Some described the episode as 'the perfect storm', a coincidence of events that had not been anticipated and did not figure on the UK's National Risk Register. Interestingly this case led to the contestation of the science upon which air space was shut – both meteorological and the levels at which aircraft engines are vulnerable to volcanic ash.

Uncertainties about science and information can make it difficult for governments to proof the future and to formulate and activate contingency plans. Hurricanes are notoriously difficult to predict. One year after Hurricane Katrina another Hurricane Gustav, led to the evacuation of the Louisiana coast in the USA. Its trajectory and force proved very difficult to predict. Nearly two million people fled in anticipation of a category three to four hurricane. But by the time it reached Louisiana it had been downgraded to category two. In hindsight it raised questions about the policy decision to evacuate. In the Australian context, similar difficulties have emerged with respect to bushfires: you may risk the alarm of a bushfire that does not then happen. False positives, such as this, and false negatives can shake public and policy making confidence, both in science and in the scientific community. The risks of risk management can be considerable.

Finally we must confront the matter of resources.Governments, local authorities, public and private sector organizations spend vast sums of money on specialist risk management and contingency planning departments. Future proofing is costly and it is important that valuable resources are not wasted. Anticipating the future, putting in plans and measures to manage it and also generating contingency plans in the event of failures to control the risks can quickly lead to wasted resources because of the high volume of hypothesised risk, many of which may be wrong. The focus must be on selecting appropriate strategies according to the available evidence and this involves being prepared for the unexpected to happen. So we might have plans but sometimes they are too detailed and they rest on so many assumptions that they may be dangerous. For this reason we need to think very carefully about what those plans look like, whether they are based on strong or weak evidence, whether we would be better with less detail and more emphasis on resilience which involves de-centring and flexibility. There need to be partnerships between central and local governments with local communities and business. Buy-in about the legitimacy of what is being done is crucial.

The future proofing of the state needs to be a cooperative endeavour and also one that recognizes that the strategic choices we make really matter. Knowledge is crucial but it can be contested: we need a combination of natural and social scientific approaches. The future proofing of the state demands strong political nerves as these different forms of evidence require us to also recognize the limits of our abilities to predict and manage risks into the future.

# FUTURISTS IN ACTION

# "MERGER" OF TWO NOT FOR PROFIT ORGANISATIONS

**Note: Since the entity at the centre of this case study is still trading, the Board have asked that its identity not be revealed.**

Just over three years ago, the Committee of Management of a small not for profit, quietly approached the Board of a larger entity that operated in broadly the same space.

Cash flow was a serious issue for the smaller organisation and the Committee of Management hoped that amalgamation with a larger partner would improve their long-term prospects. Both teams saw potential in the idea, and a high level due diligence team lead by the CFO of the larger entity was created to: "look closely at the numbers".

It quickly became clear that there were significant economies to be gained if the two entities became one. As well as streamlining back office operations and reducing office space, there were potential savings in marketing and fund raising, and offering a broader range of services opened new service delivery options and access to new funding sources.

The Boards of both organisations met in secret and agreed in principle to a merger. The larger entity offered financial support to the smaller, which gave time for both parties to think through the best way to proceed.

One of the organisations had recently engaged the services of a futurist to help them develop their future strategic options, and they again sought counsel on the proposed merger.

By the time the futurist became involved, the due diligence team had developed a preferred structure and operational framework and had begun to create initial implementation plans.

The futurist was given access to their analysis, which revealed they had actually considered a number of alternative future structures and ways of operating and had whittled these down to one. By this time rumours were beginning to spread through both organisations and both Boards felt it was imperative to make an announcement quickly.

Given that a number of potentially viable future options had been identified, the futurist suggested that rather than simply announcing the existence of, and the decisions made by, the due diligence team, the Boards announce their intention to consider a merger and create an opportunity for the staff in both organisations (and, as it turned out, some funders and clients as well) to help shape the future of the merged entity.

Each Board invited their staff to select representatives to attend a two day future planning session. Eventually 11 staff from each entity, two government bureaucrats who had some responsibility for funding both organisations, four volunteers and representatives from three client organisations gathered at an off-site venue.

They were all confidentially given the financial and logistical analysis developed by the due diligence team (but not their conclusions) and invited over two days to think through how a merged entity might look and operate.

The futurist provided a process in four stages:

- At first, participants discussed the due diligence team analysis and added a significant amount of information, which had not previously been considered (in strategic foresight terms they conducted an environmental scan)
- Then they broke into small groups charged with developing alternative future structures
- They then agreed on the mission, vision and values they believed a merged organisation should reflect
- Finally, they identified their preferred future model.

What was finally agreed (and accepted by both Boards) at the end of this process did not differ markedly from what the due diligence team had developed, but actual implementation was greatly streamlined in a number of ways, as a result of the two day planning process

First, a number of staff decided for themselves that they didn't see a place for themselves in the merged organisation, and they happily took the redundancy benefits that were made available. No forced redundancies were required.

Second, those who were going to work together in the new entity were able to hit the ground running very quickly, saving a considerable amount of time and money.

As the head of the due diligence team put it: "We discovered that there were people in both organisations who had crucial information about our history, whose contributions would have been completely overlooked we had not embarked on this process".

# Book Review

by Charles Brass – Chair, futures foundation

NOTE: As with all books reviewed in Future News, copies are available to be borrowed from the futures foundation office. Members should be aware, however, that hard copies of this book are (for some reason) very difficult to obtain (though an e-book is available from various sources).

## The Future and Related Nonsense

by Antony Funnell


Antony Funnell is the presenter of Future Tense on ABC Radio National, and was the guest of the futures foundation at a futures forum earlier in 2015 (his presentation can be downloaded from the website as a podcast).

In 2012, in part because "in the last ten or so years, we've seen a remarkable transformation of society, but people have pretty much been left to themselves to navigate their way into the digital future. The pace of change has been so fast that I thank many of us still feel somewhat disoriented"p7) he wrote this book. Antony says his book "has a heavy, though not exclusive, focus on technology, because technology is increasingly an indispensable part of our lives" (p5) but he is "interested in technology in regard to the effect it has, or can have on individuals and society" (p5). He encourages his readers to "be curious, be positive and embrace your inner sceptic" (p8).

He highlights his own scepticism about the future right from the beginning (if it wasn't already evident from the subtitle) by describing in the preface a number of the millennial cults which have existed in different parts of the world and which have predicted the end of the world (always, so far unsuccessfully).

He begins his first chapter with a cultural look at those involved in the modern day business of prediction. Or should that be the industry of the future?"(p11) Over perhaps a dozen pages he analyses various of the people who market themselves as futurists, concludes that their prediction rate is not all that high, but also notes that many of them seem to make quite a lot of money nonetheless. He notes that many futurists work for, or consult to, technology companies and seem to be "engaging in practices which are less predictive than propaganda" (p19[1]).

A subsequent chapter focuses on how ordinary citizens have allowed technology companies to access their personal data and profit from selling it to others. He wonders whether these companies really deserve the trust we seem to have willingly given them.

Another chapter on the theme of collaboration and cooperation questions the wisdom of crowds, wondering about the rapid expansion of crowdsourcing and the rise of the open source movement.

He does acknowledge how "fantastically useful modern communication technology can be" (p108[2]) but then spends much of the chapter explaining why he thinks this is overstated and oversold.

Before moving to part two of his book (called Challenges and Opportunities) Funnell feels compelled to head a chapter "I am not a Luddite" (Ch3, p57) and to write appreciatively of various aspects of the so-called 'slow' movement (slow food, slow cities, logging-off-for-a-day, slow parenting and slow sex are just some of the examples he mentions).

In part 2 Funnell looks at energy efficiency and sustainability (and wonders whether more efficient lights might encourage us to leave them on longer, and whether Earth Hour is really an effective way to reduce unwanted emissions), virtual currencies and alternative money (an overlap with a recent book by Lietaer et al reviewed in the April 2015 edition of Future News) and the rise of gaming (and its application in the very serious areas of medicine, education and community development).

He also devotes a chapter the much vaunted "internet of things" beginning by looking at the rise of GPS systems and mapping technology and moving to musing about places where sensors might be placed in future (in running shoes, in rubbish bins and at bus stops so people can record their thoughts while waiting for the bus).

Then he moves onto part three, which he calls "it is just me, or is everything getting a bit odd?"(p223). In the first of three chapters in this section he returns to a theme he touches on earlier in the book – the relationship between science and science fiction; pointing out just how much technology we currently take for granted was once only science fiction. This allows him to speculate, based on contemporary science fiction, just what might become science fact in the near future (androids, space elevators and terraforming are just three examples).

He ends by looking at the relationship between technology and religion. Chapter 13 is called "Church of the Latter Day Gods". The now deceased Steve Jobs is put forward as the high priest of this church (not just because he always wore black). Technology, Funnell points out, even provides its own version of an after-life either through uploading yourself into a suitably smart computer just before you die or never dying at all by subscribing to the practices of gerontologist Aubrey de Grey.

In an brief afterword Funnell reveals that he really is a futurist after all by invoking the first rule of any successful journey into the future – first look into the past and understand how you arrived at the present. He apologises for introducing this thought at the end of the book ("I probably should have mentioned it a lot sooner" (p268)) but does make the point concisely when he says: "Many of us think of time as one long, forward-moving highway, when in fact the road to the future is full of detours and exit-lanes that, if you choose to take them (or if you're forced to) are just as likely to sweep back in the opposite direction before eventually re-joining the main thoroughfare"(p268).

Funnell finishes the book by saying: "the future is actually about us; it's about human desires and frailties, just as the present is, and the past was. And most of our human traits never change. Or if they do, they change very slowly. Technology is just the dressing we as individuals and society wrap around ourselves at any given time: the rifle, the jet fighter and the atomic bomb – each altered the course of warfare, but they didn't create future conflict – people did that" (p270).

Amen to that.

[1] quoting Douglas Ruskoff in a 1998 blog post entitled "Why futurists suck"

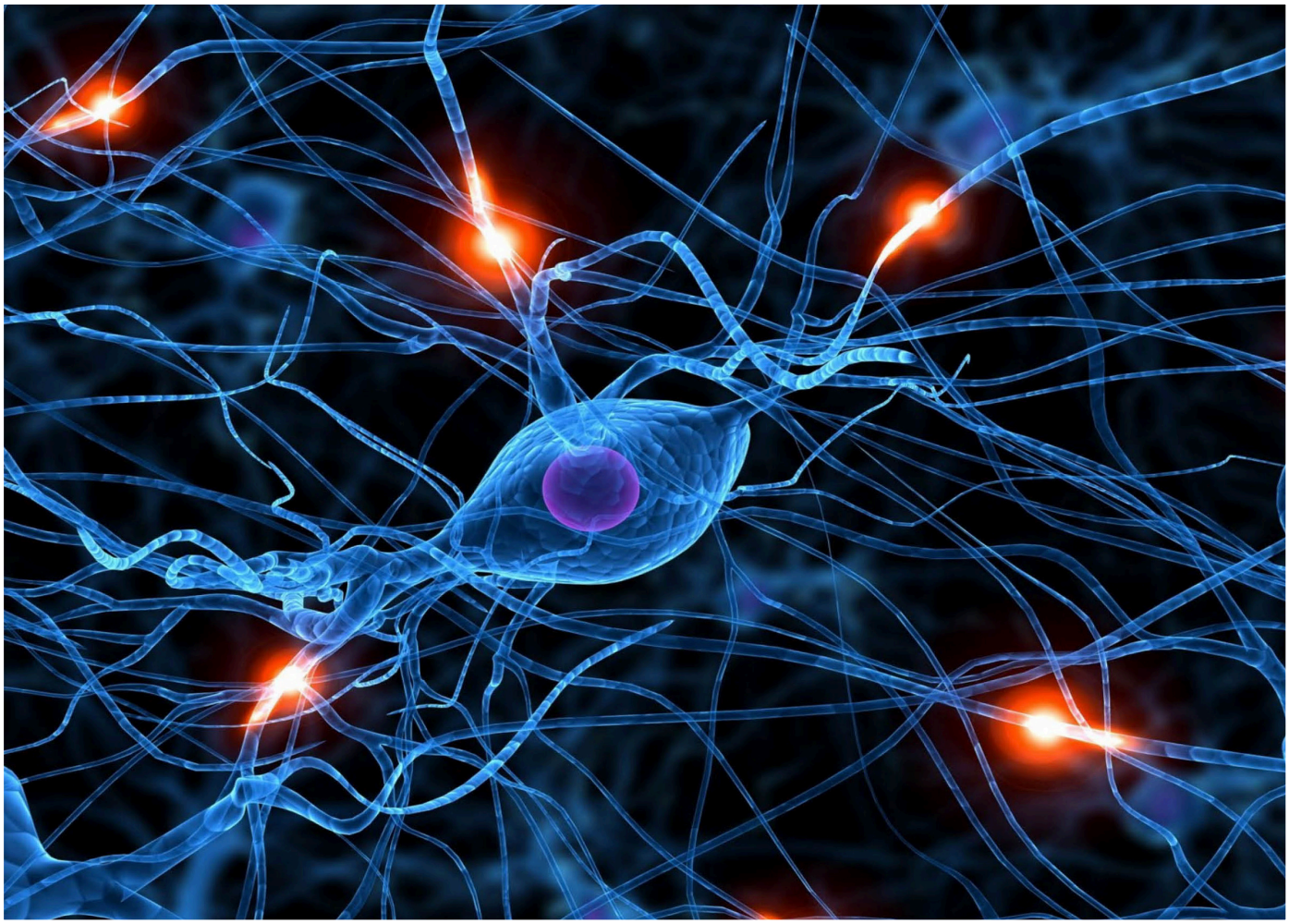
[2] giving readers a personal example of capacity of mobile phone video technology to report on events as they occur

## Signals in the Noise

# Forget Self-Driving Cars: Here's How Google Plans to Change How We Live Forever

Google is working to change every aspect of healthcare using the arsenal of information they've gathered about you and me since its inception. Some argue on the side of privacy violations, some experts believe it's helping to spread education and promote prevention. Nevertheless, one cannot argue that these innovations have incredible potential, that is, if they actually work.

**Here are ten of the innovations that could dramatically change, and arguably improve, health care.**

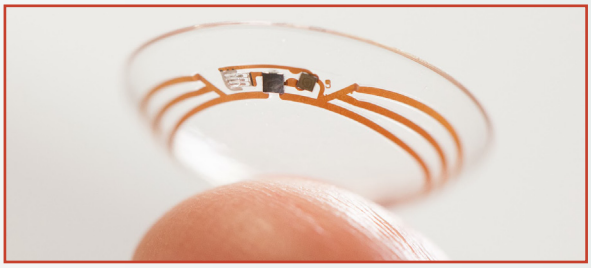


### 1. A Computer System That Operates Similar to the Brain

In January 2014, Google acquired deep learning start-up, DeepMind. The plans around this partnership were quite secretive for some time, until recently, when they unveiled the Neural Turing Machine—a computer system that mimics the short-term memory of a human brain. Understanding the inner-workings of the brain continues to be one of the greatest challenges in neuroscience. The system learns as it stores memories and can later retrieve it for performing logical tasks. This neural network is based around the idea of creating a computer that simulates what happens in the human brain but making it more efficient.

### 2. Smart Contact Lens for Diabetic Patients

Google is partnering with global pharmaceutical company, Novartis and its Alcon eyewear division, to help diabetic patients manage their disease. The lens contains a low power microchip and hair-thin electronic circuit that measures blood sugar levels directly from tear fluid on the surface of the eyeball and transmits the data to a mobile device. Google's 3D mobile technology is threaded throughout and they're aiming to improve the quality of life for those suffering from diabetes.



# Signals in the Noise

## 3. Unlocking the Secrets of Aging

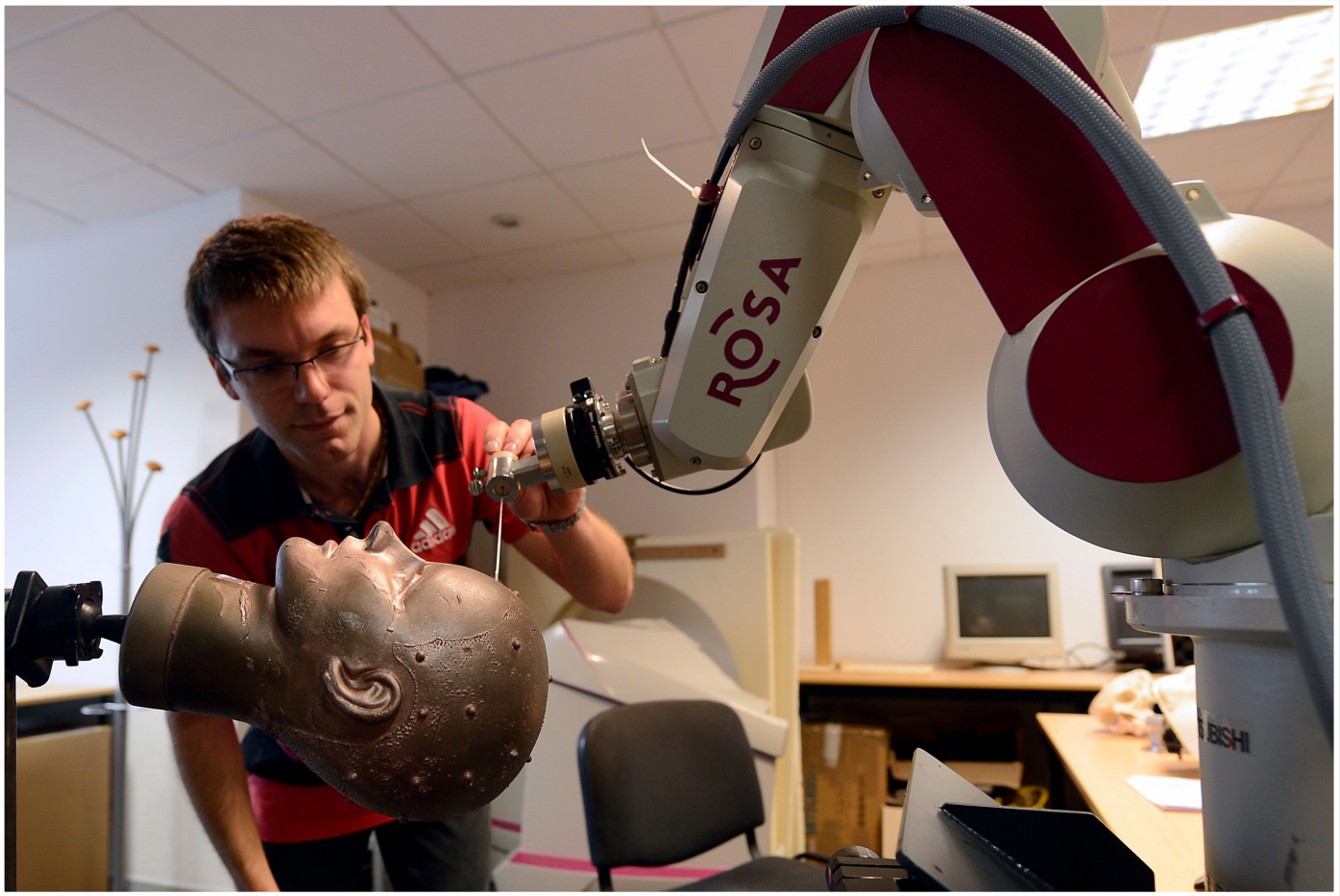
Google recently created California-based company called Calico to focus on aging and age-related diseases. In September 2014, Calico announced $1.5 billion partnership with pharmaceutical company AbbVie to accelerate discovery, development and commercialization of age-related conditions such as neuro-degeneration (dementia, Alzheimer's) and cancer.

## 4. Cancer and Heart Attack Detecting Pill

Google researchers are currently working to develop a nanoparticle pill that could identify certain types of cancers, heart attack and potentially other diseases earlier. Magnetic nanoparticles (less than one-thousandth the width of a red blood cell) would circulate through the blood to detect and report signs of cancer or an imminent heart attack. Taking it a step further, Google is also making synthetic skin, similar to human skin, to test the pill.

## 5. Genome Storage in the Cloud

We're all familiar with Google's online storage services such as Google Drive. Well now, the company is extending this service to storing genomes in a quest to help hospitals and university laboratories store their client' genomes in the cloud. They're calling this Google Genomics and charging $25 per year. Google will keep a copy of any genome in the cloud to eventually allow open access to millions of genomes and run efficient analyses.




An engineer checks a robot used by neurosurgeons. BORIS HORVAT/AFP/Getty Images)

## 6. Robotic Surgery Platform

As a surgeon who uses rotor technology, I am intrigued by Google's plans to partner with Johnson & Johnson to create the next advanced robotic-assisted surgery platform. In the hands of Google's semi-secret research team, Google X, this next platform could seek to expand real-time image analysis that would give surgeons better vision around the edges of nerves or tumors. With Google involved, this system will benefit from the significant amount of data they've gathered from extensive research and development in robotics. From self-driving cars, artificial intelligence and strong vision technologies stemmed from Google Glass, this system could prove to be quite revolutionary.

## 7. Google Glass for Doctors

Even though many believe Google Glass failed as a consumer product, it still may have many uses for healthcare providers. For those who don't know, Google Glass is a wearable device with an optical head-mounted display that shows information in a smartphone-like hands free way. I believe Google Glass has the potential to perform many operational tasks in healthcare in order

to streamline complex processes such as gathering and updating patient data in real time. For example, Augmedix was an app developed for Google Glass and it automatically takes notes for doctors, allowing them to concentrate solely on the patient. It also could prove to aid in surgery and become a potential useful tool for surgeons, and other surgery team members in the operating room. For now, Google has temporarily tabled Glass, but who knows, the next time you visit your doctor, maybe he or she will have a new pair of specs.

### 8. Relevant Medical Facts in Search Results

Google most all health conditions like Type I Diabetes and you will be served a menu of information related to the condition through Google's Knowledge Graph Panel found on the right side of search results. Everything from how many people per year are diagnosed to treatment options. Some even use graphics to display symptoms and treatments visually. The intention is to bring basic information related to your search that may lead to an easier search around the web or help you know which questions to ask your doctor. They disclose that this information is not intended to be medical advice but they did work with a team of medical doctors to carefully compile, curate and review the information. The hope is to empower the patient regarding their health decisions and educate around more common conditions.


### 9. Google Fit

Head on over to fit.google.com, sign in with your Gmail or Google account and you'll join Google's latest health service. Google Fit plans to collect and aggregate data from popular fitness trackers and health mobile apps, directly competing with Apple's new Health Kit. Google intends to integrate this with a wearable device that measures data like steps or heart rate. Along with the Apple Watch, and other wearable technology, creating these types of health platforms for the masses has raised concerns over privacy and how best to process sensitive health data while also providing valuable feedback.

### 10. Making medical records shareable

At the TED2014 conference in Vancouver, Google co-founder Larry Page eluded to Google's interest in making medical records public. Information sharing is threaded throughout tech in many different ways, but the idea of it being integrated into healthcare is a bit daunting, especially when we look at HIPPA violations. He commented on the records being available anonymously to research doctors and scientists "We'd save 100,000 lives this year. We're not really thinking about the tremendous good which can come from people sharing information with the right people in the right ways," said Page. Obviously, this comes with many privacy concerns, however the potential data scientists could have access to, is quite astonishing and could potentially lead to better clinical studies around diseases that affect millions like heart disease, cancer and others.

The original article appeared in the Observer and can be accessed here:

http://observer.com/2015/05/these-ten-google-medial-innovations-may-dramatically-improve-your-health/

The author, Dr. David B. Samadi is the chairman of urology and chief of robotic surgery at Lenox Hill Hospital and professor of urology at Hofstra North Shore-LIJ School of Medicine. He is a medical correspondent for the Fox News Channel's Medical A-Team and the chief medical correspondent for AM-970 in New York City. Visit Dr. Samadi's blog at SamadiMD.com