Considerations for analysis of wellbeing in the digital age

Sir Peter Gluckman (pd.gluckman@auckland.ac.nz)

Kristiann Allen (kristiann.allen@auckland.ac.nz)

Office of Prime Minister's Chief Science Advisor, New Zealand

Draft: April 6 2018

The conventional market-oriented framing for policy analysis, that is often applied to discussions of the "4th Industrial Revolution", is insufficient to understand how digital transformation[1] is affecting human activities and society in ways other than our roles as producers and consumers. The impacts will inevitably grow and are already creating policy challenges with respect to harnessing the benefits and mitigating the risks. We need analyses that can help to safeguard and maximise human wellbeing in an increasingly networked and automated age where digital transformation may be changing the very foundation of our social institutions.

Until now much policy focus has been either on the productivity impacts of digital transformation and in particular on the issue of the future of work and incomes, or on the issues of individual rights in the digital age (e.g. data protection laws or the development of a citizen's digital bill of rights). These perspectives are insufficient to capture the extent of change occurring, nor do they encompass the range of issues that are emerging. Similarly, to compare digital transformation to previous technological revolutions is inappropriate because it ignores the distinctiveness, speed and pervasiveness of the current process.

The purpose of this discussion paper, therefore, is to suggest an analytical model that focuses on those aspects of digital transformation that will affect individual, social and civic wellbeing.

Already the OECD has an approach that seeks to assess these broader domains in its "wellbeing framework" [2] . That framework is based on a Social Determinants of Health perspective, and goes beyond economic and market-based framing. It includes social sector and subjective data across twelve fundamental dimensions: income and wealth, jobs and earnings, housing conditions, health status, work-life balance, education and skills, social

---

[1] Throughout this paper, we refer to the process of ICT innovation and technology adoption by the general public across multiple sectors as 'digital transformation' though it has also been called 'digital disruption,' 'the fourth industrial revolution', among other terms. To some, each term may reflect hidden assumptions about the relative impact of the phenomenon (where it is felt and whether it is positive or negative). We have chosen the term 'digital transformation' to signal a pervasive and ongoing process, without associating any value to the term.

[2] http://www.oecd.org/statistics/measuring-well-being-and-progress.htm

connections, civic engagement and governance, environmental quality, personal security and subjective well-being.

The OECD wellbeing framework has generated considerable comparative data through the '*How's Life?*' series of country profiles (2013, 2015, 2017). However, it may not be sufficiently sensitive to deal with the context of digital transformation in particular.

One reason for this is the likelihood that the context of digital transformation itself will change our views of what constitutes wellbeing (e.g. will traditional employment statistics account for the circular or wage-free economy? Will education statistics show the uptake and impact of self-instruction? Can home ownership/rental statistics explain changes to community social capital in neighbourhoods? Are we monitoring sufficiently population based mental health to track and investigate emerging trends? Can our conventional measures of wellbeing account for the impact of digital transformation on individuals and society?

Many of the values and institutions of society, which are often regarded as constants, emerged during and after the Enlightenment in Europe (e.g. concepts of privacy, autonomy, individual agency, democracy). These are social constructs, which can change as society changes in response to pervasive influences. Today digital transformation is sufficiently multidimensional and pervasive that it may affect some of our most basic values and the institutions through which they are enacted.

Further, change during that period was a populist movement of civil society aimed at countering the social, governance and knowledge paradigm largely set by the Church and Monarchy. By contrast, in the case of digital transformation, much of the most dramatic change is driven largely by the private sector. Consequently, governments have found themselves in responsive mode with little opportunity or capacity to be proactive about the impact of digital transformation.

Yet, one of the primary roles of a representative democratic government is to protect citizens and to help manage change that will affect them. Therefore the challenge is to enable governments to be less passive by equipping policy makers with the knowledge and tools that can better characterise the dimensions of change in the digital age in order to address them by maximising the opportunities while mitigating the risks to individuals and society.

A new kind of horizontal dialogue will be needed between governments, the private sector and civil society. Such a dialogue needs to be framed in a way that is neither technophobic nor technologically deterministic, but rather honest and pragmatic. Governments must lead the conversation but they are not well equipped to do so. More knowledge is needed about the nature of changes and their implications before Governments can meaningfully engage.

The domains of potential relevance need to be understood before a more comprehensive measurement framework can be developed. The OECD Wellbeing Framework provides a useful starting point, though it will need to be refined to

account for the changes in wellbeing that are brought about by digital transformation.
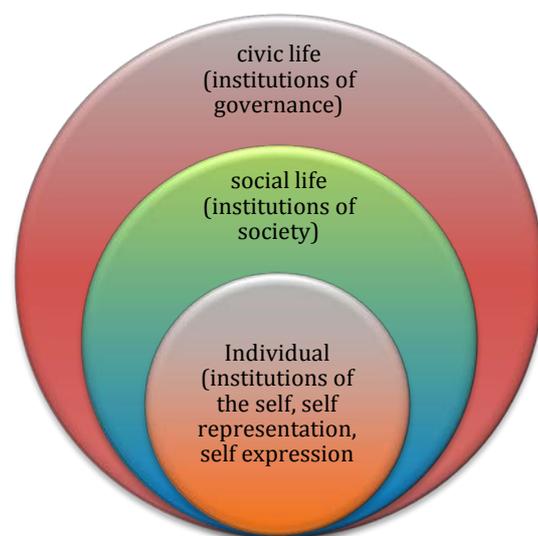
It is important for the analysis not to be confined by a focus on the currently available technologies; these are changing rapidly and new technologies will continue to emerge. Thus, instead of beginning with the technology, any assessment of wellbeing in this context should begin with a shared understanding of our most human qualities. That is, what is it that we seek to maintain or maximise that results in a commonly held value of wellbeing?

Furthermore, we believe that wellbeing in the context of digital transformation is a necessarily broad concept, comprising elements of self-perception, together with socially constructed expectations and objective material conditions. A singular focus on any one of these components risks missing the pervasive effect of digital transformation.

For instance, recent attention to digital ethics and digital rights has opened up an important subfield in legal and ethical studies and practice. However, adopting a rights- and protections-based framing focuses on impacts on the individual and does not often consider impacts on social interactions, society or on specific populations. A consideration of rights-based principles such as justice, autonomy, privacy and fairness, will thus be necessary but insufficient to address the way in which digital transformation will continue to have both individual and collective impacts.

Therefore, we propose starting with an examination of the impact of digital transformation on long-established human institutions. Taking a cue from Elinor Ostrom, we have adopted a broad definition of 'institutions' that includes both the formal laws and governance mechanism of societies but also the informal and less codified rules and norms of behaviour that exist and are replicated within a society's shared vernacular of language and action.

This broadened definition of institutions, which is well-established in the social science literature, offers a useful lens through which to view the implications of the digital revolution on individual and social wellbeing because it can accommodate the most human-focused of our institutions: the institutions of the self; institutions social life; and institutions of civic life.

civic life (institutions of governance)

social life (institutions of society)

Individual (institutions of the self, self representation, self expression

The dimensions of wellbeing requiring consideration in the digital age

Our proposed analytical model therefore is based on the three institutional dimensions that most represent our humanness and which we may seek to optimise or protect in promoting our wellbeing. We break these dimensions down into a partial list of their constituent institutions. In other words, we consider the predictable individual and societal practices that endure over time and are more or less universal, at least in advanced democratic economies, albeit with cultural and geographic distinctions. Of course some of these practices and patterns of behaviour are so established that they are by now considered fundamental material conditions of wellbeing which are objectively monitored (access to healthcare, education for instance). Others are socially constructed practices that need to be considered at a more granular level, which complicates monitoring (e.g. changing types of employment relationships; parenting practices…)

To help structure analysis, a partial view of the *trajectory of change* in these institutions is proposed. It depicts the ways in which the institutions have long been enacted or entrenched ("from") and the manner in which they are changing ("toward"). Following this, we initiate a list of the potential opportunities as well as some of the potential unintended consequences of digital transformation, by way of examples. These are not exhaustive lists and those closer to the fields of research and application will no doubt have more examples to add.

We recognise that this 'trajectory' approach is necessarily the perspective of digital adopters as opposed to digital natives. As such, we acknowledge that the perceived unintended consequences may not be a concern shared by subsequent generations of digital natives. However, we believe that adopting a diachronic perspective is necessary to enable policy makers to initiate a deliberative societal conversation about desirable uses of technology.

In this, it is interesting to note that the digital revolution allows us new and unprecedented ways to measure its own impact. For example New Zealand's integrated data infrastructure, which combines all government administrative data, can give a big-data (aggregate view) of individual circumstances.

Using the tables to structure discussion and develop recommendations

The proposed analytical model is a first broad sketch at multiple levels. To be useful for monitoring and policy purposes, however, it must be paired down to focus on 1) the institutions of agreed significance in each of the three levels and 2) the indicators of agreed significance in each institution.

In some cases, especially for material conditions of wellbeing, indicators are well established albeit coarse proxies. In other cases, more granularity is necessary. This is particularly true for areas of mental health, social integration and human emotional/physical/social development in the context of digital transformation. As individualised or perception-driven domains, these may be difficult to monitor. For this reason, we have added columns aimed at identifying the

knowledge gaps and suggesting how to fill these, as well as identifying possible policy implications.

To illustrate, whereas access to education is part of current wellbeing measurement frameworks, the impact of increasingly networked and device-driven education delivery is unknown. Education ministries in national governments may wish to monitor the impact of introducing new instructional and socialisation modalities over the long term. The nature and pace of digital transformation will require governments to engage more proactively, so this column is intended to raise awareness of the possibilities for policy makers.

Interdisciplinary review and input

An expert workshop convened by INGSA in partnership with the OECD will be held on April 12-13 2018 to critically consider the analytical model. The goal will be to refine it so as to make recommendations on monitoring the impact of digital transformation on wellbeing, potentially through modifications to the OECD's Wellbeing Framework or other policy levers.

The workshop will assemble a multi-disciplinary group of researchers from the fields of psychology, evolutionary biology, sociology, social anthropology, ethics, policy studies, political philosophy, data science, AI, and monitoring and evaluation (OECD).

It is expected that a monitoring regime would be a mix of extrinsic material indicators and transactional (e.g. time use, service use) indicators as well as intrinsic 'perception-based' indicators. These different types of indicators represent different levels of analysis of wellbeing. While national level measures can provide a coarse perspective, national policy implications might be to advise more granular monitoring in 'sentinel' sectors (healthcare, primary education, law… etc.), new mental health surveys, new questions added to national census surveys among others.

NOTE: *The tables below are only partially filled in and require further input. The last three columns are left for discussion, while the first four columns do not attempt to cover the issues in an exhaustive manner but rather illustrate some of the factors that might need consideration. Workshop participants will be asked to critically consider and add to this framing.*

INSTITUTIONS OF THE SELF

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible indicators for monitoring	Areas for further research	Potential policy implications
Human development	Early learning by experience and imitation from family and care givers aided by formal instruction; The importance of physical play to build social skills and non-cognitive functions	Increasing use of digital device-based learning in place of interpersonal learning. Less interactive and potentially less inter-human play Less 'reality testing' in defining exposures	Broader range of learning possibilities and skills development (e.g. allowing disadvantaged or isolated communities access to quality education) …	Potential negative impact on acquisition of key skills in human development; Exposure to unreal and hyper stylised experiences influencing interpersonal skills development (added effect of violent, abusive or anti-social exposure); Changes in attention time affecting learning; Change in risk taking behaviour, change in personality development (eg narcissim, conduct disorder), changed view of nurturing and authority roles Greater likelihood of exhibiting lack of self control under stress; Conduct disorder and mental			

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible indicators for monitoring	Areas for further research	Potential policy implications
				health concerns			
measures of self-worth	job, salary, and other socially scripted milestones at socially scripted times across the life trajectory	celebrity: 'friends', 'likes', 'views', 'shares' (move toward extrinsic measures from intrinsic?); pervasive measurement of performance and algorithmic mitigation for productivity (job, social, physical fitness and diet, other); The 'quantified self movement'; Changed expectations of time (instant gratification, instant expertise, instant fame)	Better monitoring of performance standards create more scope for self-improvement and can offer personally tailored opportunities for interventions or growth; more access to diverse images of self especially for isolated or marginalised individuals (e.g. LGBTQ)	Increased pressure to portray idealised self (mental health) ; automation could replace sense of personal fulfilment leading to the need to find other expressions of human worth; pressure to compete with machines in the workplace; need to adapt education systems; fewer opportunities for natural growth and development without monitoring and intervention; achievement-oriented child development at the cost of intrinsic character development; Individual reputation harder to protect against slander, rumour.	Population measures of mental health (e.g. age bracketed suicide rates)

Age adjusted measures of NEET (not in employment education of training)

Survey data on use of free time | Surveys of mental health need to be adjusted to consider these dimensions

Whether and how popular measures of worth influence access to other domains of life (one's 'like' count becomes an influential factor for hiring and other decisions by others – loans, insurance etc) | Regular expanded mental wellness surveys

Implications for education systems |

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible indicators for monitoring	Areas for further research	Potential policy implications
Opportunities for self-expression and self-actualisation	conventional education, training, career advancement or artistic expression	More expansive self-taught, artisanal, entrepreneurial opportunities	Greater freedom of self-expression; Lower barriers to entry into desired sector; more diversified communities of practice	Greater potential for artifice and self-doubt. Mental health issues ensue, especially in developmental stages of adolescents and adulthood; false or unverifiable claims of expertise		Surveys of mental health need to be adjusted to consider these dimensions Implications for education systems	Mental health burden Development of non-cognitive executive function
personal health care	Emphasis on doctor-patient relationship; skills required to obtain information (augment the amount available)	patient-managed care; skills required to distinguish information (reduce the amount available); increased use of pervasive monitoring (quantified self) and algorithmic decision-aids	Fewer human errors in diagnosis and treatment decisions; portability of care through e-health record-keeping; patient empowerment through: Fitbit and other personal data collection management; ability to connect to patient groups (for support and information)	Patient-managed care assumes a basic level of health literacy, which can contribute to inequalities; Errors in self-diagnosis and treatment; Undue influence of new tech on medical best practice; Decision-aids may neglect important aspects of personal contexts including cultural paradigms for healthcare interactions; focus on quantified personal data monitoring rather than meaningful lifestyle habits/changes; digitally-aided	Health care utilisation statistics; rates and types of e-health usage	The status and impact of personal health literacy and patient-managed care. Does it increase or decrease health equality	Ensuring equitable access to health literacy and health care by multiple means

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible indicators for monitoring	Areas for further research	Potential policy implications
				testing or diagnosis outstrips ability to treat			
Privacy	Identifiable organisations responsible for stewardship of personal data. Accountabilities and terms are mutually understood	Broadened diversity of organisations (public and private) holding personal data. Uncritical sharing of personal data within supposed social networks or as the price to gain access to perceived benefits; the private becomes public through pervasive social networking and changed assumptions of sharing personal information	Changed public attitude to privacy standards enables innovation	Diffuse responsibilities for safeguarding privacy mean no one is responsible; No obvious recourse; increasingly difficult to exercise "right to be forgotten"	Presence of digital safeguards	Survey of public attitudes	Digital rights Codes of digital ethics
autonomy	Life and decision-making skills acquired through training and experience	Reliance on life skills and decision aids and automation;	Reach level of supposed 'maturity' and 'mastery' more quickly and with less effort; time saved can be devoted to other pursuits; cumulative effect	Effects (possibly cumulative) of deskilling at individual and population levels			Development of non-cognitive executive function

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible indicators for monitoring	Areas for further research	Potential policy implications
			of faster upskilling				
Self-sufficiency ….	sustained work and obvious career paths	Constant or frequent retraining or directional changes	More diversity and flexibility in professional life; global workers; peer-to-peer lending and trading reducing barriers to entry into the market	Generational disadvantage, uncertain income, middle class squeeze; effects of deskilling (practical and social skills)	Frequency of retraining by age group (what changes over time) Intergenerational health trajectories	Identifying root causes of mental health issues in the context of digital technologies (i.e. are problematic tech uses causal or symptomatic?)	

INSTITUTIONS OF SOCIAL LIFE

	From...	Towards...	Potential opportunities	Potential unintended consequences and inequities	Possible indicators for monitoring	Areas for further research	Potential policy implications
social interaction	often proximal and potentially more in-depth	Increasingly remote and potentially more superficial.	Increased ability to crowd source material and presumed emotional support when needed; ability to establish and enhance social interactions is without limit. New forms of meaningful contact delivered by AI	There is specific documented impact on adolescent development and potential for poor mental health outcomes; Loss of meaningful human contact with increased everyday automation; heightened self-awareness and constant comparison can lead to anxiety; Fear of Missing Out (FOMO)	Average face-to-face contact time weekly? Length of social interactions (online and face-face) Hashtag tracking	Comparison mental health outcomes from traditional human contact and AI	Ethical design of digital platforms requires transparency of design – however commercial interests may prevent this. Some form of regulation may be needed.
Public Education	Teacher as authoritative and respected figure in classroom (albeit 'inverted' classroom); Balanced 'liberal arts' formative education in primary to early	Increased reliance on devices to access authoritative knowledge. Increase in 'BYOD' learning Gamification of learning	Teachers can focus on most needy learners while others self-guide using devices Access to knowledge and expertise regardless of	Potential erosion of teacher role (impact on number of teachers?) BYOD classrooms serve to emphasise inequity among students and the	Average student-teacher contact time (at different levels) Average time spent on device Average time students spend out doors	Impact of gamified digital instruction from multi-disciplinary perspective (physical, sociological...)	

	From...	Towards...	Potential opportunities	Potential unintended consequences and inequities	Possible indicators for monitoring	Areas for further research	Potential policy implications
	secondary years Primary and intermediate education as much about developing pro-social skills as literacy and numeracy	Significant emphasis on ICT curriculum with consequent trade-offs for pedagogical space.	location Better engagement of hard-to-reach students	digital divide Reinforced incentive and reward system rather than intrinsic value of knowledge or critical understanding			
population health	promulgated and operationalised through primary healthcare providers and other community-based sources	New channels of population health information and intervention (big data trend tracking, precision messaging…)	Social media interest groups able to amplify support for population health intentions via social media;…	Social media interest groups able to undermine population health intentions via social media;…			
friendship and fellowship	social and support networks mostly grounded in direct personal and shared experiences	Social and support networks can grow from shared beliefs, ideas, motivations, but without direct personal experience.	Increased ability to crowd source material and presumed emotional support when needed; ability to establish and enhance social interactions is without limit.	potentially less stable social support when not backed by frequent real interaction; distinction between 'real friends and Facebook friends'; uncharted territory of robot-human friendships			
romantic partnership	Often identified via personal and shared experience (place of work,	broader scope of potential partners, not limited by	Potentially removed from extant support networks, which	Distance from extant support networks could also lead to more	Marriage and divorce statistics Places of origin of romantic partners		

	From...	Towards...	Potential opportunities	Potential unintended consequences and inequities	Possible indicators for monitoring	Areas for further research	Potential policy implications
	study, worship, network of friends etc). Often legitimised and supported by extant social network	geography or social circumstances, yet potentially reduced diversity of selection pool due to use of algorithmic selection criteria	could allow greater personal freedom	volatility in the absence of sanctions from trusted peers for behaviour that may hurtful to a partner. Human-machine emotional relationships	(more distant pairings?) Dating app user metrics		
Family	Legitimacy and authority of parenting roles is inherently recognised	Parent-child dyad mediated through technology (device games, movies, interactive apps that mimic socialisation or parental guidance...	Diversifies sources of parenting advice and influences; Technologically assisted parenting; allows for involvement of extended family not in proximity; Greater exposure to healthy parenting practices	Parents (and children) in a constant state of semi-distraction in a 24/7 communication and work environment (potential of flexi-time backfiring); relaxing of family standards and parameters for child mental/social development			
Societal values (western)	Societal values date to post-enlightenment Europe: social responsibility is balanced with concepts of autonomy and personal rights	Underpinning institutions that protected post-enlightenment western values change and values themselves turn out to be more maleable	Greater opportunity for community-building that is not bound by geography. Sharing economy and social innovation can	Nature of 'communities' fundamentally changes through expansion of platform tools (e.g. Airbnb effects on neighbourhoods);	Changes to charitable giving patterns;		

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible indicators for monitoring	Areas for further research	Potential policy implications
	and social responsibilities that are underpinned by a shared understanding of socially defined values.	than generally assumed.	thrive. Speed of communication allows better flow of ideas; opportunities for pluralism and diversity through greater exposure not limited to physical proximity	speed of communication enables normalisation of ideas previously considered anti-social; impact of breaches of societal values quickly lose significance (e.g. compare the enduring societal impact of Port Arthur to similar events throughout the 2000s)			
Cultural expression…							

INSTITUTIONS OF CIVIC LIFE

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible proxy indicators for monitoring	Areas for further research	Potential policy implications
News media	diversity of news consumption help to form personal opinion or stance on topics of personal and public interest	less diverse consumption of news as media is algorithm-driven to be personalised and cater to already entrenched views and tastes; Yet, also opportunities for consumers of news media to be producers (prosumers)	'Democratisation' of media allowing marginalised voices to be heard. Otherwise under-reported stories can attract greater attention, particularly where corporate mainstream media is interested. No need to rely solely on journalists (of which there are fewer in a corporate media market) to play 'critic and conscience' role	Opinions on issues may become more polarised and entrenched at a population level; Views are supported by like-minded peers; Phenomenon of 'fake news' and lack of trust as in the 4th estate, yet the alternative (bloggers, prosumers) does not meet conventional journalist ethics and integrity standards. Decline in civic reason	Subscriptions to mainstream long-standing media outlets Alt-metrics of blogs vs traditional news State of journalism schools: funding, enrolment, diversity Existence national level long form and specialty journalists: science, politics, foreign affairs, analysis	Operational research on media literacy	There are limited policy levers for government because of the independence of the media (beyond regulating advertising standards and nationalised media outlets). It is incumbent on the journalism sector to review/revise framework for journalism: transparency; political influence.

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible proxy indicators for monitoring	Areas for further research	Potential policy implications
Politics	In democratic societies, participation in civic life through political campaign and voting at municipal, regional, national levels. Public participation in politics requires personal hands-on) effort (meetings, leafleting, physical voting etc…); Formal institutions of government have broad public legitimacy but are largely opaque to the public	less diverse input into political discourse as media is algorithm-driven and persuasive technology delivers bespoke messages to entrenche views; Public opinion data and opportunities for micro-messaging given more scope to drive political agendas; Institutions are made more accessible through pro-active information posting,	Public participation in politics requires less personal effort (virtual voting, online enquiry submissions, livestream political events etc), which can increase engagement and voter turn-out; Better opportunities for marginalised views to be heard by elected officials (no need to rely or formal channels or elections to express opinion and have it heard)	More entrenched political views and less opportunity for consensus building, particularly on controversial topics; Groups negatively economically or socially affected by digital revolution may feel let-down by democratic process and become further marginalised by not participating; More adversarial styles of politics; Ironically, more public scepticism and loss of authority of formal institutions as they become more open; Greater access to information can serve to obfuscate the process (including intentionally); potential for political and social issues from one jurisdiction			

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible proxy indicators for monitoring	Areas for further research	Potential policy implications
				internationally to influence another, regardless of distance or connection to the actual issue.			
Governance and public service	Sovereign nations exert policy and regulatory control over matters in their jurisdiction: taxation; environmental protection; public safety; public health; matters of public interest such as housing, etc…;	Regulatory influence of platform companies in hospitality, transportation, retail, freelance services and a growing number of sectors yet to be imagined; private sector become custodians of public data assets through cloud applications	More innovation opportunities that can benefit individuals and communities; digital public services create efficiencies in the public sector whether through data-informed decisions or government e-services (health, education, justice, transportation, citizenship etc.); opportunities for direct democracy through efficient polling technologies and other tools	Market forces and the rise of 'prosumers' in an increasingly platform based economy are able to circumvent or advocate against policy and regulatory controls such as income tax or public safety (e.g. example regulating number of hours driving commercially or on other job sites; measures to curb short term rental accommodation and promote affordable housing, etc.)			
Income redistribution and national fiscal levers	Sovereign nations controlled their tax base, could predict income tax flows and	MNCs and platform companies exert greater fiscal regulatory	Greater consumer choice and power; more and greater availability of	Core roles of the sovereign state compromised (e.g. reserve banks); hidden			

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible proxy indicators for monitoring	Areas for further research	Potential policy implications
	could control their (reserve) currencies	control; crypto-currencies are an increasing reality; Change in domestic income flow changes tax base	tools that drive the circular economy (e.g. time banks and local currencies)	transactions; Unpredictable tax base; State's ability to meet citizen's expectations and manage the economies declines with socio-political and environmental implications; emerging security risks (personal and national)			
rule of law	Individual(s) found responsible for breach in rule law can be held to account; States power to set and enforce laws is recognised (civil, criminal, corporate, constitutional, environmental	Decisions or actions are increasingly undertaken by autonomous non-human entities such as self-improving algorithms or robots; Platform companies overriding sovereign nations' law-making through market forces	Fairer application of laws? Fewer human errors in adjudication of a case? Faster access to legal counsel	Less ability to identify individuals or organisations to hold accountable (e.g. what kind of accountability to assign to a robot or an algorithm for wrongdoing or adverse outcomes?); Loss of sovereignty in regulation (e.g. environmental, fiscal, social policy, ethics…) Libel law no longer effective; loss of legal paradigm (innocent until			

	From…	Towards…	Potential opportunities	Potential unintended consequences and inequities	Possible proxy indicators for monitoring	Areas for further research	Potential policy implications
				proven guilty) in the face of public outing.			

For reference:

OECD Wellbeing Framework

http://www.oecd.org/statistics/measuring-well-being-and-progress.htm

Rathenau Institute Report: Urgent Upgrade: protect public values in our digitized society

https://www.rathenau.nl/en/publication/urgent-upgrade-protect-public-values-our-digitized-society