TIGTECH **5 MORE THINGS TO KNOW ABOUT** TRUST

Learn more about the different aspects of trust and 2 new trust concepts outlined for discussion

(For the 7 key Drivers of Trust, see the separate document)



This was created as part of the final findings of the TIGTech, Trust in Tech Governance initiative

To see the full document, please click here

To know more about TIGTech and the 5 More Things to Know About Trust, please contact Hilary Sutcliffe on <u>hilary@societyinside.com</u>





5 THINGS TO KNOW ABOUT TRUST

The following collection of insights is derived from a helicopter view of trust from branches of psychology, evolutionary psychology, neuroscience, behavioural and risk sciences, sociology, science and technology studies. Some are well known, some are new and arose from the research. They are intended as a 'primer' about trust which can be consider in relation not just to tech governance but other areas of life.

(Further information can be found in TIGTech Academic Anchor Document from Fraunhofer ISI, available <u>here</u>.

Trust is an outcome, best achieved by focusing on others

Trust is the outcome of others perceiving trustworthiness and so bestowing their trust. But perhaps similar to love and happiness, the more doggedly trust is pursued for its own sake, the more elusive it may become. Also like love and happiness, it is more likely to result from turning one's attention outwards towards the needs of others than focusing only on personal objectives.

It is a hope about expectations fulfilled

A decision to trust signals a hope that an organisation or individual will fulfil an expectation we have of them. People trust individuals and institutions for specific reasons related to this hope and expectation – we don't lose trust in our plumber because he/she can't mend our computer or the Civil Aviation Authority for a failure to regulate the banks.¹⁴

Trusting people first makes them more likely to be trustworthy and to trust you back

Taking a proactive step to trust first, with the hope and belief, though no guarantee, that you will be trusted back, significantly increases the likelihood of being trusted. It also increases the likelihood of the other party acting in a trustworthy way themselves.^{15,16,17,18} Automatically distrusting and so exhibiting more defensive, uncooperative or disrespectful behaviour is, unsurprisingly, less likely to generate trust in return.

44 Government officials who act in a trustworthy manner are more likely to elicit compliance, and virtually all agree that government regulators who trust the people they are regulating are more likely to evoke trustworthy behaviour and compliance" 19

Trust is a spectrum not an either or judgement

Trust is not the simple black and white decision it is so often portrayed as – you either trust or you don't. It can be viewed on a spectrum of trust states from Passionate Trust to Passionate Distrust. These gradations may indicate different levels of confidence that the hope behind the trust decision will be fulfilled and correlate to different states of mind and potential actions. The speculative Trust Spectrum is an attempt to begin to map these different aspects of trust and corresponding behaviours.

Seeing trust in this more granular way opens up the potential for a richer understanding of the perspectives and related actions of stakeholders.







Trust is dynamic, messy, personal and two way

Trust decisions are a two-way process. The perspectives and views of those seeking trust shapes their actions as do the perceptions of those potentially bestowing it. There appear to be three interconnected elements, which may consciously or unconsciously shape our interactions and who we trust and who we don't:

- 1 The world view and subsequent communications and actions of the trust seeker.
- 2 The context in which the decision is being made.
- 3 The world view (genetics & personal traits, experiences, context and world view) of the trust giver.

Awareness of the messiness of this trust dynamic is important in stimulating the empathy for others and self-reflection required to earn trust. EXPERIENCES CONTEXT LANGUAGE BIASES GENDER STATUS ACCESS TO INFO IDENTITY BELIEFS UPBRINGING GENETICS VALUES FRIENDS MEDIA CULTURE CULTURE BELIEFS UPBRINGING BIASES STATUS CONTEXT FRIENDS GENETICS ACCESS TO INFO GENDER MEDIA EXPERIENCES LANGUAGE IDENTITY VALUES

2 NEW CONCEPTS FOR TRUST THINKING

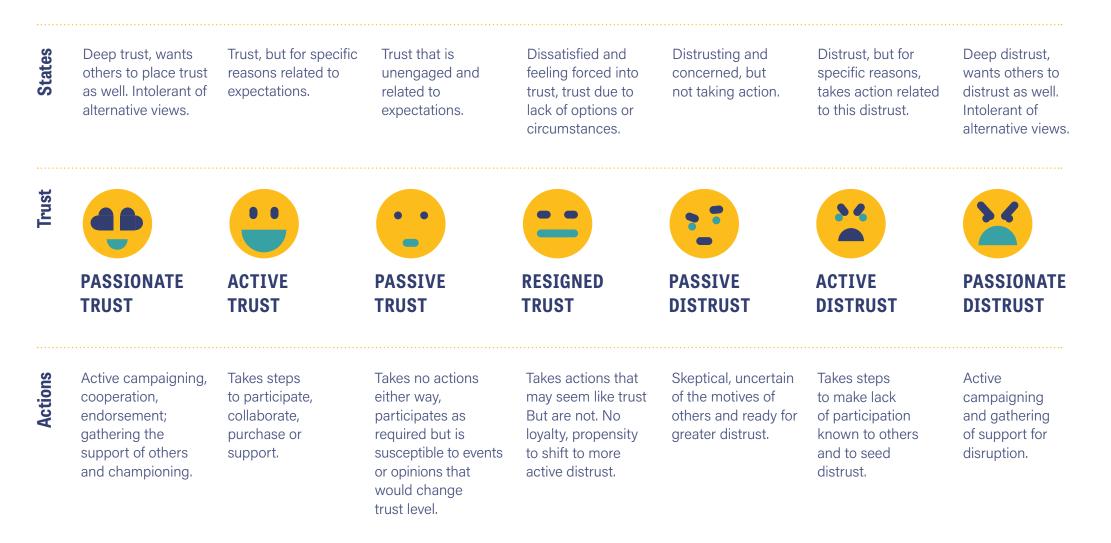
Trust as a Spectrum

Trust is not black and white – you trust or you don't – as it is so often portrayed. It is nuanced and ranges across a spectrum from – for example – Passionate Trust to Passionate Distrust. These gradations may indicate different levels of confidence that the hope behind the trust decision will be fulfilled and correlate to different states of mind and potential actions. The speculative Trust Spectrum which follows is an attempt to begin to map these different aspects of trust.



Seeing trust in this more granular way opens up the possibility for a richer understanding of the perceptions and related actions of different stakeholders. Linking these beliefs and actions to the Trust Drivers then allows a further opportunity to understand how the actions of the organisation are influencing the perceptions of the stakeholders.

TIGTECH Trust Spectrum



Spotlight on Resigned Trust

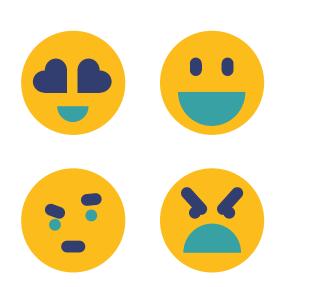
'Resigned Trust' may be more widely prevalent than the use of the term suggests. This was first coined in 2014 in relation to trust in science meaning 'I don't have much choice to trust or not, so I suppose I have to'. The state of mind is one of Active Distrust but the person exhibits the behaviours of Active Trust. It also shows the importance of context and expectation as a driver of trust.

An example of Resigned Trust might be someone who cares about data privacy, but uses social media. This person trusts social media in the context of effectively keeping them in touch with their friends, but not in the use of their data. To the platforms, because this person is an enthusiastic 'user', their behaviour and actions imply trust – but the person has a residual dissatisfaction with their choice. Like other forms of distrust in tech, this may then shift to the governance system and individual regulators or politicians who are unable to effectively govern this concern that they have. In this way distrust in tech is a leading indicator of distrust in governance and if not adequately addressed may affect trust in individual companies spreading to governance systems more broadly.

8

Trust Mapping using the Trust Spectrum

A '*Trust Mapping*' exercise could be used by institutions or processes or governance instruments. A facilitation and consultation process may be used to consider these questions and use them for an evaluation of how the organisation and its stakeholders may interact better to earn each other's trust.



Who is trust is important?

- 2 Where do they currently sit on the trust spectrum? (Remembering resigned trust and that one person could trust an organisation in one area but not another).
- 3 What specific behaviours do/would they display in relation to this trust state?
- 4 What behaviours would change if they moved up or down the Spectrum?
- 5 How would that affect both the organisation and the stakeholder?
- What could influence this move eg context changes, other actors, cultures, politics, legal changes as well as hopes, aspirations, opportunities values, beliefs, fears, assumptions, concerns, incentives?

- How could the actions of the trust mapper influence the changes positively or negatively? (Consider the Trust Drivers individually as stimulus. Explore potential Watch-outs and actions to actively earn trust).
- 8 What would be the 'goldilocks zone' the optimal level of trust and behaviour for key actors? (Consider the value of a healthy scepticism to aid accountability, and the potential for manipulating for trust).

The Trust Dynamic – personal, contextual and two-way

TIGTech research took a helicopter view of trust issues considered by various branches of psychology, evolutionary psychology, neuroscience, behavioural and risk sciences, sociology science and technology studies.

Many of these disciplines have different, sometimes contradictory views on trust. Each discipline brings its own strengths and perspectives into understanding how trust happens and how it fails, but also its unique focus, frame and assumptions about what matters.

A picture emerged of four factors which may influence who or what we trust and why – inherent Genetic Traits, Personal Experiences, Societal Context and World View. It shows that a trust judgement is messy, not simple to unpick the cause and effect. But it also highlighted how trust is a two-way street. The traits, experiences, context and world view of those seeking trust are just as influential as the perceptions of those potentially giving it. Trust decisions have three interconnected elements, which may consciously or unconsciously shape our actions and who we trust and don't:

- The world view and subsequent actions of the trust seeker.
- 2 The context in which the decision is being made.
- **3** The world view (genetics & personal traits, experiences, context and world view) of the trust giver.

TIGTECH **Dynamics of Trust**

EXPERIENCES CONTEXT LANGUAGE BIASES GENDER STATUS ACCESS TO INFO IDENTITY BELIEFS UPBRINGING GENETICS VALUES FRIENDS MEDIA CULTURE

CULTURE BELIEFS UPBRINGING BIASES STATUS CONTEXT FRIENDS GENETICS ACCESS TO INFO GENDER MEDIA EXPERIENCES LANGUAGE IDENTITY VALUES

Genetics and physical traits

Physical traits that influence our willingness to trust are hardwired into our bodies, meaning that those factors are on the whole unchangeable and thus difficult (or even impossible) to influence. For example:

Genetics may play a part – The extent of genetic determinacy of tendencies to trust is much debated,^{104,105} as is the evidence of the genetic roots of related characteristics like attitudes to risk, or optimism or pessimism tendencies. (Though our experience of, for example stubborn optimists and pessimists makes it tempting to consider it true.)

Hormones and body chemistry

potentially play a role – the influence of levels of oxytocin in the body is proposed as making us more trusting even when our trust has been misplaced.¹⁰⁶ Of speculative interest also perhaps, is the finding that oxytocin is inhibited by stress and conflict, making individuals less likely to trust others in such situations. Findings on the impact of the gut microbiome on human behaviour make it appear likely that even the microbes inside our digestive system may also have some influence on our willingness to trust and cooperate.



Cognitive biases and shortcuts – Governance tends to be imagined and

delivered as if all actors in a trust relationship are purely 'rational' agents. This include the people developing the technology or product, the public responding to and using it, and the governors themselves. But we know from psychology and neuroscience that our brains play tricks on us to simplify complex decisions, like those relating to trust. We call those shortcuts 'cognitive biases and heuristics', as popularised by Daniel Kahneman in his influential book. Thinking Fast and Slow¹⁰⁷ and illustrated compellingly in the Cognitive Bias Codex.¹⁰⁸ However, whilst cognitive biases show promise in relation to trust, they appear to have limitations which are rarely explored. For example, the concept that we overinflate the importance of something that just happened is called a Proximity Bias.

But potentially formative experiences, or events which are emotive or values based, which happened long ago may be far more influential in our inclination to trust than current happenings.

The challenge for governance is that it is one thing to know that biases and heuristics exist, another to put that knowledge into practice in governance design. The list of known influential heuristics is long; how and when our brains use them is fickle and context dependent. When we also add in flex and change in the other factors discussed here, it will be very difficult to 'behaviour science' your way into a heuristic-proof governance approach for trust. More important perhaps, is to remember that those fixed traits exist, and that there is never a straight line between what you intend in your governance or structures, and how it will be interpreted and acted upon in real life. Testing things out in context, with real people & in real situations, remains critically important.



Experiences

The accumulation of our experiences and trust decisions seems very likely to influence who and what we trust and why. For example:

- Our very earliest experience relating to attachment in our early years and the feeling, or not, of safety during our upbringing is formative.¹⁰⁰
- Whether we have been trusted in the past matters – trust seemingly begets trust. Being regularly trusted builds confidence and an inclination to reciprocate and allows us to bestow our trust more generously.

- Whether our trust decisions have been well-placed seems likely to have an effect. If we have been ripped off, discriminated against, or had our trust betrayed, we may be less trusting generally, especially in a similar situation.
- The breadth (or not) of opinions we were exposed to in our formative years¹⁰ is influential because it constraints how broadly we cast our views of who or what we consider trustworthy. Cults, for example, have a very narrow view of those whose opinion can be trusted, where diverse, or multicultural upbringings may broaden our curiosity and tolerance of different perspectives and, potentially, our inclination to trust could be more widely dispersed.

Context

The importance of context makes sense when we remember that trust exists in great part to help us navigate our environments successfully. It functions as a signal that helps us cut through the noise and act – fundamentally tuning into one question – is this 'safe'? It makes sense, then, that our decisions to trust are highly context dependent.

Both personal context and cultural context matter; our decision to trust is influenced by our immediate circumstances and social influences. This perhaps feels obvious, publishing this piece in a post-Covid-19 world. Who would have thought that the decision of whether or not it was safe to pop to the shops for a pint of milk would suddenly be a matter of trust? Do you trust your Government's guidance on Covid-19 safety – in general, or this week? Do you trust the shop-keeper and your fellow customers to keep adequate social distancing? As the context changes, it can rapidly throw up new questions as matters of trust and shape our standards of proof.

In some ways, this feels like bad news for governors; context is a driver as wide as the sky – and equally uncontrollable. Where do you start in shaping governance that is a bit less fragile to context – without foolishly aiming to be context-proof? There are a few factors that deserve particular attention in our pursuit of trustworthy governance:

Trust is influenced by the context of our expectations. Our inclination to trust is often specific to quite a narrow context and aligned to the expectations of the relationship or decision at hand; we don't lose trust in someone for failure to deliver something we don't expect of them. For example, we might trust a bank to keep our money safe, but not to run air traffic control. We might trust a regulator to ensure products are safe, systems are fair, the rules are proportionate – but may not trust them to arbitrate on ethics – or quite possibly not trust them if they don't effectively take ethics into consideration – these human factors adds complexity again.

Trust decisions are influenced by cultures and social norms. Cultural attitudes, expected behaviours and the way things are done where we live affect general and personal approaches to trustworthiness and trust. The level of 'generalised trust' – the inclination of citizens to trust each other (sometimes called social capital) is part of this cultural context. This may influence, for example, attitudes to authority and civic institutions, tolerance of risk or uncertainty, views about science, technology or academia, social attitudes to innovation, nature or community. Understanding these dynamics is particularly challenging for technology and tech governance which is transnational.

The views and actions of our influencers. Friends, colleagues, icons, chosen media can also be a hugely significant factor in the weighting of who or what to trust; our brain gives the actions of the people around us outsized influence in our decisions about risk and safety. Edelman's famous Trust Barometer shows fluctuations in who is most trusted in society, but as trust in institutions becomes more fragile 'someone like me' is growing in importance as a trusted source. What's happening now plays a part. Writing this report amidst the Covid-19 crisis, citizens, politicians, commentators are now much more present to the repercussions of trust and distrust and its components. Trust and distrust of institutions, individuals and sources of information is fluctuating as the virus and lockdowns strategies progress, each influenced by all of the factors in our list here and the drivers of trust to come in the next chapter. We don't just see it – we feel it; the ebb and flow and emergence of new trust challenges but also the rewards of being trusted are evident on a day by day, sometimes moment to moment basis.

Governance can learn multiple things from this list. Firstly, you must be aware of people's expectations and whether they are adequately met. Secondly, do not take for granted the aspect of culture and social norms as that is where many assumptions creep in, which might be damaging in the long term. They should be actively analysed; especially now when social change has accelerated during global lockdowns. Last but not least, in order to adapt governance to the moment, you have to know how common opinion is changing – or, for narrower issues, how the views of your audience of interest and their influencers are changing. That sounds far easier than it is – also requiring you to know what 'influencers' even matter to this group, and having a very clear view of who you are interested in understanding in the first place.



World View

'Worldview' in this section relates to how people filter their experience of reality through their values and beliefs. Values are those things we see as important, beliefs are the things we hold to be true. Together, they shape our opinions, assumptions, behaviours and responses to others and the world around us.

- Values drive our true purpose as a human being; and they are what helps us to discern what feels right and what feels wrong (according to us); both about our own actions and of those around us.
- Beliefs are our generalisations about the world and our best guesses at what is true based on reality as we see it. Beliefs do not require facts. If you are a 'Make American Great Again' die hard, then facts about Donald Trump are not important. We actively seek out resources that

support or corroborate our beliefs and ignore the ones which don't. Which is why Henry Ford's quote of 'If you believe you can, or believe you can't, you are always right' makes so much sense. While the idea of cognitive shortcuts are often thought to be limited to behavioural heuristics hardwired into our brains, there is less understanding about how our personal beliefs and values also help us reduce complexity and provide barriers against information overload. They help us to filter a fragmented world filled with contradictory narratives, giving us a sense of clarity and direction.¹¹¹ The emerging field of 'Cultural Cognition'¹¹² further explores how individual and cultural values and beliefs shape attitudes and behaviours.

Our sense of identity and how we view ourselves plays a central role. Much of these cultural, political, experiential, personal influences, values and beliefs coalesce into a narrative we weave about ourselves – 'I am an environmentalist, a conservative, a scientist, an outsider, an American, a football supporter, an artist, a rebel'. Our need for internal coherence aligned to this identity will shape our actions and our decisions of who to trust and why. This is the basis too of Kahneman's What You See Is All There Is (WYSIATI) concept.¹¹³

Group belonging matters – Humans need to belong. Linked to our sense of identity are those who share common values, beliefs, identities with us. Those who are not 'in' this group with us are 'other' – political affiliations provide interesting learning here. In others, it seems more influential as an important lens through which we judge other's actions or who is in and who is out and who is wrong and who is right. (For example, discussions with a thoughtful UK Conservative voter and Brexiteer, explored how he struggled to believe in man-made climate change despite significant reflection. A pivotal factor in his scepticism was because 'environmentalism' was the domain of 'left-wing hippies and tree-huggers' and he was not one of those).¹¹⁴

Our perception of the benefit of the decision together with our perception of the risk, and so where we place our trust, is also filtered through our values and beliefs. A selfish cost-benefit analysis is considered by some to be the leading driver of trust. It is of course important, but it appears inextricably linked to all the other human factors and clearly also senses of altruism or social justice.¹¹⁵ Our perceptions of other's behaviours are also filtered through the lens of our values and beliefs, (particularly in relation to the 10 Trust Drivers). We base this on our direct experience, their reputation, how others view them (particularly those we trust) their actions towards us and other's their language, attitudes and their seeming alignment with our own values and beliefs.

All of the above combined explains why it's often so hard to convince people to change their minds. Accepting that we may be wrong about our deeply held beliefs could cause a collapse of the carefully curated worldview that allows us to navigate the world. To ask us to change our beliefs is to ask us to give up a safety net – to engage with complexity rather than short-hand – and to teeter the dominos of the other beliefs, behaviours and attitudes that follow. Awareness of those factors is crucial to building effective trust.

The Trust Dynamic and the 7 Trust Drivers

The 7 Trust Drivers in some ways transcend the messiness and of trust decisions. But in particular the awareness of the dynamic nature of trust may help in stimulating the empathy for others and self-reflection required to build trust – in particular underpinning the trust driver of Respect.



GREAT RESOURCES FOR CITIZEN INVOLVEMENT



OECD Innovative Citizen Participation and New Democratic Institutions

https://www.oecd-ilibrary.org/governance/ innovative-citizen-participation-and-newdemocratic-institutions_339306da-en

OECD Open Government Unit

http://www.oecd.org/gov/open-government/

OECD Best Practice Principles on Stakeholder Engagement In Regulatory Policy

http://www.oecd.org/governance/regulatorypolicy/public-consultation-best-practiceprinciples-on-stakeholder-engagement.htm

Excite2020 Action Catalogue of methodologies for citizen Engagement

http://actioncatalogue.eu/search

Involve Knowledge Base – Case studies, Methods & Myths and Facts about citizen involvement

https://www.involve.org.uk/resources/ methods

Nesta – Centre for Collective Intelligence and Collective Intelligence Playbook

https://www.nesta.org.uk/project/centrecollective-intelligence-design/

https://www.nesta.org.uk/report/futureminds-and-machines/3-what-collectiveintelligence/

Participedia

<u>https://participedia.net</u> – a global crowdsourcing platform for researchers, activists, practitioners and anyone interested in public participation and democratic innovations.

REFERENCES

REFERENCE NUMBERS IN THIS DOCUMENT REFER TO THOSE IN THE FULL DOCUMENT REPRODUCED IN ENTIRETY BELOW

- 1 Baroness Onora O'Neill BBC Reith Lectures 2002. http://www.bbc.co.uk/radio4/reith2002/
- 2 OECD TrustLab https://www.oecd.org/sdd/ trustlab.htm
- 3 Edelman Trust Barometer https://www. edelman.com/research/brand-trust-2020
- 4 TIGTech research and consultation. TIGTech Anchor Document – Kaufmann, T., Gutknecht, R., Lindner, R., Schirrmeister, E., Meißner, L. and Schmoch, U. (n.d.). 'Trust, trustworthiness and technology governance', Fraunhofer
- 5 IEE Specturm 26 September https://spectrum. ieee.org/energy/nuclear/too-cheap-to-meternuclear-power-revisited
- 6 Biotechology a solution to hunger? UN Chronicle https://www.un.org/en/chronicle/ article/biotechnology-solution-hunger

- Initial US National Cancer Institute's 2004 aspiration now unavailable on their website. See here Ontario Health Assessment analysis https://www.ncbi.nlm.nih.gov/pmc/articles/ PMC3379172/
- 8 The impact of AI on work is widely discussed. Information on The Singularity https://en. wikipedia.org/wiki/Technological_singularity
- 9 SocietyInside/Matter Building Confidence in Innovative Technologies – what stakeholders expect and how companies can respond. http://societyinside.com/building-confidenceinnovative-technologies
- 10 Levi, M., Stoker, L. (2000). 'Political trust and trustworthiness'. *Annual Review of Political Science*, 3(1), pp. 492–493. Available at: https:// www.annualreviews.org/doi/pdf/10.1146/ annurev.polisci.3.1.475
- 11 "Nothing About Us Without Us Mantra for a Movement", Huffington Post. 2017 https://www. huffpost.com/entry/nothing-about-us-withoutus-mantra-for-a-movement_b_59aea450e4b0 c50640cd61cf
- 12 Patel M, 2019. Understanding people. EFSA Journal 2019;17(S1):e170716, 10 pp. https://doi. org/10.2903/j.efsa.2019.e170716 https://efsa. onlinelibrary.wiley.com/doi/pdf/10.2903/j. efsa.2019.e170716

- **13** Thanks to Stephan Herrera from Cambium Biomaterials for leading us to that insight.
- 14 BBC (2002). 'Onora O'Neill: A question of trust'. The Reith Lectures [online recording]. Available at: https://www.bbc.co.uk/programmes/ p00ghvd8
- 15 Ostrom, E., Walker, J. (Eds.). (2005). *Trust and Reciprocity: Interdisciplinary Lessons for Experimental Research*. New York: Russell Saga Foundation.
- **16** Bregman, R. (2020). *Humankind: A Hopeful History.* London: Bloomsbury Publishing.
- 17 Levi, M., Stoker, L. (2000). 'Political trust and trustworthiness'. Annual Review of Political Science, 3(1), pp. 492–493. Available at: https:// www.annualreviews.org/doi/pdf/10.1146/ annurev.polisci.3.1.475
- 18 Trust and Reciprocity: Interdisciplinary Lessons from Experimental Research: Elinor Ostrom, James Walker (Eds.); Russell Sage Foundation, New York, NY, 2003
- 19 Levi, M., Stoker, L. (2000). 'Political trust and trustworthiness'. Annual Review of Political Science, 3(1), pp. 492-493. Available at: https://www.annualreviews.org/doi/ pdf/10.1146/annurev.polisci.3.1.475

- 20 Moran, J. (1st March 2018). 'The university: a guide for depressives' [online blog]. Available at: https://joemoran.net/journalism/long-reads/ the-university-a-guide-for-depressives/
- 21 TIGTech Anchor Document Kaufmann, T., Gutknecht, R., Lindner, R., Schirrmeister, E., Meißner, L. and Schmoch, U. (n.d.). 'Trust, trustworthiness and technology governance', Fraunhofer
- 22 Food Standards Agency, Trust in a changing world, Trust Deliberative Forums research 2018 https://www.food.gov.uk/research/researchprojects/trust-in-a-changing-world
- 23 Marchant, G. E. (2019). 'Values, ethics and innovation council: Embedding values in government regulation of technology'. World Economic Forum [scoping paper]. Available on request from Hilary Sutcliffe, TIGTech.
- 24 TIGTech research and consultation. TIGTech Anchor Document – Kaufmann, T., Gutknecht, R., Lindner, R., Schirrmeister, E., Meißner, L. and Schmoch, U. (n.d.). 'Trust, trustworthiness and technology governance', Fraunhofer

- 25 Science and technology studies, responsible research and innovation has an extensive literature concerns about the use of technology, which has been summarised here. Reports available on SocietyInside website [www. societyInside.com] and within the Fraunhofer ISI anchor document, together with findings from the TIGTech stakeholder consultation.
- 26 OECD (2017). 'Trust and public policy: How better governance can help rebuild public trust'. *OECD Public Governance Reviews*. Paris: OECD Publishing. Doi: 10.1787/22190414.
- Forsyth, P. B., Adams, C. M., and Hoy, W. K. (2011). Collective Trust: Why Schools Can't Improve Without It. London: Teachers College Press, p. 21. Doi: 10.13140/RG.2. 1.2673.1684
- 28 Personal conversation with the review's author Richard Judge as part of TIGTech consultation.
- 29 Food Standards Agency, Trust in a changing world, Trust Deliberative Forums research 2018 https://www.food.gov.uk/research/researchprojects/ trust-in-a-changing-world
- 30 Baroness Onora O'Neill BBC Reith Lectures 2002. http://www.bbc.co.uk/radio4/reith2002/

- 31 Rethinking Regulators, From watchdogs of industry to champions of the public, PA Consulting. 2018 https://www.paconsulting. com/insights/2018/rethinkingregulators/
- **32** Lofsted RE, 2004. Risk communication and management in the 21st century. International Public Management Journal, 7. 335–346.
- Bason, C. (2013). 'Public managers as innovators: In search of design attitude'. *Ethos*, 12. Available at: https://www.csc.gov.sg/ articles/public-managers-as-innovators-insearch-of-design-attitude
- 34 Soeteman-Hernandez, L.G., Apostolova, M.A., Bekker, C., Braakhuis, H.M., Dekkers, S., Grafström, R.C., Handzhiyski, Y., Herbeck-Engel, P., Hoehener, K., Jeliazkova, N., Karagkiozaki, V., Kelly, S., Kraegeloh, A., Logothetidis, S., Micheletti, C., Nymark, P., Oosterwijk, T., Sanchez Jiménez, A., Sips, A.J., Sluijters, T., Suarez- Merino, B., Tavernaro, I., van Engelen, J., Wijnhoven, S.W.P., and Noorlander, C.W. (2019) Safe Innovation Approach: Towards an agile system for dealing with innovations. Materials Today Communications (https://doi. org/10.1016/j.mtcomm.2019.100548).

- **35** Sutcliffe, H. (2011). 'A report on responsible research and innovation'. *MATTER and the European Commission* [online report]. Available at: https://ec.europa.eu/research/science-society/document_library/pdf_06/rri-report-hilary-sutcliffe_en.pdf.
- 36 RRI-Tools a website providing tools and resources for those wishing to understand more about the practice of responsible research and innovation https://www.rri-tools. eu
- 37 UN Sustainable Development Goals https:// sdgs.un.org/goals
- 38 Soeteman-Hernandez, L.G., Apostolova, M.A., Bekker, C., Braakhuis, H.M., Dekkers, S., Grafström, R.C., Handzhiyski, Y., Herbeck-Engel, P., Hoehener, K., Jeliazkova, N., Karagkiozaki, V., Kelly, S., Kraegeloh, A., Logothetidis, S., Micheletti, C., Nymark, P., Oosterwijk, T., Sanchez Jiménez, A., Sips, A.J., Sluijters, T., Suarez- Merino, B., Tavernaro, I., van Engelen, J., Wijnhoven, S.W.P., and Noorlander, C.W. (2019) Safe Innovation Approach: Towards an agile system for dealing with innovations. Materials Today Communications (https://doi. org/10.1016/j.mtcomm.2019.100548).

- 39 https://www.psychologytoday.com/gb/blog/ out-the-darkness/201201/slighting-thedangers-being-disrespected
- 40 Lind, EA, et al (1990 "In the eye of the beyolder, Tort litigants' evaluation of their experiences in the civil justice system. Law and Society Review, Vol 24 No4 pp953–96. Via OECD Trust and public policy.
- **41** OECD (2017). 'Trust and public policy: How better governance can help rebuild public trust'. *OECD Public Governance Reviews*. Paris: OECD Publishing. Doi: 10.1787/22190414.
- 42 Heffernan, M. (2011). Willful blindness: Why we ignore the obvious at our peril. Toronto: Doubleday Canada.
- **43** Late lessons from early warnings: Science, precaution, innovation. Copenhagen: European Environment Agency. https://www.eea.europa. eu/publications/late-lessons-2
- 44 OECD Recommendation on Public Integrity http://www.oecd.org/gov/ethics/ recommendation-public-integrity/
- **45** OECD Recommendation on Public Integrity http://www.oecd.org/gov/ethics/ recommendation-public-integrity/

- 46 Ruth Steinholtz and Chris Hodges Ethical Business Practice and Regulation, A Behavioural and Values-Based Approach to Compliance and Enforcement, Hart Publishing, https://www.bloomsburyprofessional.com/uk/ ethical-business-practice-andregulation-9781509916368/
- **47** Wallach, W. (2015). *A Dangerous Master: How to Keep Technology from Slipping Beyond our Control.* New York: Basic Books.
- **48** Nesta resources on Anticipatory Governance. Available online at: https://www.nesta.org.uk/ feature/innovation-methods/anticipatoryregulation/
- 49 World Economic Forum (January 2018). Agile Governance: Reimagining Policy-making in the Fourth Industrial Revolution [white paper]. Available at: http://www3.weforum.org/docs/ WEF_Agile_Governance_Reimagining_Policymaking_4IR_report.pdf
- 50 Marchant, G. E., Allenby, B. (2017). 'Soft law: New tools for governing emerging technologies'. *Bulletin of the Atomic Scientists*, 73(2): pp. 108–114. DOI: 10.1080/00963402.2017.1288447

- 51 SocietyInside/Matter Building Confidence in Innovative Technologies – what stakeholders expect and how companies can respond. http://societyinside.com/building-confidenceinnovative-technologies
- 52 Investopedia, Regulatory Capture https://www. investopedia.com/terms/r/regulatory-capture. asp#:~:text=Regulatory%20capture%20is%20 an%20economic%20theory%20that%20 regulatory%20agencies%20may,is%20 supposed%20to%20be%20regulating.
- 53 Adapted from conversations with Roger Miles and his book Roger Miles, Conduct Risk Management: a behavioural approach (Kogan Page, 2017)
- 54 Lya G. Soeteman-Hernándeza,*, Cindy Bekkera, Monique Groenewold, Paula Jantunenb, Agnieszka Mechb, Kirsten Rasmussenb, Juan Riego Sintesb, Adriënne J.A.M. Sips, Cornelle W. Noorlandera Perspective on how regulators can keep pace with innovation: Outcomes of a European Regulatory Preparedness Workshop on nanomaterials and nanoenabled products
- 55 https://en.m.wikipedia.org/wiki/Jurisdictional_ arbitrage

- 56 OECD (10th June 2020). Innovative Citizen Participation and New Democratic Institutions: Catching the Deliberative Wave. Paris: OECD Publishing, https://doi.org/10.1787/339306daen.
- 57 Levi, M., Stoker, L. (2000). 'Political trust and trustworthiness'. Annual Review of Political Science, 3(1), pp. 492–493. Available at: https:// www.annualreviews.org/doi/ pdf/10.1146/ annurev.polisci.3.1.475
- 58 TIGTech term covering multi-stakeholder governance design processes, such as codes of conduct, ethical guidelines etc as well as describing a closer more collaborative relationship with business and stakeholders which takes place in new approaches such as Sandboxes and Policy labs. See also Marchant, Gary, Allenby, Brad 2017/02/15 Soft law: New tools for governing emerging technologies 10.1080/00963402.2017.1288447 Bulletin of the Atomic Scientists https://www.researchgate. net/publication/313788116 Soft law New tools_for_governing_emerging_technologies Also World Economic Forum White Paper -Agile Governance, re-imagining policy making in the 4th Indistrial Revolution. http://www3. weforum.org/docs/WEF_Agile_Governance_ Reimagining Policy-making 4IR report.pdf
- 59 TIGTech research and consultation

- 60 Rethinking Regulators, From watchdogs of industry to champions of the public, PA Consulting. 2018 https://www.paconsulting. com/insights/2018/rethinkingregulators/
- 61 TIGTech consultation
- 62 OECD trust and public policy, Chapter 4, Regulations, Fairness and Trust. P67
- 63 Professor Robert Winston, Bad Ideas, an Arresting History of our Inventions. 2010. Bantam Press
- 64 Thomas Piketty, Capitalism and Ideology. 2020. Harvard University Press. Translated by Arthur Goldhammer
- **65** Principles of Procedural Justice https://www. beyondintractability.org/essay/procedural_ justice
- 66 The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems, Ethicall Aligned Design https://standards.ieee.org/ content/dam/ieee-standards/standards/web/ documents/other/ead_v2.pdf, Ethics traditions in AI https://standards.ieee.org/content/dam/ ieee-standards/standards/web/documents/ other/ead1e_classical_ethics.pdf

- 67 Nesta Centre for Collective Intelligence Design. https://www.nesta.org.uk/project/centrecollective-intelligence-design/
- 68 Food Standards Agency, Trust in a changing world, Trust Deliberative Forums research 2018 https://www.food.gov.uk/research/researchprojects/trust-in-a-changing-world
- 69 FSA Consumer Attitudes towards Emerging Technologies Research 2020 https://www.food. gov.uk/research/research-projects/consumerattitudes-towards-emerging-technologies-0
- 70 Rethinking Regulators, From watchdogs of industry to champions of the public, PA Consulting. 2018 https://www.paconsulting.
- 71 SocietyInside Building Confidence in Emerging Technologies – what stakeholders expect and how companies can respond. http:// societyinside.com/building-confidenceinnovative-technologies
- 72 Personal conversation with Peter Thompson, HFEA as part of TIGTech consultation.
- **73** FSA Consumer Attitudes towards Emerging Technologies Research 2020 https://www.food. gov.uk/research/research-projects/consumerattitudes-towards-emerging-technologies-0

- 74 Ostrom, E., Walker, J. (Eds.). (2005). *Trust and Reciprocity: Interdisciplinary Lessons for Experimental Research*. New York: Russell Saga Foundation.
- **75** Bregman, R. (2020). *Humankind: A Hopeful History*. London: Bloomsbury Publishing.
- 76 Levi, M., Stoker, L. (2000). 'Political trust and trustworthiness'. Annual Review of Political Science, 3(1), pp. 492–493. Available at: https:// www.annualreviews.org/doi/pdf/10.1146/ annurev.polisci.3.1.475
- Levi, M., Stoker, L. (2000). 'Political trust and trustworthiness'. Annual Review of Political Science, 3(1), pp. 492–493. Available at: https:// www.annualreviews.org/doi/pdf/10.1146/ annurev.polisci.3.1.475
- 78 TIGTech consultation. TIGTech Anchor Document – Kaufmann, T., Gutknecht, R., Lindner, R., Schirrmeister, E., Meißner, L. and Schmoch, U. (n.d.). 'Trust, trustworthiness and technology governance', *Fraunhofer*
- **79** Kahneman, D. (2011). *Thinking, Fast and Slow.* New York: Farrar, Straus and Giroux.
- 80 Bregman, R. (2020). Humankind: A Hopeful History. London: Bloomsbury Publishing.

- 81 OECD (10th June 2020). Innovative Citizen Participation and New Democratic Institutions: Catching the Deliberative Wave. Paris: OECD Publishing, https://doi.org/10.1787/339306daen.
- 82 Fact of Fiction 5 Myths of Citizen Engagement https://www.involve.org.uk/resources/ knowledge-base/fact-or-fiction
- 83 Ibid. OECD (10th June 2020).
- 84 Nesta UK (2016). *In Conversation with Beth Simone Noveck* [online video]. Available at: https://vimeo.com/157312526
- 85 Sciencewise (n.d.) *Supporting Socially Informed Policy Making* [online website]. Available at: https://sciencewise.org.uk/
- 86 Syed, M. (2019). *Rebel Ideas: The Power of Diverse Thinking*. London: John Murray.
- 87 OECD (10th June 2020). Innovative Citizen Participation and New Democratic Institutions: Catching the Deliberative Wave. Paris: OECD Publishing, https://doi.org/10.1787/339306daen.
- 88 Ibid. Marchant, G. E. (2019).

- 89 Case Study Medial Frontiers: Debating Mitochondrial Replacement, Sciencewise for Human Fertilisation and Embryology Authority (HFEA) https://sciencewise.org.uk/wp-content/ uploads/2018/09/Mitochondrial-Replacement-Therapy-Case-Study.pdf
- **90** Tett, G. (12th February 2020). 'Gerrymandering, America's other border crises'. *Financial Times* [online article]. Available at: https://www.ft. com/content/5b5e580e-4d29-11ea-95a0-43d18ec715f5
- **91** https://www.americanprogress.org/issues/ democracy/news/2019/10/01/475166/impactpartisan-gerrymandering/
- **92** https://www.americanprogress.org/issues/ democracy/news/2019/10/01/475166/impactpartisan-gerrymandering/
- **93** Ballotpedia (n.d.). *Independent Redistricting Commissions* [online article]. Available at: https://ballotpedia.org/Independent_ redistricting_commissions
- 94 Youngs, R. (30th July 2019). 'Can citizen participation really revive European democracy?'. *Carnegie Europe* [online article]. Available at: https://carnegieeurope. eu/2019/07/30/can-citizen-participation-really-revive-european-democracy-pub-79588

- **95** Participedia (n.d.). *Citizen Involvement in Covid-19* [online website]. Available at: https:// sites.google.com/participedia.net/ citizensvoicescovid
- 96 Sutcliffe, H. (April 16th 2020). Trust and COVID-19 [online article]. Available at: https:// medium.com/@hilary_4230/trust-and-covid-19-bb63d61def90
- 97 Horton, C. (21st August 2018). 'The simple but ingenious systems Taiwan uses to crowdsource its laws'. *MIT Technology Review* [online article]. Available at: https://www.technologyreview.com/s/611816/the-simple-but-ingenious-system-taiwan-uses-to-crowdsource-its-laws/
- 98 Miller, C. (26th November 2019). 'Taiwan is making democracy work again. It's time we paid attention' [online article]. Available at: https://www.wired.co.uk/article/taiwandemocracy-social-media
- 99 Ibid. Miller, C. (26th November 2019).
- 100 Tsungai Zisengwe, M. (6th March 2019). *Can Radical Transparency Increase Trust Between Government and Citizens?* [online article]. Available at: https://medium.com/civictech/ can-radical-transparency-increase-trustbetween-government-and-citizens-117842cbf09f

- 101 Lewis-Kraus, G. (18th June 2020) How to Make Government Trustworthy Again [online article]. Available at: https://www.wired.com/story/ how-to-make-government-trustworthy-again/
- 102 Ibid. Tsungai Zisengwe, M. (6th March 2019).
- 103 Ibid. Lewis-Kraus, G. (18th June 2020).
- 104 Van Lange, P. A., Vinkhuyzen, A. A., Posthuma, D. (2014). 'Genetic influences are virtually absent for trust'. PloS one, 9(4), e93880.
 Available at: https://doi.org/10.1371/journal. pone.0093880
- 105 Wootton, R. E. (2018). 'The genetics of trust'. eLS, pp. 1–9. Available at: https://doi. org/10.1002/9780470015902.a0027868
- Kosfeld, M., Heinrichs, M., Zak, P., Fischbacher, U., Fehr, E. (2005). 'Oxytocin increases trust in humans'. *Nature*, 435, pp. 673–676. Available at: https://doi.org/10.1038/nature03701
- **107** Kahneman, D. (2011). *Thinking, Fast and Slow.* New York: Farrar, Straus and Giroux.
- 108 Benson, B. (2016). Cognitive Bias Codex [online graphic]. Available at: https://upload.wikimedia. org/wikipedia/commons/1/18/Cognitive_Bias_ Codex_-_180%2B_biases%2C_designed_by_ John_Manoogian_III_%28jm3%29.jpg

109 van der Kolk, B. A. (2014). *The Body Keeps the Score*. New York: Viking.

110 Ibid. Syed, M. (2019).

- 111 Information supplied by Neil Sykes https:// www.linkedin.com/in/neil-sykes-2b9a6b21/
- **112** Yale Law School (n.d.). The Cultural Cognition Project [online website]. Available at: http:// www.culturalcognition.net/.
- **113** Kahneman, D. (2011). Thinking, fast and slow. New York: Farrar, Straus and Giroux
- 114 Unattributed personal discussion with Hilary Sutcliffe.
- 115 Kahan, D., Slovic, P., Braman, D., Gastil, J., (2006). 'Fear of democracy: A cultural critique of sunstein on risk'. *Harvard Law Review*, 119, pp. 1071–1109.
- 116 Breckenridge, J., Jones, D., (2009). 'Demystifying theoretical sampling in grounded theory research'. *Grounded Theory Review*, 2(8). Available online at: http:// groundedtheoryreview.com/2009/06/30/847/.

117 Design Council (n.d.). What is the Framework for Innovation? Design Council's Evolved Double Diamond [online article]. Available at: https:// www.designcouncil.org.uk/news-opinion/ what-framework-innovation-design-councilsevolved-double-diamond





