TIGTECH •

# THE DRIVERS OF TRUST AND DISTRUST

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



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

To see the full document, please click <u>here</u>

To know more about TIGTech and The Drivers of Trust and Distrust, please contact Hilary Sutcliffe on <a href="mailto:hilary@societyinside.com">hilary@societyinside.com</a>





# TIGTECH 7 TRUST DRIVERS ARE CORE



For such diverse fields of research there was an unusual and remarkable consensus on the qualities which are important for trust – intent, competence, respect, integrity, inclusion, fairness and openness. Our research made it very clear that these are not just abstract concepts, or academic theories. These 7 Trust Drivers are deeply rooted in our individual and collective psychology and the fundamental ways our societies work and have evolved.

Though there may be different cultural interpretations, they are in some form or another at the heart of national and international justice systems, in most organisational values statements, culture change programmes, good governance frameworks, 'tech for good' guidelines, codes of conduct and more. And it is pretty much common sense that if you do the opposite of these you won't be trusted.

They are familiar almost to the point of banality.

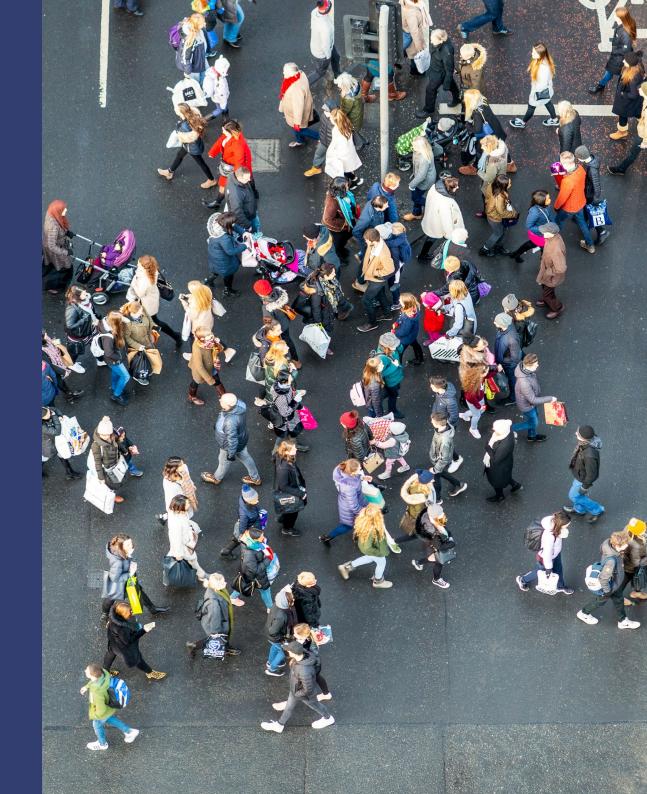
Perhaps this very familiarity may mean their importance can easily be underestimated and may explain why they are often overlooked?

Trustworthy organisations will use them as 'guides to live by'; aligning leadership, culture, decision-making, metrics and reward systems to embed them and signal internally and externally how seriously they are taken. To many others however, they are more "hocus-pocus spells, bits of primitive word magic that are trying to make something true merely by incanting it." This approach is where the seeds of distrust are sown.



### Trustwatch A fun spotting game!

It is quite eye-opening to see the clear correlation between the Trust Drivers and governance, political, business or personal problems. Similarly on the positive side, with trustworthy organisations the Trust Drivers are clear to see. Try it, it's a fun and enlightening game.



# TIGTECH 7 TRUST DRIVERS EXPLAINED



#### INTENT -PUBLIC INTEREST

upheld through purpose, process, delivery and outcomes



#### **COMPETENCE**

delivering against expectation effectively, reliably, consistently, responsively



#### RESPECT

seeing others as equals;
listening to and taking
seriously their concerns,
views and rights. Considering
the potential impact of words
& deeds on others



#### **FAIRNESS**

enshrining justice and equality in governance processes, application, enforcement, and outcomes



#### INTEGRITY

operating honestly, being accountable, impartial and independent of vested interests



#### **OPENNESS**

being transparent and accessible in processes, communications, explanations and interactions



being collaborative, inclusive, involving others

# INTENT – PUBLIC INTEREST

The intent and role of tech governance is to protect citizens from the negative impacts of technology whilst shepherding its use for social good. This is upheld through purpose, process, delivery and outcomes.

#### Why Public Interest is so important to trust:

This core purpose for governance provides the guide rails or compass to help navigate the different interests and values inherent in technology development and governance and demonstrate the trustworthiness of governance institutions and processes. Our research showed that perhaps the most important driver of trust and distrust was the belief that governance was focused on the public interest.<sup>21</sup>



It's reassuring and empowering to know when someone with good intent has a role."

Citizen comment in Food Standards Agency deliberative forums on trust<sup>22</sup>

# Changes to the governance landscape which reinforce its importance:

Complex ethical challenges, conflicting values decisions and difficult trade-offs come with the territory of many new tech - privacy and human rights in artificial intelligence for example, the replacement of jobs by robots or algorithms and concerns about the move from medical applications to human enhancement using genetic technologies, to name just a few. Governance needs to navigate these complex challenges and a relentless focus on the public interest is the best way to do that. Surveys show that the citizen's greatest concerns are focused on these ethical, moral and social aspects of technologies and they expect governance to manage these effectively.<sup>23</sup>



#### Good intent is central to trust

People are more likely to trust an organisation or process, a decision or outcome, even if it is not in their favour, if they can see the intent is for the general good. Explicit attention and communication about the public interest intent of governance design, application and enforcement is an important driver of trust.<sup>24</sup>





#### Watch-outs

# Focusing on money and technology development causes distrust

The perception (and sometimes reality) that making money is prioritised over people and planet is the leading cause of distrust in tech and its governance. Balancing the 'triple bottom line' of economic, social and environmental good in line with societal values is one of the greatest challenges of governance which a public interest focus helps to navigate.

### COMPETENCE

Delivery against expectation; effectively, reliably, consistently, responsively

### Why competence and delivery against expectation is so important to trust:

Competence – doing what is expected and what you say will do is a baseline of trust. So as not to undermine trust in this competence for tech governance it needs to be delivered in a reliable and consistent way and be responsive to the expectations of others. As the OECD Trust and Public Policy Report says:



Competence is a necessary condition for trust – an actor, whether a business or a government agency, with good intentions, but without the ability to deliver on expectations cannot be trusted." <sup>26,27</sup>



# Changes to the governance landscape which reinforce its importance:

On-going research into "The future of regulatory systems in a disruptive world"28 explores the changing nature of governance, in which issues combine high complexity, deep uncertainty, ever-shorter decision time frames and conflicting societal views. These dynamics are vastly different to what many existing regulatory or governance systems are designed for or used to. New competencies will be needed, with responses having to take more of a systems perspective, to deploy a wide range of tools in combination, and to excel in making use of diverse thinking. This is easier said than done. Citizens may have limited patience with the transition or the need to be adaptive – "'The system is complicated' isn't a good enough excuse for lack of action - find the way to do your job properly."29

#### Trust tip

# Trust is context specific and about expectation fulfilled<sup>30</sup>

A decision to trust is a hope that an organisation or individual will fulfil an expectation we have of them. Sometimes this expectation is appropriate, sometimes misplaced. Distrust can occur in the case of a mismatch. Understanding the mandate and competencies expected by stakeholders, and taking steps to rectify misperceptions or respond more effectively to expectations, may be important starting points for earning trust.





#### Watch-outs

# Beware shifting expectations of competence – 'from Watchdogs of Industry to Champions of the Public' \*\*

To respond to the potential shift in expectation of governance institutions from 'watchdogs of industry to champions of the public', governance organisations may have to adapt their competencies and values if they are to remain effective, relevant and earn trust.32 This also encourages a more assertive 'shepherding' role for governance to help steer companies towards social and environmental goals through innovative and inclusive governance mechanisms: such as Design thinking for Policy,33 Safety By Design<sup>34</sup> or Responsible Research and Innovation<sup>35,36</sup> to achieve the Sustainable Development Goals,<sup>37</sup> or European Green Deal.38

# RESPECT

Seeing others as equals; listening to and taking seriously their concerns, views, and rights. Considering the impact of words & deeds on others.

#### Why Respect is so important to trust:

Think about when you have felt disrespected. It might have been an angry online interaction, when an employer treated you badly, someone didn't do as they promised, or your concerns or beliefs were dismissed or ignored. Not nice was it? Did you feel like trusting that person or institution after that? Probably not.

The 'science of disrespect' is a huge field which shows we carry the feelings of anger generated by being disrespected with us for a long time. Disrespect and 'slights' are even a significant cause of violence, particularly in young men.<sup>39</sup> These feelings are tough to ignore or overcome and colour our judgement of the person or institution and significantly alter our interest in cooperating with a person or institution in future interactions.

Conversely, perceived respect is a powerful driver of trust and satisfaction in institutions and processes. For example, in civil disputes, litigants believe that their case has been handled in a respectful manner was the single most powerful determinant of preference for one type of procedure over another.<sup>40</sup> In the design of citizen dialogues, the decisions taken, even if they don't align with the desired outcomes, are more likely to be accepted if participants feel they have been respected in the way they have been treated and that the design of the process has been respectful of their views and concerns.<sup>41</sup>



# Changes to the governance landscape which reinforce its importance:

The governance of many emerging technologies involves judgements which navigate conflicting views, incentives, values and beliefs. Sometimes there are no right answers. Lessons from the past show the important of taking seriously all perspectives, or opportunities for understanding may be missed and collaborative solutions lost. The governance of GMOs provides an important lesson.

#### **Trust tip**

#### Respect those you disagree with

Perhaps the most valuable finding of the TIGTech project is the importance of respecting and taking seriously the views of others – particularly those we don't agree with or whose values and beliefs clash with our own. The perceived disrespect generated by a failure to do this can potentially undermine even the most trustworthy processes. How do you respect people whose opinions and values conflict with your own? You decide to. Then commit to the actions that go with it.

the purpose of GMOs & societal values were ignored or blocked. This was seen as 'not the job of governance'. Had they been more open to and respectful of these concerns initially, before opinions became entrenched, who knows where this might have gone".

Doug Parr, Chief Scientist Greenpeace. (TIGTech consultation)



#### **Watch-outs**

# Early warnings missed by 'wilful blindness' 42

Many examples of failed governance - such as those catalogued in the European Environment Agency's Late Lessons from Early Warnings report<sup>43</sup> – show that someone, somewhere, has been drawing attention to a problem, often for a considerable time. These warnings are usually provided by citizens, civil society groups or academics who sit outside the mainstream policy or industry setting. But institutional and personal 'wilful blindness' prevented these from being recognised as important. Wilful blindness is what we human do to feel safe, avoid conflict, reduce anxiety, and protect prestige, but if the perspectives of these individuals and groups had been respected and their concerns considered and acted on these, and so many other disasters, could have been averted.

### INTEGRITY

Operating honestly and being accountable, impartial and independent of vested interests.

#### Why Integrity is so important to trust:

We are using integrity in broad terms to cover the honesty and accountability of governance institutions and processes but particularly seek to stress the importance of their impartiality and independence from vested interests. 44,45,46

### Changes to the governance landscape which reinforce its importance:

The 'pacing problem'<sup>47</sup> – "the gap between the introduction of a new technology and the establishment of laws, regulations, and oversight mechanisms for shaping its safe development" – places increased emphasis on anticipatory<sup>48</sup> 'agile'<sup>49</sup> 'soft law' self-regulatory approaches to governance. These approaches are not directly enforceable by governments,<sup>50</sup> they are often developed collaboratively with those being regulated, and they are considered by some to be at greater risk of undue influence by vested interests. These factors have the potential to undermine trustworthiness and trust.





#### **Trust Tip**

# It's never the problem, it's the cover up

Trust can be lost and problems arise, not from a problem occurring, but from the cover up and contorted, yet often quite obvious, attempts to divert attention or rationalise it as something else.

Mistakes will happen and people understand this. SocietyInside's analysis of 19 citizen dialogues about emerging technologies showed that citizens<sup>51</sup> were positive about possibilities provided by all sorts of tech, but they were concerned about the governance and its honesty. When (not if, citizens weren't naive) things went wrong they wanted someone to have thought about it in advance and where problems still arise, take responsibility for them and respond quickly to put things right.



#### **Watch-outs**

# Collaborative governance must avoid 6 conditions for 'Regulatory Capture'

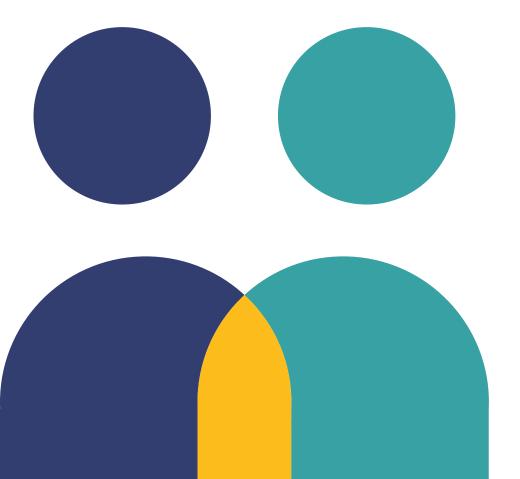
Regulatory capture is an economic theory that regulatory agencies may come to be dominated by the interests they regulate and not by the public interest.<sup>52</sup> There are many reasons this may happen, but some of these may be exacerbated by the complexities of new technologies and the proposed new 'collaborative' approaches explored in this report and elsewhere. A number of conditions arise which allow regulatory capture to occur and mean regulators cease to be impartial or are unable to act in the public interest:<sup>53,54</sup>

a Regulators become too friendly with the firms they are regulating (a particular concern with new cocreation models such as 'sandboxes' or business-led governance initiatives).

- b Regulators don't have sufficient technology expertise or resources in-house and have to rely too much on information from firms.
- c Regulators are not as efficient as they need to be and short cuts result in too much reliance on firms for enforcement.
- d Corrupt firms give 'bribes' to regulators to ignore breaches or 'bully' regulators by threatening jobs or economic repercussions.
- e Regulatory arbitrage<sup>55</sup> occurs
  which describes the practice where
  those being regulated have such strong
  economic power they are able to avoid
  the jurisdictions of regulations they
  don't like.

### **INCLUSION**

Being collaborative, inclusive, involving others



#### Why inclusion is so important to trust:

Inclusion is important for three reasons (1) because diverse perspectives result in better and wiser judgements, (2) giving genuine agency to others, including business and citizens, in shaping decisions that matter to them makes them more likely to trust those decisions, (even if they don't go their way) and (2) as OECD research found in relation to societal trust, citizens:

44

are more likely to trust a decision that has been influenced by ordinary people than one made solely by government or behind closed doors."56



Collaborative governance<sup>58</sup> – an approach which involves business, civil society groups and citizens in a governance co-creation processes is being increasingly seen as an important tool in the governance tool box to govern fast-moving technologies, particularly those which need to navigate complex values and ethical trade-offs. This inclusive approach done well could not only deliver more effective governance of emerging technologies, but more trusted governance also.



#### **Trust Tip**

#### **Trust first to get trust back**

Taking a proactive approach and trusting people in the hope and belief that you will be trusted back increases the likelihood of being trusted. Taiwan's Digital Minister Audrey Tang says that the key to their success in combating Covid-19 is not (as commonly assumed) their track and trace tech or their culture – it was their approach to proactively trust citizens and prove they are worthy of their trust. "If the government trusts civil society then the citizens will eventually trust back, but the government has to make the first moves."

Counter-intuitively, given integrity concerns, this is also true of those organisations being regulated. An approach which starts with respect and an inclination to trust is more likely to generate compliance and trustworthy behaviour in return.<sup>57</sup>



#### **Watch-outs**

# Tick box engagement wastes time and misses opportunities

Stakeholders (and regulators) have better things to do than waste their precious time on a pointless engagement exercise, where views are not taken seriously and where the rationale is mainly about ticking a box on the 'good governance checklist'. But more importantly, opportunities are missed. Assumptions about what people think are very often wrong and and initiatives designed based on incorrect assumptions more likely to fail.

### 44 Assume...makes an Ass of U and Me"

Miss Rowe, Primary School Teacher, 1972

# **OPENNESS**

Enshrining justice and equality in governance processes, application, enforcement, and outcomes

#### Why openness is so important to trust:

Openness and transparency help increase understanding, demonstrate accountability, prevent and expose wrongdoing and provide 'evidence of trustworthiness' to help earn trust. Closed processes leave a vacuum to be filled by speculation, but 'warts and all' transparency can make individuals and organisations reluctant to share opinions freely and difficult discussions to go even further underground.

'Goldilocks' transparency is required – a thoughtful, evidence based approach which delivers the right balance of openness and confidentiality to facilitate sharing and build external trust, whilst understanding where confidentiality may be important or effective in achieving public interest goals.



Distrust in tech governance is fuelled by the belief (and often the reality) that institutions are arrogant, secretive, aloof and their decision-making processes opaque.<sup>59</sup> If regulators and governance designers are indeed shifting to be 'Champions of the Public', it is important to their legitimacy that they are more transparent in their approach and public knows more about what they do.



#### **Trust Tip**

#### Be open about lack of openness

Be innovative and default to openness and transparency where possible. But where this is not desirable, provide clear explanations why this is in the public interest or the interest of participants in a trusted process.



44 How can regulators protect consumers effectively if most don't even know what they do?... Regulators are used to being in the background, it's their comfort zone, but if they are going to communicate their value they need to overcome their instinctive reticence". 60



#### **Watch-outs**

# Don't be coy; people can only judge you on what they see

Some governance organisations are very proud of the way they live their values, practice integrity and deliver their public interest mandate with skill. But they are coy about communicating this: 'we like to keep under the radar'. They are right to believe that PR-style self-promotion of their good works could be counterproductive, but wrong to think that this 'keep your head down' strategy comes without a cost. How is anyone to deem you worthy of their trust without 'evidence of your trustworthiness'?

# **FAIRNESS**

Enshrining justice and equality in governance processes, application, enforcement, and outcomes

#### Why fairness is so important to trust:

Perceived unfairness is one of the most powerful drivers of distrust. Even as tiny children we calibrate fairness and unfairness with great precision – 'it's not fair' we wail and feel the injustice viscerally. Conversely fairness is an influential driver of trust.



When a governance process or outcome is seen as fair it leads to greater acceptance of decisions, better compliance with regulations, and more co-operative behaviour in dealing with agents of the government." 62



# Changes to the governance landscape which reinforce its importance:

A proactive role in helping deliver fairness and equality in innovation is increasingly seen as the role of tech governance – particularly through new outcome-based instead of rules-based approaches. The history of innovation and technologies have always created unfairness by exacerbating injustice and inequality.63 The newest technologies, such as artificial intelligence, gene editing and others already show little sign they will be any different. Thomas Piketty in his 2020 book Capitalism and Ideology<sup>64</sup> argues that inequality is a political choice based on a flawed ideology - the market will provide and not the inevitable result of technology and globalization. He demonstrates that it is neither true, nor irreversible and that fairness in governance outcomes is key.



#### **Trust tip**

# Fairness drivers and trust drivers are the same

The concept of fairness has been a core part of governance purpose and design for millennia. The focus on fairness in process, application, enforcement & outcome is enshrined in the term and practice of 'procedural justice' and the drivers are the same as those for trust: Intent, independence, inclusive, respect, consistency, transparency, openness and accountability.<sup>65</sup>





#### **Watch-outs**

# Fairness is cultural and contextual with high risk of confusion and inconsistency

Much of new tech operates across borders limiting the potential for cultural interpretations of fairness in tech or governance. Individual nations are limited in how they can regulate, and with so many different approaches (sometimes even within one country), there is a high risk of creating confusion, inconsistencies and unfairness with how different issues in tech are dealt with. The IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems has been grappling with this - exploring different interpretations of fairness, ethics and cultural traditions to avoid a western ethics bias in tech development and governance – for example exploring interpretations according to Buddhist, Ubunto and Shinto traditions.66

#### **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

- 7 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
- "Nothing About Us Without Us Mantra for a Movement", Huffington Post. 2017 https://www.huffpost.com/entry/nothing-about-us-without-us-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

- 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.
- 6 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.
- 27 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.
- 33 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-in-search-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-and-regulation-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\_Policy-making\_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%20an%20economic%20theory%20that%20regulatory%20agencies%20may,is%20supposed%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/10.1787/339306da-en.
- 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
- 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/research-projects/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-confidence-innovative-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
- 77 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-ReplacementTherapy-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
- 106 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



