# We need to talk about the Web: a new conversation about technology and society

Martin Stewart-Weeks

April 2017 v1.0

This paper has been written by Martin Stewart-Weeks, based on his "reflect and report" role at **Brave Conversations,** a 2-day Web Science 2017 conference held in Canberra, Australia. The conference, convened by Intersticia and the Intersticia Foundation, was supported by the Web Science Trust, the Ethics Centre and the Australian Information Industry Association.

**The paper is not an official conference summary or report**. Although it integrates the insights and ideas that emerged over the two days, it does not necessarily reflect the views or opinions of any of the participants.

Its purpose is to provide a sense of what was discussed and to provide a starting point for further discussion of these ideas in subsequent and continuing "brave conversations" both in Australia and around the world.

> "There is no justice.
> There is just us."
>
> Terry Pratchett

"Web Science" is probably an unfamiliar phrase for some. Obscure even. As someone remarked, the only problem with the phrase "Web Sciences" is the word "web", the word "science" and the way the two words are used together.

Which is a bit tricky, because the conversation which those two words signify is becoming more urgent and more central to the future of the planet and the way we live a life in common worth living, not just for some, but for all.

It's a big call.

This short paper, drawing on some "brave conversations" held in Canberra over two days in early April 2017, will sketch not only why the call is big, but why, broadly, it is right.

## In simple terms

"Web Science" is a label for a conversation – research, debate, exploration - about the web (and technology more broadly), society, people and nature to get the best out of each, to improve their interaction and to lift the prospects of their combined impact on opportunity, inclusion and sustainability.

Over the past decade or so, a small but growing group of leaders, thinkers and practitioners in technology, computer science, sociology, political science, anthropology, business, the public sector and civil society have been circling a big challenge.

> "For the Web to succeed, we need to understand its societal challenges including increased crime, the impact of social platforms and socio-economic discrimination, and we must work towards fairness, social inclusion, and open governance."[1]

> From the start, a "manifesto"[2] of a few simple but important propositions has defined the scope and nature of the conversations that Web Science needed to have:

"Ten years ago, the field of Web Science was created to explore the science underlying the Web from a socio-technical perspective including its mathematical properties, engineering principles, and social impacts [Berners-Lee et al, 2006]. Ten years later, we are learning much as the interdisciplinary endeavor to understand the Web's global information space continues to grow"

A manifesto for Web Science @ 10

http://www.webscience.org/wp-content/uploads/sites/117/2016/12/WebSci-manifesto-v19.pdf

---

[1] http://www.webscience.org/manifesto/

[2] http://journal.webscience.org/297/2/manifestoACM.pdf

## 14 axioms of "group genius"

1. The future is rational only in hindsight.
2. You can't get there from here but you can get here from there.
3. Discovering you don't know something is the first step to knowing it.
4. Everything someone tells you is true: they are reporting their <u>experience</u> of reality.
5. To argue with someone else's experience is a waste of time.
6. To add someone else's experience to your experience--to create a new experience--is possibly valuable.
7. You understand the instructions only after you have assembled the red wagon.
8. Everyone in this room has the answer. The purpose of this intense experience is to stimulate one, several, or all of us to extract and remember what we already know.
9. <u>Creativity</u> is the elimination of options.
10. If you can't have fun with the <u>problem</u>, you will never solve it.
11. The only valid test of an idea, concept or theory is what it enables you to do.
12. In every adverse condition there are hundreds of possible solutions.
13. You fail until you succeed.
14. Nothing fails like success.

<u>http://www.mgtaylor.com/mgtaylor/jotm/firstqtr1998/axioms_intro.htm</u>

1. Web Science must be the genuine intersection of discipline; i.e. it cannot be allowed to be a sociology or a computer science of the web;
2. Web Science must look both ways to see how the web is made by humans and how humans are made by the web;
3. Web Science must follow all the actors (individual, groups and technologies) and trace the networks implicated in the web in the broadest sense and understand the effects of these networks;
4. Web Science must move beyond narrow epistemologies and methodologies to enable a science which can examine and explain both micro and macro phenomena;
5. Web Science must be a critical discipline - if it is to speak to the desire for the web to be pro-human – it must develop theoretical thinking and push towards critical, political social theory, to critique the direction of travel, to challenge the web and society

As the pace of technology change and churn quickens, the intensity and urgency of the discussion about what it means for the world and for all of us as people and organisations and communities are both accelerating as well.

Ultimately, that discussion is about some equally big challenges of power, control, authority and accountability.

How the big decisions are being made about technology's future, the impact new technology has on the choices and chances of people as they interact with new tools and platforms, how the conversations from which these choices flow are set up and who gets to contribute to them...these are all being contested pretty much every day.

> "...'the web' ceases to be something technical – asocial or independent from its use – and becomes a combination (or multiple combinations) of human and non-human actors interacting in networks to produce particular outcomes...our point is this: the web does not exist as something separate from its doing."
>
> http://journal.webscience.org/297/2/manifestoACM.pdf

And the difficulty is that, often, decisions are made which seem to privilege the interests of some of the larger commercial and institutional players who have taken over the commanding heights of this new digital world.

The Web Science response seeks to redress some of that imbalance with inquiry, careful research and an investment in different, more inclusive conversations.  A different mix of voices has to be crafted – individual people, the interests of society more broadly, the needs of nature and the fragile environmental systems on which we rely,

There's an insight which suggests, as management writer Margaret Wheatley has pointed out, the best way to change a conversation is to change the voices in it. An important part of the Web Science endeavor is to change the voices in the discussion about what we want to do with, and about the technology capabilities we are building.

As the relationship between "man" and "machine" becomes more complex and the lines that distinguish technology and humans become blurred to the point if invisibility, these conversations matter more than ever.

The challenge, though, is whether there is sufficient awareness across society about the significance of the choices we are making or, worse, that others are making for us about how we want that relationship to evolve.

Thirty years ago, Tim Berners-Lee did the initial design for what we now know as the World Wide Web. The Web has since pervaded every corner of human existence and intruded its influence into every domain of our lives.

The digital age has shifted relationships between machines and people and nature in ways that we are only just beginning to understand. As we embark irreversibly on the "age of the machine", the influence and impact of the next wave of inventive digital creativity – think artificial intelligence, machine learning, new versions of virtual or augmented reality – are barely beginning.

Our reflexive and immersive familiarity with the digital world belies the reality that, in many ways, we're only just started this dance with digital.

So now might be a good time to dramatically ramp up the intensity, quality and reach of big, brave and inclusive conversations about its direction, meaning and impact.

## What's a "brave conversation"?

It turns out that having a conversation is quite hard. And it's not the same as talking.

Conversations are exchanges. And the point of an exchange is to create something – in this case, insights, ideas and knowledge – that was not there before the conversation started.

If that is going to happen, a good conversation needs a degree of honesty and mutual respect, it assumes a willingness to listen and respond (as opposed to the definition of a conversation as "waiting for the other people to stop talking").

And it sometimes requires a degree of honesty to bring into the conversation things that need to be spoken but which might challenge the interests or comfort of those involved.

And that's where the "brave" comes in.

What's brave about "brave conversations" is their willingness to engage ideas and territory which might be characterized by these attributes:

- It touches on big questions of the current distribution of power and control by some of those involved in the discussion; those vested interests may need to be questioned and disturbed by the conversation if it is going to be honest and full. ("A web science that takes up the challenge to be genuinely pro-human must, we contend, make a commitment to recognising inequalities and the potential for things to be otherwise." http://journal.webscience.org/297/2/manifestoACM.pdf)

- It might raise possibilities of action and different ways of living and taking decisions that imply disruptive and radical changes to some of the architecture of the way we currently run our politics, economics and wider elements of society (basically, how we take decisions, who takes decisions and how those decisions reveal underlying assumptions and patterns - paradigms – whose logic and implications may need to be tested)

- It might need, at some point, an awkward discussion about the extent to which the people and organisations and interests in the discussion might, in some respects, turn out to be part of the problem rather than part of the solution, or at least that their contribution to problem and solution is ambiguous and contested.

Either way, one of the assumptions behind the developing Web Science field is that these kinds of brave conversations are essential.

The evolution of the web itself, the dramatic shifts and leaps of capability and competence in the world of digital and data and the wide engagement by technology of virtually every dimension of what it means to be human dramatically lifts the imperative for bravery – direct, honest and clear – in these conversations.

## Paradigms, assumptions and the future
[Based on a presentation by Pia Waugh]

We're at a point where another big shift in the architecture of human and technology potential is already underway.  It comes loaded with possibility and peril.

The Internet and successive, and now emerging, versions of the Web are the latest in a series of shifts that included printing, the industrial revolution, the rise of independence movements and experiments in self-government and democracy, the growth of cities and urban living and astonishing revolutions in the way we produce and distribute food.

In many ways, we have become more powerful than ever. But the rate of change is only increasing. We made all this up, and we can make it up again.

Since the 1960s, the …the concept of a paradigm shift has also been used in numerous non-scientific contexts to describe a profound change in a fundamental model or perception of events …
https://en.wikipedia.org/wiki/Paradigm_shift

Some of the big paradigm shifts are becoming clearer. We seem to be moving from societies and systems that are relatively closed to ones that are relatively open (although we're also seeing how quickly that shift can be reversed, at least in some places for a period).

The Internet itself has been instrumental in decentralizing so many of our traditionally centralized institutions and organisations. We are shifting from analogue to digital. And nationalism is giving way, at least some or the time, to a transnationalism that seeks a more regional or occasionally global response to opportunities and risks.

And a world of scarcity seems to be giving way to a world, for many if not for all still, of abundance, especially in the ability to access information, knowledge and connection.

Mind you, it's possible to take any one of those paradigm shifts and find plenty of contemporary examples of practice and culture that seem to be heading in exactly the opposite direction.

It's more realistic, perhaps, to see these shifts as real and powerful, but often contingent and contested. They often depend on particular circumstances and the actions and interests of particular leaders or people in positions of power and influence. The paradigm shifts can often be experienced as much more ambiguous than the one-way directional change which is often implied by the notion of a paradigm shift.

Other important observations emerge from examining some of the assumptions and current paradigms or patterns that construct at least some of the debate about technology and society.

One is the persistence of the call for connection and social interaction as a fundamental part of what it means to be human. Another is the insistence of new levels of transparency in the dealings and interactions of people, companies and institutions. Part of the test for this next phase of the technology-society conversations will be the level of visibility or transparency with which it is conducted.

Can people see, at least, what is going on? How hidden will be the actions and real motivations of the main players, including of people and communities themselves? To an extent, calling out the need for greater visibility will be one component of the "brave" part of our brave conversations.

It's possible to go a step further and seek not just visibility and transparency but legibility as well. The idea of legibility is not just the opportunity to see what's happening but to 'read' what's happening, to have a chance to understand and follow the conversation as it were.

Legibility implies literacy, of course. Anyone can see the letters on the page. But you can't read them unless you are literate. At least part of the next conversations about the web and the interaction of technology and

society will be whether people have the literacy skills to read the technology, social, political and cultural currents with which the conversation will be grappling

A final issue deals with rights and assets.

Especially in the field of data, one strand of thinking that is becoming more powerful is the contention that we can do much to equalize the technology-human interaction if we vest in people the rights to their data about themselves. It's basically a challenge to vest people with rights to their identity.

Property rights could be a very old solution, or part solution to a very new problem. In the process, they could play a part in shifting the balance of power towards ordinary people.  If we assume that people tend to care more about problems and challenges in which they have a genuine, perhaps even literal, vested interest, then investing people with rights to create assets they might want to more energetically contest and protect could be vital.
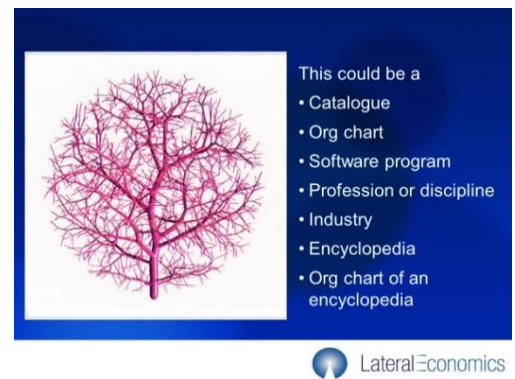
And that process, presumably, need not stop with humans.  Why wouldn't it also apply to nature, animals, institutions and process and even to the machines themselves?

## Arteries and capillaries
[Most of this section is based on the presentation given at the event by Nick Gruen]

Brave conversations imply brave institutions.  And brave institutions imply as much attention to the "capillaries" (the smaller, more local and experiential modes of implementation and execution, close to the ground and close to people) as they do to the "arteries". (the bigger, top down systems of command and control and status-focused hierarchies of institutional power and policy direction).

In fact, it is more than a speculation to suggest that much of our current institutional performance, especially in and around government and public purpose, betrays a dangerous imbalance that has underestimated both the value and significance of the smaller "capillaries" of practice and implementation.  And that leaves our ability to translate brave conversations into equally brave and effective execution stranded, perhaps fatally.



This could be a
• Catalogue
• Org chart
• Software program
• Profession or discipline
• Industry
• Encyclopedia
• Org chart of an encyclopedia

LateralEconomics

Arteries tend to favour top down hierarchy and privilege theory over practice, strategy over delivery and policy over execution. In the evolving world of a de-centred Web, and an associated culture of distributed power and local autonomy, we have witnessed the agile flexibility of the "lean" production system in Toyota, for example, open source software production and the growth of peer-produced services and platforms like Wikipedia.

What these, and emerging technologies like blockchain, suggest is quite different wants to organise flows of information and learning and policy and implementation, The results of existing patterns are often projects which fail to realise the intended ambitions that drove their development in the first place (for example, more education spending doesn't result is better PISA scores, resulting in billions of dollars of "leaking" human capital and human potential every year).

Further, the associated culture of debate and policy discussion has drifted inexorably towards partisan, "choose your side" pitched battles where the point is not an agreed and useful outcome, but largely to prove your side is "right" and the other side is "wrong".

And these tendencies have become entrenched in our institutions of government and parliamentary democracy.  We may have reached a stage where some new form of citizen participation in the deliberation of big policy and strategic choices needs to be tested. Something like a "citizens chamber", modelled on the principles of deliberative or "citizen jury" debate, might be worth trying.

Another would be a concept of an "evaluator general", along the lines of the Auditor General we are more familiar with, to act as the custodian of a more systematic, rigorous and open flow of information, data and user and citizen experience at the heart of an implementation process that learns more effectively from its own expertise and experience,

It would reflect similar attempts at the policy and service reform level to intrude a much greater quotient of direct user and human experience into the process – more capillaries, fewer and less dominant arteries.

Of course, a focus on local initiatives and better engagement with people and communities doesn't deny the need for levels of central authority, sometimes in the establishment of conventions and even, in the appropriate situations, the design and enforcement of contracts. The question, predictably, is not resolved with an either/or choice, but with a judicious balance between both instincts.

*...rethinking knowledge now that the facts aren't the facts, experts are everywhere and the smartest person in the room is the room*

David Weinberger

http://www.toobigtoknow.com

## Politics, economics, democracy and everything

There isn't a dimension of human and institutional life that Web Science, in one way or another, doesn't touch. Which means the scope, range and mix of brave conversations which its work both implies and requires is virtually limitless.

The conversations, for example, will grapple with the design, conduct and efficacy of many of our current patterns and possibilities in politics, government and democracy. Big assumptions about the distribution of power and authority across all those domains are being tested and challenged. How, if at all, we can conceive of and then actually build meaningful (ie broadly representative and popularly responsive) institutions and practice that span national boundaries and interests remains moot.

The constitution of identity through new modes of privacy and individuality, especially in a world drenched with data whose visibility, intentional or accidental, has become a defining feature of the machine age, is going to be dramatically different.

But there are enduring questions about how the boundaries around and between these big questions of selfhood are drawn and patrolled which go to the heart of both our humanity and our humanness.

Some aspects of a new economics, reflecting some different assumptions about the role of corporations, or even 'hyercorporations' and the role of government as both regulator, designer and often creative contributor to economic performance and innovation, are being crafted and tested.

Some of the responses - tax, regulate, property rights – are traditional. They seek to impose constraints, or open up opportunities, for both consumers and producers (who are often the same people) in the new digital and "collaborative" economy.

Other responses – blockchain, big data and data analytics, digital transparency and legibility – are harnessing the new tools of digital and technology innovation to speculate new institutional forms into existence. In that sense, in the new economics, technology threatens to become the solution, or at least a big part of the solution, to the problems it has created.

"The west's high noon arrived in 2016, and the most important single lesson is not to go into denial about this. So tear up your old maps. Get out of your comfort zone. Find new allies—or suffer the consequences. Economic systems are failing; old political cartels are losing their legitimacy. Elite populists and democrats are duelling. The need for transformational movements has never been greater—and at last they are rising up."

https://www.prospectmagazi ne.co.uk/magazine/the-new-politics-the-revolution-will-be-digitised

There is a view that the debate should be less about the need for a "new" economics than an urgent focus on using the tools and precepts of a perfectly serviceable "old" economics.

To quote a helpful response to earlier drafts of this paper from Ian McAuley:

> The discipline is sufficiently rich to allow us to analyze digital disruption and to suggest appropriate policies in response. We can do this using established economic theory, without starting all over again.  Many of the issues associated with digital disruption are covered in the established theories of public goods, and more recent developments in behavioral economics and game theory, for example.

> The problem lies not with economics itself, but with a narrow branch of economics embraced by our policymakers, broadly described as *neoliberalism*...

> ... if the benefits of established and emerging technologies are to be realized, they must be in the context of inclusive growth.  That's why we need to abandon that dead-end branch of neoliberalism, and to return to the economics of the mixed economy, in which the contributions of the private market, the sharing community, and the government are all respected.

The quality and character of citizenship, of the art and practice of belonging to a wider social community of mutual rights and responsibilities, is also up for contest.

As technology keeps expanding at least the potential for more and better connectedness, transparency, access to knowledge and power and the ability to forge new bonds of solidarity and common purpose, how people respond is being tested.  How do these new tools and platforms make the leap from instruments of protest and new social movement building to platforms for the harder, contested business of governing and decision making with its complex trade-offs and persistent ambiguities?

How do citizens activate their obligations and their power to engage, influence and shape, to be heard and accounted to, in an era that seems to be sweating distrust and disengagement from every institutional pore?

## The world and the web

It's at least an interesting thought experiment to consider whether, as a very solid 30-year prototype, it's time to 'call' the current instantiation of the Web as a learning-full experiment and start on the next version.

Taking that further, maybe we should see the current Web as a good prototype of a design that now needs to be tweaked, perhaps more substantially redesigned, to pick up what we have learned first time around about things like underlying architecture, the role and ownership of data, the risks of dominant players, different approaches to rule setting and rule maintenance and evolution and so on.

Bolu Ajiboye and Bob Kirsch, biomedical engineers at Case Western Reserve University, in Cleveland, used functional magnetic-resonance imaging to locate nerve cells responsible for arm movements in the left motor cortex of Mr Kochevar's brain. The technique highlighted a patch of his brain to which the blood supply increased whenever Mr Kochevar imagined moving his right arm. The team then implanted at that spot two 4x4mm chips, known as Utah arrays, each armed with 96 tiny electrodes, to measure the electrical activity of the 100 or so nerve cells there.

They also implanted 36 stimulating electrodes in the muscles of his right hand and arm.  With the Utah arrays in place, Mr Kochevar was asked to imagine moving a virtual arm in a computer simulation, and, later, to imagine moving his own arm while it was being moved for him. The patterns of electrical activity from the nerve cells firing in Mr Kochevar's brain were fed to a computer algorithm, which matched them to the motions of the virtual arm and later, his own arm. After this training, the algorithm was able to detect brain activity associated with Mr Kochevar's intention to move his arm and then trigger the contraction of muscles needed to bring about the desired motion

*The Economist 1 April 2017*

In the machine age, these are some of the other obvious considerations that a 'next Web' might consider (based of the 'first Web' has already done in many of these areas anyway):

How we create and engage new knowledges created in increasingly complex processes of shared information, insight and implementation

Becoming increasingly capable in determining the requisite provisions of privacy and trust and making them stick

How we avoid unnecessary obstacles to the necessary pace and creativity of new applications in technology capability without losing the ability to ponder sufficiently their implications and risks

How the next web effectively turns each person in their own "server", replete with a new level of control and autonomy about the data about them over which they have much greater direction

The need to maintain and improve open, standard navigation systems that make it easy for people to find and use the information and knowledge they need, and contribute the insights and expertise they grow

There are two questions in the end that emerge from a quick review of the "state of the Web" and its likely future.

Firstly, do we need to essentially bail out of the current Web and start, as quickly as possible, using the insights we've garnered from the last 30 years, and with plenty of inclusive conversation across technology, society, humans and the natural world, to design something event better?

How realistic is that?  How disruptive would it be to essentially place a notice on everyone's web sites and computers which says "We're pleased to announce that we're busy designing and building a new and even better Web.  The current one will be off line for a bit while we do the renovations.  We apologise for any inconvenience."?

Perhaps not so realistic, but the impulse behind the questions remains to be answered.

The second question is tougher.  However smart the smart machines become, breathing artificial intelligence and threatening to become more intelligent than humans, do they ever (can they ever) become more human than humans?

Wouldn't it true, once we can work out what it means in practice, that the best people to be humans are, well, humans?

## Things don't turn out the way you'd expect

Lean canvass and start-up teacher and practitioner Steve Blank coined the memorable dictum that "no business plan survives its first contact with a customer."[3]

Blank's point is one we instinctively recognize, perhaps in another familiar form, trading on Scottish poet Robbie Burns – "the best laid plans of mice and men often go awry (or, in the Burns dialect, "the best laid schemes o' mice an' men / Gang aft a-gley").

How confidently, even assuming we can discern them, we can translate insights and aspirations about the Web's future into successful implementation?

We have much to be wary about:

- How technology and technology-based solutions to virtually any problem or opportunity are actually applied is a function of context, culture and, in many instances, what counts as knowledge and capability

- In many cases, those working on the same problem from different perspectives are not talking the same language and will often mean quite different things when they are dealing with the same of concepts

- The more diverse the groups involved in the problem-solving, or opportunity-realising project, the more complex are the bodies of knowledge and expertise they will bring to the table; integrating those bodies of knowledge into a shared base of ideas is harder than it might seem

- There are inevitably hierarchies of knowledge and information and there will therefore be contests about which level will assume priority over others (back to issues of power, control and authority).

- There will be resistors and silo-protectors, those anxious to retain boundaries which other seek to dissolve or combine in the name of collaborative problem solving, but from which those comfortable with the status quo sustain identity and authority. They are unlikely to go quietly.

And perhaps most basically of all, these tasks of analysis, reflection and planning rely on access to different types of expertise, respect for which in many situations is eroding or at least under considerable pressure.

The role of, and respect for, expertise is a whole other debate whose implications ripple out much further than this brief paper.

---

[3] https://steveblank.com/2010/11/01/no-business-plan-survives-first-contact-with-a-customer-%E2%80%93-the-5-2-billion-dollar-mistake/

"For whilst we might all agree that Web Science cannot develop without inter-disciplinarity, we should be clear from the beginning that this is no simple matter. We need to be realistic about what we are getting ourselves into. There will be big challenges in making ourselves understood to each other and developing collaborative understandings will require us to leave the comfort of our disciplinary silos. But, the promise of new forms of knowledge and understanding that are bigger than the sum of our parts are gains worth working for."

http://journal.webscience.org/297/2/manifestoACM.pdf

But its implications are pervasive in the Web Science ambition to privilege ideas, knowledge and many different sorts of expertise in the technology-society conversation.

## Machines and humans: take your pick

The debate about whether we'd prefer to live in a machine age turns out not to be a debate at all, but rather a nuanced, evolving conversation about what it is that is wonderful about both that needs to be preserved and augmented to the mutual benefit of each.

The choice between machines and human is not a contest, even if it is, and should be, hotly contested from time to time. Its successful resolution (as in "re" "solution", that is, something that has to be continually solved and then solved again) is a negotiation about interdependence and amplification, even if sometimes that negotiation is unequal and heavily loaded.

Behind this suggestion lies Mr Musk's argument, made repeatedly, that human beings need to embrace brain implants to stay relevant in a world which, he believes, will soon be dominated by artificial intelligence.

The Economist 1 April 2017

While it may be true that there are plenty of things at which human are crap (driving, for example, or crunching large scads of data), there are things human are especially good at. Including being human. Which, somewhere at the core, means a unique consciousness and capacity for faith, spirituality and an irreducible capacity for imagination and soul which can be approximated, perhaps even imitated, but never replaced.

And just to reinforce the potential for the Web Science debate to search the deepest recesses of human motivation and anxiety, there is plausible speculation that at least part of the impetus for smarter and smarter machines is a fear of death, perhaps even, by one account at least, man's irrepressible search for immortality, divinity.[4]

## The good life

[This section is based on a roundtable session moderated by Simon Longstaff from The Ethics Centre]

Descartes, Francis Bacon and Thomas Hobbes have a lot to answer for.

At least according to one construction, they and a few other writers and thinkers in the 17th and 18th centuries ushered in much of the "calculative rationality", and its associated belief in individuality and the rigours of reductionist thinking, that has underpinned the scientific method on which we still rely.

---

[4] https://en.wikipedia.org/wiki/Homo_Deus:_A_Brief_History_of_Tomorrow

The consequence is a world of knowledge and a way of knowing that often seems mired in hermetically sealed domains of deep, but disconnected expertise.

And that reflex remains an obstacle to the kind of joined up, whole systems sensibility demanded by the connected, complex challenges we now confront.

All of which makes it an interesting challenge to chart some broad contours of a 'good life' to which a new settlement between technology, people, society and nature might be directed.

These are some guides:

- A sense of freedom from arbitrarily imposed rules and constraints and from too much greed and corruption by those in positions of power and influence

- A similar sense of the "freedom of self", an ability for people to exercise some degree of autonomy and direction over aspects of their lives, and the choices they get to make, that are important to them (which often gets articulated as "I need some sense of control over my life")

- Distinguishing between, Maslow-like, some of the lower-order and higher-order needs that, in a more digitally infused world of abundance and apparently limitless choice, we need to make

- One of those "needs" choices that has become more complex, or at least more nuanced, are questions of identity, privacy and security, which now loom so large as so much of our lives, whether basic transactions or more complex relations, have gone irretrievably digital.

- A sense of fairness and equity, offering the opportunity for agency and the ability to make and enjoy some sense of progress and improvement in different dimensions of the quality of your life

- The quality of relationships, connections with others and the ability to contribute to a larger community or whole, as a counterpoint to the dominant "scientific" narrative of isolated, self-determining individuals

- In a world where, increasingly, algorithms are making important choices or at least "nudging" us in one direction or another, there is a growing concern about the architecture of ethics and values from which those algorithms, and the choices they reflect, draw and reinforce.

Another dimension of the 'good life' discussion in the age of robots intruding into more human domains – care and support for older people, people with disabilities for example – is the limits that mark off the robot and the quintessential human experience.

"'I' carries the suggestion that I am somehow individual, independent, when interdependence is the law."

from *Small Arcs of Larger Circles: Framing through other patterns*

Nora Bateson
http://amzn.asia/2oGIpgl

And to the extent that robots and other forms of programed automation allow drudgery to be offloaded, does that offer the prospect of more time for humans to do the things human do best – relate, respond, empathize and make judgements about wellbeing and happiness?

The conversation about what constitutes a good life in an age of more complex machine-human interactions raises some big questions about the role of government, the private sector and civil society in its constitution and production.

It raises too the need for those responsible for policy making, for the design and production of services and platforms, digital or not, to have these attributes of the good life, and the values and ethical frameworks they reflect, more explicitly built into their design and structure.

We will increasingly come to expect our devices, our digital and analogue service providers and those who wield power and influence to be more guided by these attributes than ever.

## So what, now what?

Most conversations circle around eventually to questions about purpose and consequences. As ideas and issues get aired and debated, inevitably there is a concern about what should happen next and how might things evolve from here.

Some useful lines of inquiry are emerging.

The Web Science conversation, as brave and testing as possible, need to continue in different places, with different contributors and with a sense of energy and exploration.

Keeping those conversations going, across Australia and around the world, won't be easy given the very different sets of experience and expertise that need to be convened and curated to make them both useful and productive. But it can be done with a little design, plenty of leadership and all the reserves of good will and generosity we can find.

The conversations will inevitably be full of stories and experiences, drawing on a close reading of the way in which the four "corners" of the discussions – technology, society, people and nature – encounter the practical realities of the shifting technology-human interactions.

But access to good data and evidence about what we already know, and what we are learning through careful and patient research and inquiry, will be just as important. It is from the combination of data and experience that practical and usable insight is most likely to be forged.

The next steps in this conversation have to concentrate as much on the "capillaries" as the "arteries", to pick up an allusion from the earlier discussion. The work and knowhow of those close to the action and doing the grounded life-work of technology-human interaction have to feature as much as the directions and preferences of larger institutions of power and influence.

Building a more complete and consistent Web Science "observatory" is a longer-term venture perhaps. It could provide a more comprehensive capture of research, thinking and examples that is easier for people to access and contribute to.

Some projects were undertaken earlier and an Observatory, based on the Southampton instance, was built by the University of South Australia[5]. That project could be revived and further developed as a useful starting point.

As far as possible, the Web Science conversations need to go to where people are, not expect people to come to another place or stream of work. Inviting existing institutions – schools, universities, governments, NGOs, industry bodies and associations – to take on a Web Science "flavor" will give the issues an immediacy and relevance they might otherwise lack.

The point about these "brave conversations" about technology and society is that they should occur in the context of the places and structures where people live and work and which we want to influence, and from whom we're keen to harvest ideas and expertise to shape the conversation still further.

Finally, the real test is not so much to craft a list of work and actions for "them" but to accept the need for "us" to take up the responsibility, individually and in our organisations, to advance the Web Science discussions. The question in the end is much more about "what I can do" in the context and with the resources and opportunities I have to make an immediate and local contribution.

That has implications for the model of what we might call "brave leadership" that is implied by the demands of these "brave conversations" about the Web and society. Some of that leadership can come from those with positions of existing or emerging power and influence, some of which they might choose to invest in creating spaces and momentum for these kinds of continuing conversations. But in an important way, the leadership for these conversations to happen at all needs to be distributed and dispersed. In that sense, we will all need to be leaders in this endeavor, willing to spend some of our personal capital and time diving into the discussions, helping to shape them and constantly learning as we contribute.

Conversations
Who, what, why and how

Web science
A new conversation about the interdependence of, and the interaction between, technology, society, people and nature

Influence
Who, what, why and how

Actions
Who, what, why and how

A "brave conversations" process at the individual, organisational or system level

---

[5] http://intersticia.com.au/launch-of-australias-web-observatory/

One way to think about that is to link the three stages of effective conversations – actually having them in the first place, being clear about the influence they are intended to have and linking them to a sense of agency and action.

In each stage, the same basic questions need to be asked. Who needs to be involved or targeted, what will be discussed or done, will it clear why the conversations are taking place and how will they be convened and conducted.

What that simple three-stage model implies is a method for holding and sustaining collaborative conversations that combines convening, collaborating and sustaining.

It's a model that works at the individual, organisational, community or even system level. The same basic steps apply.
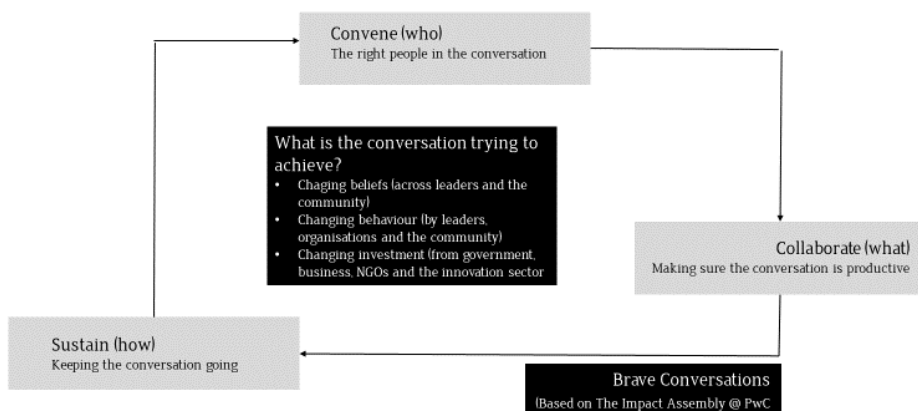
## What's it all about...and what can you do?

In the end, the Web Science conversation, as it confronts a period of technology, political, cultural, institutional and social change, is fundamentally about four things:

- Sorting out the contest between technology and society is fundamentally **an exercise in self-government.** We are not going to be saved by some 'deus ex machina' intervention to decree what is right and what is wrong. We have to work that out for ourselves. "The is not justice," said writer Terry Pratchett, "just us."

- At the heart of the Web Science debate is **a debate about identity** or, even more basically, about what it means to be human. As machines and people merge and learn new ways to augment each other's essential qualities, we need to define what we think being human means and needs.

- Inescapable, **risk, and how we choose to deal with it,** is at the heart of the big discussions about technology and society. And if there is risk there is also opportunity, of course. But at least one big part of the brave conversations we need to have will grapple with new sources of, and responses to, the political, cultural, technical, environmental and social risks that a machine-infused, perhaps even machine-led world will bring.

- And finally, Web Science is fundamentally about **questions of equality.** How the risks, opportunities and benefits of the machine age will be apportioned and enjoyed, how access to



Convene (who)
The right people in the conversation

What is the conversation trying to achieve?
- Chaging beliefs (across leaders and the community)
- Changing behaviour (by leaders, organisations and the community)
- Changing investment (from government, business, NGOs and the innovation sector

Collaborate (what)
Making sure the conversation is productive

Sustain (how)
Keeping the conversation going

Brave Conversations
(Based on The Impact Assembly @ PwC

"...we can say with confidence that the web is not outside of society, but co-constituted with it in heterogeneous networks that are both challenging and re-producing older forms of inequality and producing their own varieties of inequality. Whilst some actors are excluded – the illiterate, the poorest, and so on – others acquire new forms of power – global media corporations, and 'geeks bearing gifts' or those with particular technical competencies.

At a finer level of granularity, amongst those who are connected, some can make expert use and derive enormous benefits, whilst others cannot (Hargittai 2008), producing new forms of power and inequality inside the web. From this perspective, we cannot see the web as, somehow, outside of power relations or as a simple solution to inequality.

There may be enormous benefits from enabling access to the web, via hardware and education, but we should not assume that this is a simple answer to inequality or will produce predictable outcomes."

http://journal.webscience.org/297/2/manifestoACM.pdf

opportunity and power and engagement and influence will be determined, raises basic questions not so much about the benefits or costs of this new future, but how they are going to be distributed.

Right now, and suitably influenced by William Gibson, we can be confident that these features of the future are either already here or rapidly arriving. It's just that they very clearly are not evenly distributed.

Web Science is at least as engaged with the distribution dimension of this new world as it is rightly immersed in the deep and complex technical questions of the digital world's capability and performance.

## What will you do?

This paper and the brave conversations event are not meant to be once offs. They are meant to encourage you to take the reins and help shape this world.

So the what matters in the end is what you can and will do differently today. What sort of future do you want? How can you build that into your everyday life?

"Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it is the only thing that ever has."
Margaret Mead

And what changes do you need to make in your thinking, actions, career and personal life to make that future a reality? How will you ensure you continue to have brave conversations into the future?