

# FORESIGHT CONFERENCE 2019 REPORT SOCIETY 4.0

CSF

Centre for Strategic Futures  
Singapore



# ABOUT CSF

The Centre for Strategic Futures (CSF) was established in early 2009, and since 1 July 2015 has been part of the Strategy Group in the Prime Minister's Office. CSF serves as a focal point for futures thinking within the Singapore Government and seeks to support a Public Service that operates strategically in a complex and fast-changing environment.

[www.csf.gov.sg](http://www.csf.gov.sg)

© 2019 Centre for Strategic Futures  
Prime Minister's Office, Singapore  
All rights reserved.

Centre for Strategic Futures  
Strategy Group, Prime Minister's Office  
100 High Street, The Treasury  
#03-01 S(179434)

# TABLE OF CONTENTS

|                                                          |           |
|----------------------------------------------------------|-----------|
| <b>Introduction</b>                                      | <b>3</b>  |
| <b>Summary: Society 4.0 would be a "Quantum Society"</b> | <b>4</b>  |
| <b>Is the 4IR and Society 4.0 Truly Unprecedented?</b>   | <b>7</b>  |
| <b>Empowerment and Disempowerment</b>                    | <b>9</b>  |
| <b>Varying Speeds and Registers of Time</b>              | <b>14</b> |
| <b>Foundational and Multiple Narratives</b>              | <b>20</b> |
| <b>Three "Breadcrumbs" to Navigate Society 4.0</b>       | <b>24</b> |
| <b>Looking Ahead</b>                                     | <b>27</b> |
| <b>Endnotes</b>                                          | <b>29</b> |
| <b>Concept Note</b>                                      | <b>30</b> |
| <b>Programme</b>                                         | <b>32</b> |
| <b>Participants and the CSF Team</b>                     | <b>35</b> |



## INTRODUCTION

The Centre for Strategic Futures (CSF), Singapore, held its fifth Foresight Conference (FC) on 25-26 July 2019 at the Raffles City Convention Centre. The conference is an important part of the Singapore Government's strategic foresight effort, which is aimed at helping policy-makers navigate the increasingly complex and inter-connected global operating environment. The conference serves as a unique platform for the discussion of emerging strategic issues between international and local thought leaders.

FC2019 was held as part of the Singapore Foresight Week together with the International Risk Assessment and Horizon Scanning Symposium (IRAHSS), which is organised by the National Security Coordination Secretariat (NSCS).

The theme for FC2019 was Society 4.0, inspired by the Fourth Industrial Revolution (4IR) and Industry 4.0. While the 4IR describes a broad range of technologies that fuse physical, digital and biological worlds into "cyber-physical systems", Society 4.0 envisions what society could look like in the 4IR.<sup>1</sup> FC2019 explored this future through four lenses: individuals, relationships, time, and values.

This is a summary of the discussions at the conference, which was held in accordance with Chatham House rules. As such, the record is only of views articulated, and does not indicate speakers nor the organisations they represent.

# SUMMARY: SOCIETY 4.0 WOULD BE A "QUANTUM SOCIETY"

At the start of the conference, participants debated whether the 4IR, and by extension Society 4.0, was truly unprecedented. Over the course of the conference, participants collectively sensed that Society 4.0 would be a **"quantum society" where polarities, conflicting narratives and conflicting identities increasingly coexist**. The question arose as to whether "quantum governance" or organisational design fit for purpose in such a society could be developed.

In a "quantum society", forces would act on individuals and groups in opposing, even seemingly contradictory ways. Three of the largest of these "quantum forces" discussed were:

## a. Empowerment and Disempowerment

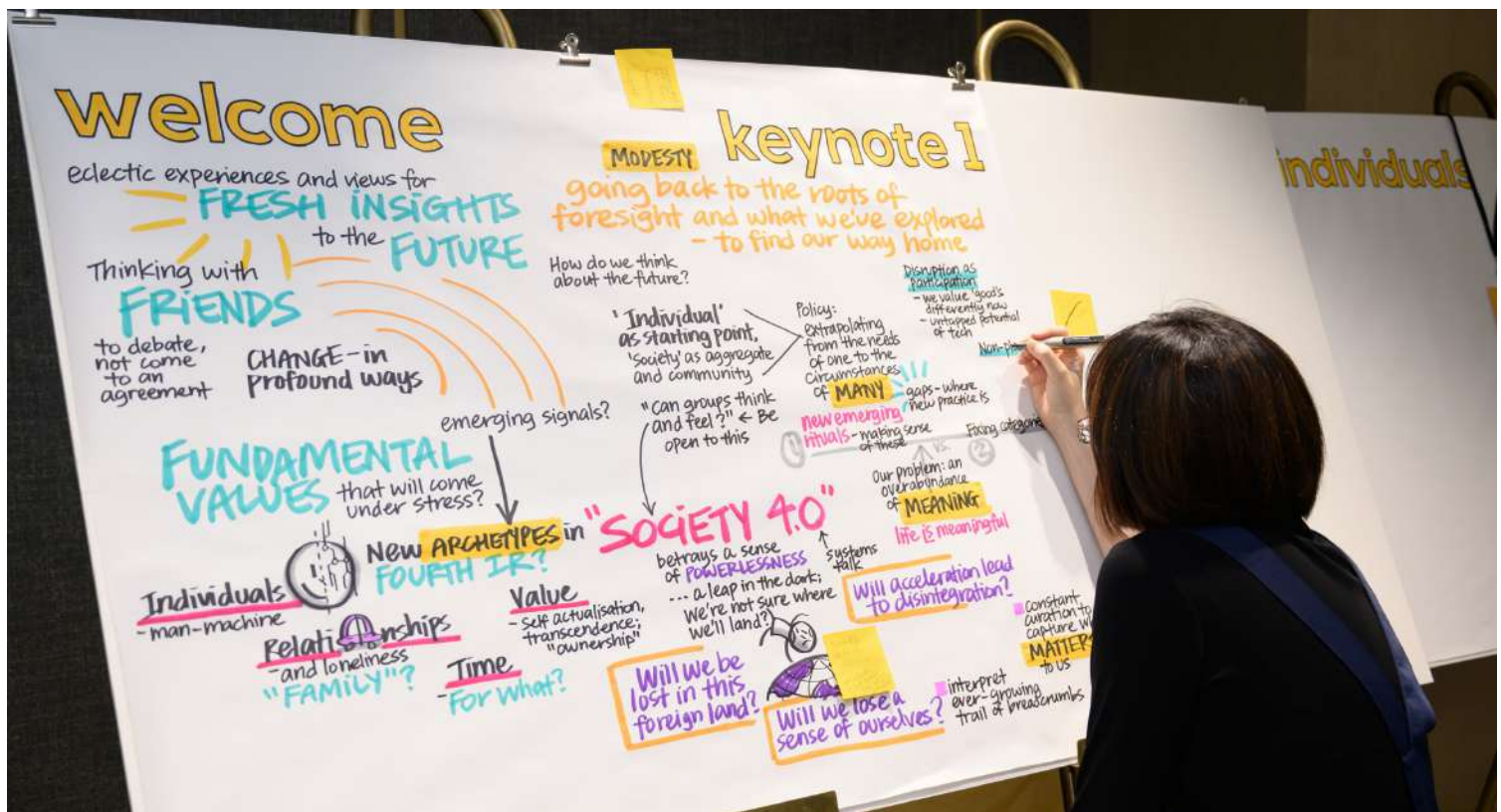
In Society 4.0, individuals would be both more and less empowered. We would feel less heard on more platforms, and we would feel freed from the physical but remain bound to it.

## b. Varying Speeds and Registers of Time

Society 4.0 would move with varying speeds and registers of time. We would live longer and have more free time, yet feel that we do not have enough time.

## c. Foundational and Multiple Narratives

In Society 4.0, foundational narratives would matter even as individuals demand multiple narratives. We would desire both group identity and personalisation.





Some suggestions on how people might cope in this disorienting environment emerged from the discussions, even as some of the tensions described seemed inherently impossible to resolve. These potential “breadcrumbs” or aids to navigate Society 4.0 were:

**a. High Touch**

Geography, human interaction, and “heartware” would matter more than ever in an increasingly dislocated, digital and capitalistic world.

**b. Synchronicity and Deceleration**

In a frictionless world, more would choose synchronous media and/or rituals to seek group belonging, and deceleration to encourage long-term thinking and wellbeing.

**c. Participation**

Participatory governance, such as citizen engagement and participatory foresight might help multiple narratives exist in a state of “resilient heterogeneity” where disagreement is strength and no one story needs to “win”.

welcome

eclectic experiences and views for

FRESH INSIGHTS  
to the FUTURE

## Thinking with FRIENDS

to debate,  
not come  
to an  
agreement

CHANGE-in  
Profound ways

**FUNDAMENTAL**  
**VALUES** that will come under stress?

that will come under stress?

## New ARCHETYPES in FOURTH IR?

## Individuals -man-machine

Relationships  
- and loneliness  
"FAMILY"?

Time  
- For what?

Value  
- self actualisation,  
transcendence;  
"ownership"

Will we be lost in this foreign land?

Will we lose a sense of ourselves?

# keynote 1

looking at the  
small stuff that  
matters

# MODESTY

→ going back to the roots of foresight and what we've explored

- - to find our way home

How do we think about the future?

'Individual' as starting point,  
'Society' as aggregate  
and community

"Can groups think and feel?" ← Be open to this

Policy:  
→ extrapolating from the needs of one to the circumstances of **MANY**

new emerging rituals - making

- making sense of these

our problem: an overabundance of MEANING

life is meaningful

Will acceleration lead to disintegration?

■ Questions that propel us to the collective

interpret  
ever-growing  
trail of breadc

ruption as  
icipation

- we value 'good's differently now
- untapped potential of tech

## Non-places

- new groups, new humans

## Fixing categories

our problem: an overabundance of MEANING

life is meaningful

Will acceleration lead to disintegration?

■ Questions that propel us to the collective

interpret  
ever-growing  
trail of breadc

constant curation to capture what **MATTERS** to us

FC2019. 25 July 2019. Wendy. Weleniastudios.

# IS THE 4IR AND SOCIETY 4.0 TRULY UNPRECEDENTED?

---

## *The 4IR as a second communications revolution*

A participant wondered whether the **main revolution was a communications revolution** (2CR), rather than a technological or industrial one. The participant believed that the question of how people would relate to each other across time and space was crucial to understand what Society 4.0 would be like.

A participant suggested that changing communications platforms had led to an increase in access to and availability of information. In turn, this had distorted perceptions and increased expectations. At times, such **perceptions did not even line up with reality**. In Europe, for example, there was a pervasive sense that inequality had increased, even though data showed that it had not. In Canada, even though the middle class had not shrunk, people increasingly felt that they were not part of it. Nonetheless, **“in policymaking, perception is reality”**; changing expectations suggested the need for corresponding policy changes.

## *The 4IR is both unprecedented and a continuation of the past*

Another issue that several participants raised was **the extent to which history could inform us about Society 4.0 and how to navigate it**. Some pointed out that many comparisons to a past society before info-communications technology were in fact nostalgia or “idealised fantasy”. For example, the US in the 1950s was thought of as a social utopia compared with the US today, but people were in fact highly repressed and full of neuroses. Another participant said **populism was a manifestation of this idealised fantasy of the former self**, and harking back to a former self

was not the solution. However, participants also felt that the way forward was very uncertain, akin to *terra incognita*.

A participant said the term 4IR was “dangerous framing”, giving the false impression that the entire world was undergoing the same shifts. In fact, some parts of the world had not even experienced the 1IR. Thus, **fresh thinking was needed to refine the framing of the situation and pinpoint what precisely was unprecedented about the 4IR**. Another participant gave the example of Manchester during the 1IR. During that time, institutions such as public healthcare and law enforcement were weakened, and there was a radical disruption of the self and identity. Subsequently, social institutions were recreated in response to those traumas. The participant believed that **there were lessons to learn from past IRs** in the transition to the next one.

## **Does the label ‘4IR’ inadvertently limit our perspective on the real shifts occurring?**

A participant said that the **4IR was both unprecedented as well as a continuation of existing forces**. For example, by making use of the then-new technique of written language to augment their memory, ancient human beings were hacking themselves using new technology. At the same time, contemporary self-hacking was much faster and more powerful, and not entirely within human control. Although self-hacking implied more individual agency, this might not be the case when self-hacking technology was shaped and owned by corporations.



# EMPOWERMENT AND DISEMPOWERMENT



## In Society 4.0, individuals would be both more and less empowered.

On one hand, we lived in an era of hyper-individualism, where people were told they could be or do anything. On the other hand, when the self could no longer bear the “weight” of these expectations of empowerment, the sense of failure that resulted would cause people to turn to faith (community) or psychedelics (self-hacking) to cope. Society 4.0, therefore, was not one of atomised individuals, and it would be **impossible to look at individuals in isolation from their communities**. Conversely, social systems needed to nourish and empower individuals.

### *Social media empowers individuals*

**Social media was identified as a significant driving force.** Social media amplified individual voices; for the first time, individuals had audiences larger than those of medieval royalty, and might even have the power of nation-states.

A participant believed that this trend would only intensify with the advent of the Internet of Things and bodily implants. This empowerment of individuals had led to the **death of expertise and a move towards decentralisation**. The participant suggested that the rise of Trump and Brexit was due to this disbelief in expertise. Another participant pointed out a counterexample to decentralisation: more people wanted to join the EU than leave it.

**Social media-amplified voices could challenge institutional authority and existing or dominant narratives.** For example, in Indonesia, Islamic knowledge used to be transmitted solely through traditional, analogue institutions. However, the rise of cyber preachers bypassing established systems disrupted this dynamic. Collective action through social media would also be increasingly feasible. A participant linked such social media movements to the US civil rights movement, where **rage and anger were used by the less powerful to achieve positive social change**. Another participant added that prior to the #MeToo movement, victims of sexual assault were disadvantaged by a

system that privileged the voices of the wealthy accused. By bringing their voices collectively to social media, #MeToo built social capital to counter financial capital in a “human blockchain of truth”. A third participant pointed out that the problem was with malign forces weaponising and artificially amplifying anger to erode social trust. The dilemma was **how to preserve useful rage without empowering the wrong people.**

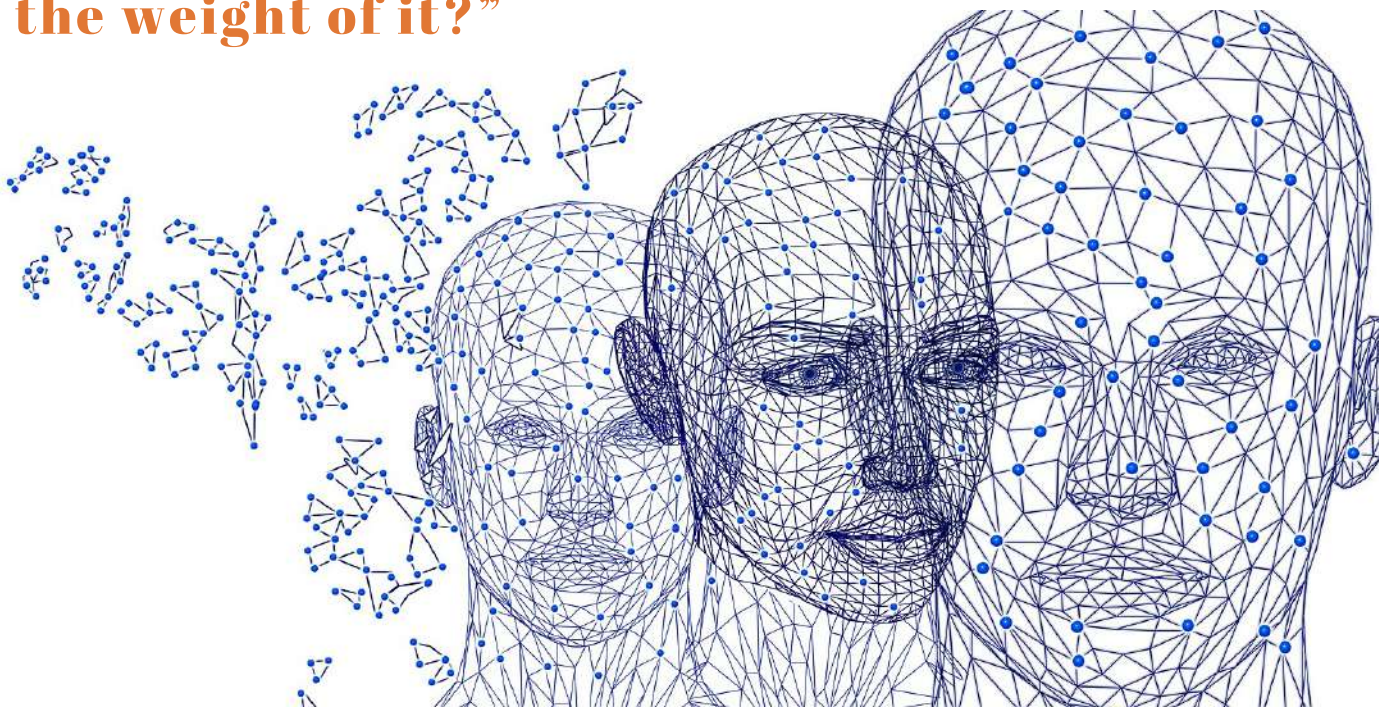
### *Social media disempowers individuals*

A participant said that alongside individual empowerment would arise a **willingness to accept more regulation and give up privacy in order to maintain security.** If individuals had the power of nation-states, we would want to know which individuals could hurt us. A few participants suggested that we might also have to give up on the free market and individualism as dominant forces in the face of wicked problems like climate change, antibiotic resistance and the destruction of the global commons.

A participant pointed out that **social media platforms (“fiefdoms”) were owned and designed by corporations (“feudal lords”) that were not accountable to the public** and that controlled which voices got heard and amplified. These platforms were also controlled by people with very similar values to each other. The ubiquity of platforms gave their use the appearance of democracy, but the situation was much more feudal. For example, one could build a game avatar but would actually be playing someone else’s game. Platform owners used their software as law; they could easily “de-platform” people or groups through upgrades or tweaking algorithms. Thus, it was not just individuals who were challenging the power of nation states; **platform owners were also becoming more important than national authorities.**

Social media platforms had forced people to **turn private thoughts and personal identities into publicly-traded goods.** When the self was placed in the public domain, control over its reception was largely out of one’s hands. Now, everyone had the potential to be a public figure.

**“If we are truly living in a hyper-individualistic era, can the self carry the weight of it?”**



### **Social media was a way to program society.**

Mary Meeker's 2019 Internet Trends Report showed that since last 2018, we had spent more time on phones compared to televisions.<sup>2</sup> A participant said this supported the idea that social media designers were the new urban planners, exercising significant control over how people connected with each other. We should be able to understand social apps collectively as a platform for programming society, while those manipulating public sentiment through social media could be seen as hacking this platform.

### ***Disembodiment technologies free people from the physical***

Disembodiment technologies such as **Virtual Reality (VR), Augmented Reality (AR), human augmentation and cybernetics** were also identified as a significant driving force. In fact, social media was itself a virtual reality platform. Using these technologies, human beings could “escape” from their bodies and the physical world in seemingly unprecedented ways. Advances in medical and biotechnology also ameliorated the negative effects of genetic deficiencies, illness and ageing. With these technologies, external and physical markers of the self that we had traditionally taken for granted were shifting. A participant argued that even as these physical markers changed, internal and intangible markers would not; for example, people would be increasingly identified in terms of values, roles, and spiritual identities. **To be human would mean much more than one's biology and physicality.**

Another participant pointed out that **individuals and bodies could be “altered” even by technologies we already possessed**, such as psychedelic substances, which could lead to the dissolution, redefinition and reformation of identity. A participant noted that the closest connection to the VR experience was the experience with psychedelics.

We also had tools and options to eliminate some genetic deficiencies, such as born deafness. People already had to decide if they were prepared to genetically modify their children. At the same time, the ill-effects of drugs and the implications of choosing the genetic makeup of one's child made implementing such technologies controversial.

A participant opined that governments had lost control in virtual spaces, even as they still maintained power in physical spaces. However, as the two became increasingly blurred in a **“mixed reality”**, **governments might risk losing control even in physical spaces.**

### ***Disembodiment technologies tether people to the physical***

Unexpectedly, **virtual worlds were making human beings more fixated on physicality and the body.** In early computer games, players typed out actions for their in-game bodies to perform. As a result, bodies were hyper-salient compared to real life where actions were instinctive. **Inequalities in the physical world were amplified in the online world.**





A participant observed that in the game World of Warcraft, gamers played the stereotypically “feminine” healer role in equal gender proportion. However, they overwhelmingly chose female in-game avatars.<sup>3</sup> A study of “attractiveness inequality” found that online dating app Tinder’s “Gini coefficient” was higher than the actual Gini coefficients of 95.1% of countries in the world.<sup>4</sup> Participants discussed how **VR privileges and advantages replicated the physical world**. In the simulation game Second Life, players recreated real-world status symbols.<sup>5</sup> VR programme We Are Alfred allowed young medical students to experience the negative effects of ageing in order for them to empathise with their patients.<sup>6</sup>

A participant noted that we could connect emotionally to a place when we were physically present in that place. AR and VR technologies could surface unseen stories of physical places that could help us to connect to them more deeply.

### ***“De-agentifying” human beings and “agentifying” non-humans***

A participant said that as universal human rights were challenged across the world, we might be leaving an era where the human being was seen as sacred. If anonymity were eliminated or restricted in the future, **we might experience the “de-agentification” of the individual**, and a reduced ability of individuals to act and participate. Other participants brought up the potential of automating previously exclusively human activity, and its implications on whether AI could be considered agents. In addition, a participant pointed out that small groups of people believed that animals and plants were subjects like human beings, and not merely resources.

# relationships

-getting beyond hyper-individualised approach

**TRUST**  
disconnect

eroded ⇒ democracies can't function

Now: individualised scholars new preachers reaching out directly to millennials, with byte-sized info; face to face interactions; combined with businesses

**DISBELIEF** and bias against experts and evidence; instead, in groups



## STATES and NON-STATES

In future: not because the state says we can't, but because that's just not what you do!

discontinuity: individuals having the power of states

**PRIVACY**

I really want to know what you're cooking

I have to trust you not to kill me...



**EMPATHY**

**ANGER - GOOD?**

Not when manipulated by malign forces!  
"OK with anger, but not hatred, threats!"

Weaponising rage for positive change - if I can't get justice through the system, I'll take it to social media  
HUMAN BLOCKCHAIN OF **TRUTH**

**TRUTH**

## WITH OTHERS

DIFFERENT COMMUNITIES OF TRUST

**COLLECTIVE RESPONSIBILITY**  
All these things matter!



How we think out loud together  
**MEDIUM OF COMMS**

**RECODING**  
- opportunity? dangers?

Scientology - designs out emotions



gives us a clearer sense of the **DIVISIONS** we have with other people

this bit right here? NOT GOOD!



**LONEINESS**

We want more than AMBIENT INTIMACY

conscious of unintended consequences



**CHOREOGRAPHED DESIGN**

[Outside-in] How urban env impacts us

One metro stop influences your lifespan by 10 years?



## SPACE

We understand our systems, but we don't always understand **WHY?**

Why can't I find the friends I'm meant to be with?...

Trifurcate:  
- private  
- semi-public  
- public

Personal dominion over physical and digital self  
[Inside-out]

Our **EMOTIONAL CONNECTION** to places and the stories we tell; important threads to the past as we look to the future

**LOVE** is what sets us apart



**GAMES**  
as identity containers; synchronicity

**HIERARCHY OF RELATIONSHIPS**

Function of emotional depth and frequency; distinguishing **TRANSACTIONS** and **BONDS**

A world where we can disaggregate what we look for in our partner(s)?

But friction in the real world is often actually good

But friction in the real world is often actually good

## SELF/SELVES

Distributing code to another's brain - and run it there  
Parallel tech stack

App designers = new urban designers?



Treat my private thoughts as publicly traded goods  
"PERSONAL BRAND"

The design principle of removing **FRICION**

(- being able to shoot off thought without thinking twice) and having **ASYNCHRONICITY**

**Love, romance** and the Grini coefficient of online dating...



# VARYING SPEEDS AND REGISTERS OF TIME

**Society 4.0 would move with varying speeds and registers of time.** Participants observed that time was physically relative, but time was also a part of the human experience. Thus, time was also psychologically and socially relative. For example, we lived in a multipolar world operating at different speeds, and different cultures measured and valued time differently. Even within the same society, some parts accelerated (for example, technological development), while others seemed to be stagnant or slowing down (for example, governance—however, a participant noted that this might be by design as the public sector needed to be relatively stable). Even when people had more leisure time than before, they might feel that they were more harried than previous generations. Another participant said that it was the speed of meaning-generation and representation that had accelerated in the digital era. While physical reality changed much more slowly, virtual reality changed at a more rapid pace. Therefore, **we and our children would need**

**to learn how to be “multilingual” with time,** comfortably operating in multiple registers and speeds, and potentially translating between them.

## *Factors contributing to time relativity*

**Media, technology and our relationship to both affected our relative experience of time.**

A participant said that, in the 1960s, for example, US cities were designed around “car time” or time taken to drive from one place to another. Today, “foot time” or time taken to walk from one place to another was becoming more important. Another participant mentioned the “VR time dilation effect”, where people experiencing VR reported time passing more slowly than in real life; this was similar to people who had undergone life-threatening events or played extreme sports. Time dilation also occurred in art. When a poem took a fleeting moment, stretched it and immortalised it in words, readers could experience that moment again.



**The economy and work also structured how we experienced time.** For example, a participant pointed out that the current paradigm of standardising and measuring time originated from Taylorism, which was needed in an era of assembly-line work. However, we were now in a knowledge economy where measuring time this way was not always useful; for instance, programmers could come in to work whenever they wanted to as a nine-to-five working day was not productive for them. Another participant distinguished between the “maker’s schedule” and the “manager’s schedule”, where the former performed “deep work” or work involving a high level of concentration on a single task.

**Increasing access to time-related metadata changed our perception of it.** A participant observed how we were increasingly being given notice of how much time we needed for various tasks; articles might include UX visualisations that informed readers how much time was needed to read the articles, and transportation applications often included estimated time taken for trips. This might make us more impatient, especially when estimates fell short of reality. With increasing life expectancy and improvements in medical care and technology, we were being given more notice of death and faced the problem of deciding how to prepare for it. We also increasingly faced the issue of how to manage death in the digital world, where digital accounts of the dead would last eternally.



### *Implications of time relativity*

**Time relativity affected how we understood history and performed futures work as both disciplines were about framing time.** A participant said that looking further back in time could help with futures work. For example, when predicting the long-term effects of AI, we should not look to recent trends (Cambridge Analytica), but rather to how the process of evolution created human intelligence. Another participant cited Amara’s Law, where we tended to **overestimate the short-term impact of technology but underestimate its long-term impact.**

**“100 years is the new black. If I were Russian I would be dead.”<sup>7</sup>**

### **Time relativity also implied time inequalities.**

The rich or those in developed countries might live longer, have more leisure time, have more information about time, be more motivated to be productive with their time, do more “deep work”, and experience more “deep time”. On the other hand, the poor often took a longer time to travel to work, and tended to work at odd hours out of sync with the body’s natural clock.

### *Perverse outcomes of acceleration and asynchronicity*

**Technology had reduced friction and increased acceleration.** A participant said that Silicon Valley mistakenly believed that removing friction (making something as quick and seamless to use as possible) should be a core design principle. While this had meant the technology it created made it easier to accelerate, it had overlooked the fact that **friction could serve a useful function**, and we were now beginning to grapple with the many perverse outcomes of too little friction and too much acceleration.

Participants noted that **falsehoods spread quickly and easily**; in pursuit of increased engagement leading to increased advertising revenue, algorithms had the unintended consequence of **fuelling emotions like rage and envy**. Nevertheless, a participant brought up a counterexample of increasing friction via social media which reduced the spread of falsehoods and inflamed emotion. In the subreddit “Change My View” people posted beliefs while encouraging respondents to change those beliefs.<sup>8</sup> In this subreddit, mechanisms were designed to facilitate civil public discourse. However, the participant also cautioned that these required a lot of structure and regulation to work. This suggested that we might need to **trade off freewheeling freedom on the internet for thoughtful, civil discourse** even as it also showed that **online platforms could encourage rather than discourage meaningful friction**.

**Acceleration had led to “continuous partial attention disorder”.**<sup>9</sup> As the pace of change accelerated and our sense of time compressed, our nerves became shattered and our attention frayed. A participant added that our brains could change and become more plastic to adapt to this, but not without costs. We had become more easily distracted and more tired out. We were thus less capable of doing “deep work”.

**“If you don’t have babies do you become a short-term thinker?”**

**Who experiences deep time?**

**We were less exposed to “deep time” even as the need to think long term was becoming more important.** “Deep time” refers to an awareness of very long cycles or durations of time. A participant mentioned the Clock of the Long Now as a project created to remind people of and situate people in “deep time”. The Clock was designed to keep time for 10,000 years, and reminded people about the importance of long-term thinking.

Another participant added that CSF was set up precisely for the Singapore government to engage with deep time. A third participant suggested practical policies to encourage people to decelerate and experience “deep time”, including **provision for sabbaticals, parental leave, and “retreat activities”** such as meditation retreats and social media detoxes.

**Low-friction media exposed us to others’ unfiltered and unmediated thoughts, accentuating our differences** instead of similarities. For example, more care and self-censorship would go into composing a letter to the editor compared to a tweet. A few participants warned that this phase of social networking had exposed us to more social divisions. They suggested that the internet was a fragmenting force.

**“If I had been told in the early days of the internet that connecting billions of people via social media would increase loneliness, I would not have believed it.”**





**Asynchronous media and rituals could fragment collective experience, leaving us with “ambient intimacy” and increasing loneliness.** Such media and rituals were consumed or performed at different times, such as on Netflix or other web-streaming services in comparison to broadcast television. Communications media had been increasingly moving into an asynchronous mode, starting with text messaging. However, synchronous rituals could create a stronger sense of community, and removing synchronicity completely might be leading to a shallow or “ambient” form of intimacy.

#### ***Old media versus new media***

Some participants were not convinced that the internet or new media was to blame for fragmenting society. A participant said that the **internet and new media did allow for consensus building**. A second pointed out that **social media could facilitate synchronicity** through Facebook Live broadcasts, for example. A third said that **old media had done a good job of fragmentation too**. A fourth said that the problem did not seem to lie with either old or new media exclusively. Instead, there seemed to be a feedback loop where both impacted each other. Instead of pinpointing blame, the question was **what practices, tools and communities we could tap on to ameliorate negative outcomes of any media**.

A participant pointed out that ironically, regulatory changes for old media paved the way for new media. For example, when the US eliminated the Fairness Doctrine, it allowed new media to later ignore honest, equitable and balanced representation.<sup>10</sup>

#### ***New cycles of time in Society 4.0***

**Extended longevity would reshape lifecycles and affect how people planned their days and lives.** We might see the elderly involved in areas that used to be seen as the preserve of the young, for example defence and education. The “Third Age” (between 65-80 years) could be reconceived as an age of activity even as the “Fourth Age” became a reality for more people. As people lived longer, there would be an increased need to plan their lives, including planning for time that was non-family and non-work related. A participant added that as old age was redefined, even stating a retirement age might itself be limiting.

**We might have to rethink business and technological cycles to accommodate different kinds of technologies.** A participant wondered if long-run tech cycles were possible. Another participant responded by detailing the interlocking time cycles of Silicon Valley, explaining that time pressures resulted in an average tenure of two years per worker.

This was not good for businesses hoping to develop green tech, as the payback period for such technologies was longer than venture capitalists were used to. Hence, Silicon Valley retreated from such businesses. We might need longer time cycles to make bigger bets. Another participant added that **businesses could choose which time cycles to operate by**. For example, Shell measured time in decades, and Salesforce in months. Similarly, a third participant argued that Moore's law was not inevitable, but that it came true because everyone was committing to make it happen. Another participant added that their company had **divestment cycles** in addition to investment cycles.

**Existential problems would necessitate thinking in very long time cycles.** A participant questioned whether short-termist governments could survive in the long run, and if existential problems like climate change could only be addressed by long-term thinking. Another participant added that some countries, especially those with very long histories, might be able to conceive of civilisational cycles. A third participant said that only China was doing something substantial about climate change with its geoengineering plans. It managed to do this by aligning its short term aims with its long term ones.

**“Everyone here has been operating on an accelerated register of time. Let's take one minute of silence to ponder.”**

**Time is an embodied experience**





# FOUNDATIONAL AND MULTIPLE NARRATIVES



**“We want to lose ourselves in a story in which we have no control. But we also want to be the hero of our own stories.”**

**In Society 4.0, foundational narratives would matter even as individuals demanded multiple narratives.** A participant argued that this contradiction was fundamental to human nature, where we yearned both to be part of a community and to be different from everyone else. The participant said that ancient oral epics fulfilled both needs. On one hand, they delivered foundational narratives with a synchronous connection between the teller’s voice and the audience’s eardrums. On the other, the teller altered the story on the fly based on audience reactions.

## ***The importance and limits of foundational narratives***

**Foundational narratives embedded shared values and provided an anchor for individuals in a VUCA world.** A participant said that every nation, ethnic group, religion and profession had a foundational narrative which distinguished that particular group from every other. Such narratives were referred to as “epic poems of our existence”. The most powerful and enduring stories, therefore,

were those with values that resonated strongly with their audiences. Foundational narratives were core to ourselves, and **we used these stories to encode and understand values.** Thus, shifting values and demographics could manifest in contestations over foundational narratives.

**We lived in a moment where foundational narratives were being contested worldwide.** A participant observed that in the US, the changing texture of its population meant that formerly “fringe” Americans were writing their own stories and making their voices heard, challenging the dominant narrative of the US as a white or Anglo-centric nation. Much of the conflict that the US was going through today was a battle over narrative. Another participant said that **Singapore’s foundational narrative was also being contested** by archaeological evidence and by people who challenged overly positive framings of Raffles and British colonialism. **This could signal that people who held alternative values were becoming more powerful and/or that values in general were changing.**

**A participant warned that our attraction to foundational stories could divorce us from reality;** we could not accept data as data, and needed to wrap it in story to understand it. In addition, it was **difficult for people to balance self-validation** (stories empowered you) **with disconfirmation** (other stories might conflict with yours but might be closer to truth).

### *The history and future of multiple narratives*

**The single narrative was a relatively recent phenomenon; the past and the future of stories was and would be multiple or collaborative.** In the past, the most popular and influential stories were shared creations. Single stories were enabled by specific historical and technological forces. For example, the emergence of a national identity or a national narrative was enabled by mass media and the two World Wars which forced governments to impose centralised control on huge populations. A participant said that this desire for centralisation and unity remained even today, where many Americans were nostalgic for an era of repressive conformity. The participant predicted that there would be a localism of values and a further fracturing of identities in the future.

**Technology changed how stories were created and received.** For example, the shift from oral to written storytelling resulted in **stories becoming asynchronous**. Written stories freed storytellers from physical limits, but also put stories “on the record”, making them less alterable. Today, even everyday interactions on mobile phones were “on the record”. Technology had also **made stories more subjective**. For example, film made stories more complex and subjective by inventing the reaction shot, where audiences experienced stories literally through the eyes of characters. Today, Netflix gave audiences access to global stories such as Korean dramas; however, some had accused it of

lowering artistic standards—as film school graduates might lament, “Netflix’s greatest competitor is sleep”.

**Collaborative storytelling was becoming more commonplace again.** Despite the controlled environment of copyrighted storytelling, people demanded participation. Even given the relatively recent and Western conception that stories were “owned” by someone, there was an increasing sense that “everyone is an author” and that more diverse voices should be heard. However, singular ownership of stories was also breaking down. Fanfiction was an example of this tendency that corporates had hesitated to control. Massively Multiplayer Online Roleplaying Games in which the author was the totality of players who built a story together were another example. Some platforms like Tumblr facilitated collaborative and participatory storytelling. Even in capitalistic Hollywood, there was a shift towards writer teams making multi-season TV shows and cinematic universes. A participant suggested that in a future **where automation had dramatically increased leisure time, people could instead find meaning in participatory storytelling.**

**Human beings and machines could collaborate on stories in the future.** Artificial Intelligence (AI) could enhance the human ability to tell stories and work with humans to create new stories. AR and VR technology could help stories that previously only existed online “intrude” into the real world. In a potential future, novels and TV shows could become more like games with customisable narratives. A participant cited the example of East Asian web serials, where serialised web comics were posted on social media platforms one episode at a time. Fans would leave comments suggesting how the narrative should progress, and inputs would be incorporated into future episodes. AI could help such content creators synthesise a large number of comments quickly.

### ***Reconciling foundational and multiple narratives***

Several participants wondered if it was possible to strengthen foundational narratives (shared values, national identity) in a hyper-individualistic and fragmented world. A participant said that the world was moving away from Plato's idea of one essential story towards Wittgenstein's idea that **there were many kinds of stories with "family resemblances"**. The participant wondered if Singapore could move towards that for its national story, aspiring towards "coherent heterogeneity", where multiple stories still made a coherent whole—or perhaps, **"resilient heterogeneity" would be a better goal, where contradictory stories could co-exist without affecting the resilience of the whole.**

A participant suggested that **diversity and disagreement** could be a source of strength instead of weakness. The participant felt that a more hopeful future was one where there was tolerance for disagreement and no need to impose a singular story to "win", and where individuals were empowered to create their own stories.

A participant thought that the group might be assuming the existence of irreconcilable differences in society because **they were looking for difference rather than focussing on commonalities**. For example, a study of childhood aspirations of Chinese, American and British children focussed on the differences between their top choice of future occupation (astronaut in China versus vlogger in the US and the UK). However, what was less-emphasised was the fact that the second choice for all three countries was the same (teacher). Another participant agreed that there was evidence for both difference and similarity, and **what we looked for first, we would find.**

A participant warned that we should not be too dependent on technology to reconcile multiple stories and values. **While technological solutions might seem more predictable and easier, shifting perceptions was more important.** To that end, another participant said that despite the increasing ease of individual self-expression, **there remained inequalities and different levels of access and participation when it came to addressing issues of the day.** Those who perceived themselves to have limited access might act out in anger.

**"Stories and myths cannot do all the work; policy and actions have to match them."**

A participant shared the "cautionary tale" of the 2015/16 EU refugee crisis, where the **EU's foundational narrative of openness to all was challenged by the real-world effects of mass migration.** The political elite felt like heroes, while ground values shifted from an emphasis on openness to an emphasis on control and security. However, the elite operated in a climate of "speechlessness" and political correctness around the issue. They did not discuss the aversion on the ground to overwhelmingly young, male and Muslim refugees. As a result, conspiracy theorists and far-right politicians seized and dominated the narrative. The participant suggested that **the political leaders should have engaged even if it hurt, acknowledged grievances even if no solutions were in sight, and developed the vocabulary to speak about sensitive issues.** Another participant pointed out that **that policy needed to align with the foundational narrative;** the crisis happened because of a mismatch between the two.

# keynote 2

What's the point of making up stories?  
**Matter a great deal** - just not in a measurable way

Look at those people!  They're not really cowboys

opposing impulses:  
 (1) yearn to belong to something grander  
 (2) want to be in charge of the story

**looking at in daily life**

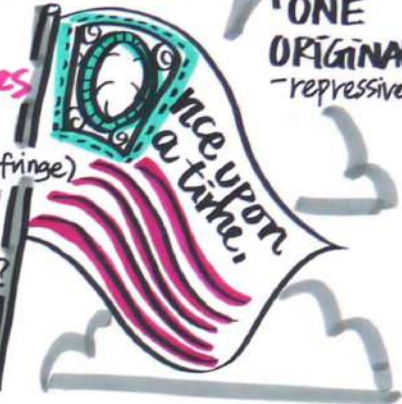
**essences vs. family resemblances**

Who gets to claim to be American? (corefringe)

The world's idea - same as Americans' ideas?

"National narrative" a modern idea

'ONE ORIGINAL' - repressive!



epic tomes of identity, existence

feudal → localised

This is what it means to be a lawyer

## 1 FOUNDATIONAL NARRATIVES

**not just nostalgic**

Reimagining our mythology

"I make art; they compete with sleep!"

prototype stories

## 3 TECH of Storytelling

**Orally:** direct connection with audience, real time brain patterns encoded, change, react

**Written, read:** asynchronous; 3-level processing

**New media:** TV, film → can put audience in character's headspace  
 Focus on interiority; subjective perspective

**AI?** Human memory limited; with AI, imagine thousands of characters, not just a few heroes

How will that change our stories; empathy; community?  
**PARTICIPATORY**

Diversity + disagreements - a source of strength  
**coherent or resilient heterogeneity?**

## 2 the way we encode VALUES and understand them

unable to just accept data as data, abstractions

**OUR LIVED EXPERIENCE**  
 - heroes of our own epic tomes  
 → the most important story

source code is law?



I've been deplatformed!

The shorthand we use to talk with each other → we're using others' mythologies

**Future: not in charge of own destiny?**

New stories Together on Tumblr

(1) customised, fragmented narratives; more like games  
 (2) "They were looking for the answer!" → don't necc want control

I will take it in my own hands... let's do this together!



# THREE "BREADCRUMBS" TO NAVIGATE SOCIETY 4.0

---



A participant used the term **“breadcrumbs”** to refer to **trivial moments memorialised on social media** by individuals. For the participant, these constant curatorial impulses were a product of a deep fear of ever-increasing acceleration threatening to rob people of a sense of self. Thus, this “slightly demented narcissism” was in fact a way for individuals to guide themselves back to a stable sense of self.

**“Breadcrumbs” could help individuals navigate a disorienting future society.**

In a similar way, three categories of “breadcrumbs” emerged in discussions as navigational aids to the dilemmas raised during the conference.

**“Our constant curation of the present into mini-memorials is us leaving a trail of breadcrumbs to help us find a way home.”**

## *High-touch*

Geography, human interaction, and “heartware” would matter more than ever in an increasingly dislocated, digital and capitalistic world. The world was not flat, but rather “spiky”; being in the right place at the right time was more important than it had ever been. Even though **“non-places”** like airports might seem dislocated, they had meaning-making and institution-generating potential.<sup>12</sup> However, the development of such institutions was a bottom-up process. Several participants spoke about the increasing importance of human interaction; one predicted the rise of **“tangibility cults”**, and another participant observed that table-top games had their best year in 2018. **“Heartware”**, or human values and emotion, would be important in a future where human value would be measured by what was not automatable via AI. Perhaps we should prioritise health over wealth and sustainability over growth, even as the free market penalised such priorities.



### ***Synchronicity and deceleration***

In a frictionless world, more would choose synchronous media and/or rituals to seek group belonging, and deceleration to encourage long-term thinking and wellbeing. There were existing social movements such as slow tourism, slow food and meditation retreats that encouraged people to engage in synchronous activities and decelerate from their usual pace of life. Many people participated in these counter-trends to stop or change time. A participant predicted a further development of such movements into **“monastic communities”**, where people deliberately chose to operate on an alternative time frame for spiritual or ideological reasons. For example, the slow food movement was not merely about slowing down to appreciate the taste of food, but was about a deeper commitment to the cycle of natural time which affected what kinds of produce were available in season. These communities might be under the radar or even offline, and **policy could support these communities** and their activities.

### ***Participation***

Participatory governance, such as citizen engagement and participatory foresight, might help multiple narratives exist in a state of **“resilient heterogeneity”** where disagreement was strength and no one story needed to “win”. Several participants emphasised the importance of collective agency, and suggested that even disruptive movements could be seen as a form of participation. **Gaming** was raised as a platform for meaningful participation, as games had a tight feedback loop and could facilitate mass synchronous participation; the dopamine rush of gaming could help align people to positive outcomes and aid in crowdsourced problem-solving. If AR could be implemented on a city-wide scale, Live-Action Role Playing games could also be another such platform. A participant predicted that “games would master social before social media masters gaming”. However, technological solutions alone would not suffice—**“emotional courage”** was needed in any collective conversation about sensitive or difficult issues. Some wondered: might increasing participation make governments more **populist** and unable to make unpopular but correct decisions?

# value

values becoming weaponised?

Conspiracy theories:  
- replacing Europeans with muslims?  
- EU + Soros, to bring in millions more

- ① Muslims
- ② overwhelmingly young men

Lisbon treaty:  
"... respect for dignity... including persons belonging to minorities!"

HEROES of 2015: the world  
"Anyone's welcome to Germany"...

replaced by need for control, and security

We couldn't acknowledge what's going on and the need for change, the grievance. We were speedless (elites)

emotional courage? even when we don't have the words

we **VALUE** MOST WHAT WE DON'T HAVE

Engage, even if it hurts

Acknowledge grievance

Vocab to speak about these issues

We need the language

We're not tone deaf!

evidence-based policy making, not policy-based evidence-making

Separation of language and its literature

which language satisfies which part of us?

**SCRIPTING SELF + DESTINY**

Poetry in store in good health

**COMPLEX SYSTEMS**

Path A  
more accepting, understanding of how systems work

Path B  
use ICT to demand more transparency, accountability

giving us physical needs we still value: food, shelter, water, healthcare

40 years (prime, @workplaces) to reshape stories, systems, outcomes

Universal value(s)

multiple realities

constantly seek out what challenge our narratives, the discomfort ---

Must the winner defeat the opponent?

**HUMAN STORY**

Self-ratifying, Self-valuing

- less arbitrary than what evolution would suggest

--- except when what you seek to disconfirm is so fundamental to

**GOODNESS**

Attentional muscle

Demise of literature in schools

Will reading be something of the elites?



A sonnet is a moment's monument



Daily rituals

Human & humane systems

"We're so diff, yet things work... we're broken people trying to heal broken people"

Connected corners in spaces

Health over wealth

**FLOURISHING**

Poverty of soul, and social poverty

**The SPIRIT of MONEY**

People seem to behave as if money is the only important thing

Purpose meaning work-life balance

**HEARTWARE, not just hardware**

Emotions as data points

giving stones + values time & space to breathe

Emotional feedback loops (6 secs)  
"choose to listen to the wisdom of the 6 secs?"

# LOOKING AHEAD

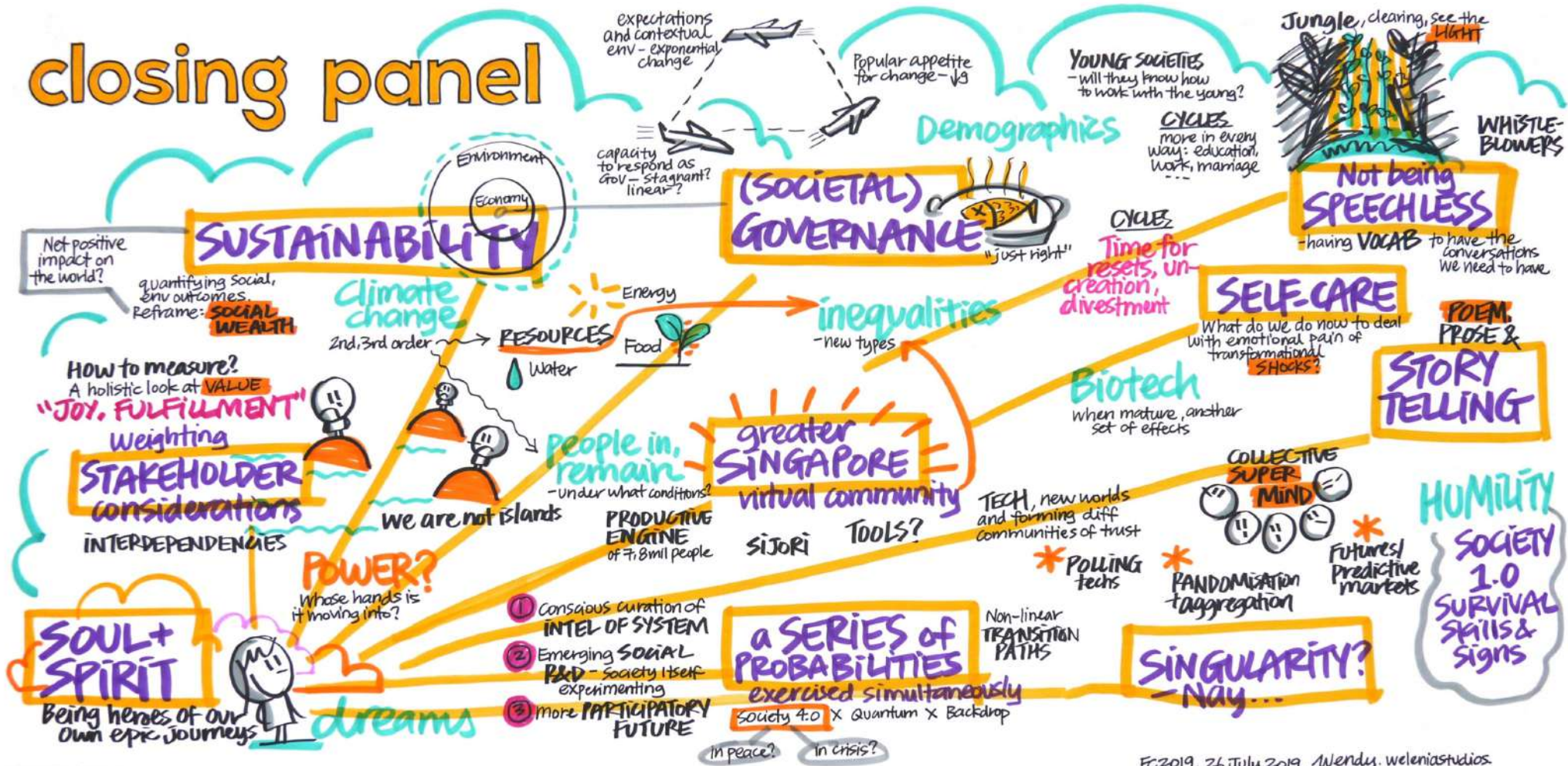
---

Over the two days of Foresight Conference 2019, divergent perspectives enabled surprising and profound insights to emerge around the possible shapes and trajectories of Society 4.0. At the Centre for Strategic Futures, these insights have informed further projects on emerging issues.

If future societies will be rife with difficult trade-offs and “quantum” tensions, how should individuals and organisations adjust today? Might these challenges in fact already be operating in current societies? We hope these insights will provoke you to re-examine the world and its futures.



# closing panel



# ENDNOTES

---

<sup>1</sup> Klaus Schwab, “The Fourth Industrial Revolution: What It Means, How to Respond”, *World Economic Forum*, 14 January 2016, accessed 24 September 2019, <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>

<sup>2</sup> Mary Meeker, “Internet Trends 2019”, *Bond*, 11 June 2019, accessed 24 Sep 2019, <https://www.bondcap.com/report/itr19/>

<sup>3</sup> Nick Yee, Nicolas Ducheneaut, Mike Yao and Les Nelson, “Do Men Heal More When in Drag? Conflicting Identity Cues Between User and Avatar”, *Conference: Proceedings of the International Conference on Human Factors in Computing Systems*, 7 May 2011, accessed 24 September 2019, <https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>

<sup>4</sup> Worst-Online-Dater, “Tinder Experiments II: Guys, Unless You Are Really Hot You Are Better Off Not Wasting Your Time on Tinder—A Quantitative Socio-Economic Study”, *Medium*, 25 March 2015, accessed 24 September, <https://medium.com/@worstonlinedater/tinder-experiments-ii-guys-unless-you-are-really-hot-you-are-probably-better-off-not-wasting-your-2ddf370a6e9a/>

<sup>5</sup> Shira Boss, “Even in a Virtual World, ‘Stuff’ Matters”, *The New York Times*, 9 September 2007, accessed 24 September 2019, <https://www.newyorktimes.com/2007/09/09/business/yourmoney/09second.html/>

<sup>6</sup> Elyse Wanshel, “Virtual Reality Lets Med Students Experience What It’s Like to be 74”, *Huffpost*, 23 August 2016, accessed 24 September 2019, [https://www.huffpost.com/entry/we-are-alfred-embodied-labs-carrie-shaw-virtual-reality-medical-students-elderly-geriatric-care\\_n\\_5705bbce4b0c3752dccbeaa/](https://www.huffpost.com/entry/we-are-alfred-embodied-labs-carrie-shaw-virtual-reality-medical-students-elderly-geriatric-care_n_5705bbce4b0c3752dccbeaa/)

<sup>7</sup> According to WHO data, in 2018 the life expectancy of Russian males was 66.4, and that of Russian females was 71.9.

<sup>8</sup> A subreddit refers to a specific online community and its associated posts on the social media site Reddit.

<sup>9</sup> Linda Stone, “Attention: The Real Aphrodisiac”, *ETech Keynote*, 7 March 2006, accessed 24 September 2019, [https://web.archive.org/web/20081121193037/http://radar.oreilly.com/archives/2006/03/etech\\_linda\\_stone\\_1.html/](https://web.archive.org/web/20081121193037/http://radar.oreilly.com/archives/2006/03/etech_linda_stone_1.html/)

<sup>10</sup> The fairness doctrine of the US Federal Communications Commission (FCC) was introduced in 1949 as a policy requiring holders of broadcast licenses to present controversial issues of public importance and to do so in an honest, equitable and balanced manner.

<sup>11</sup> Paige Leskin, “American Kids Want to be Famous on Youtube, and Kids in China Want to Go to Space: Survey”, *Business Insider*, 17 July 2019, accessed 24 September 2019, <https://www.businessinsider.sg/american-kids-youtube-star-astronauts-survey-2019-7/?r=US&IR=T/>

<sup>12</sup> Pico Iyer, *The Global Soul: Jet Lag, Shopping Malls, and the Search for Home* (New York City: Vintage, 2001)

# CONCEPT NOTE

---

Foresight Conference 2019 was organised by the Centre for Strategic Futures (CSF) in Singapore, and held on 25 and 26 July 2019. It centred on the topic of “The Future of Society”, and was CSF’s fifth iteration of this event, bringing together thinkers from different backgrounds and disciplines to explore emerging issues of global significance. In previous conferences, CSF looked at the future of Asia, the future of growth, governance, global cities as well as identities and aspirations. Like previous conferences, the 2019 conference explored this topic not through the lens of a particular discipline or framework, but by drawing perspectives, concepts and even language from experts of diverse domains, such as policy-makers, philosophers, scientists, and game designers. Through these intersections, the Conference sparked rich insights and new ways of thinking, uncovering the deeper patterns that run through different domains, and articulated the shape of what is to come, what we hope for and what we fear.

## Society 4.0

“Society 4.0” was the short-hand phrase CSF used to refer to the society that will be and is already being shaped by the 4th Industrial Revolution (4IR). Just as the First Industrial Revolution mechanised production via water and steam power and consequently reshaped economic, political and social structures, the 4IR will likely have an equal or even more disruptive impact on what we accept as normal today.

For Foresight Conference 2019, CSF looked at **four threads** that will make up “Society 4.0”.

First, the **individuals** that make up society. How will our conception of self and of individuality change? What aspects will remain the same? Fundamental markers of self like gender, genes and ability (physical, mental, emotional) are already being eroded as definitive anchors for self. At the same time, new versions of self are being created, such as carefully curated social media profiles, increasingly complex game avatars and social credit rankings are gaining prominence as manifestations of a self-hood. *In “Society 4.0”, who will we be?*

Second, the **relationships** that bind individuals together in a society. As individuals change, will they interact with each other in different ways? How will they choose to form and sustain their relationships? What would it mean to be in a thriving and healthy relationship in the future? Relationships are increasingly mediated and affected by technology. The rise of loneliness as a new epidemic afflicting individuals across age, marital status and class lines points at a profound relational re-wiring of society. This is compounded by the disruption of traditional groupings. For example, the nuclear family is being disrupted with the rise of tri-parent and LGBTQ units. Race and ethnicity are also less weighty than before as building blocks for core social relationships. Even one’s affinity to nation and place of birth is losing its ballast. Moreover, the entrance of artificial intelligence that can read our faces and emotions better than our loved ones can is also significantly redefining what relationships are and who they are with. *In “Society 4.0”, who will we love and who will we choose to love?*

# CONCEPT NOTE

---

Third, the very medium through which individuals interact with each other—**time**. How will we conceive of our time on earth (or even beyond it)? How will we measure out our lives as individuals? If we start to live beyond 100 years of age and defy (or significantly postpone) death, how will individuals choose to live differently? As modern markers of time and life-stage such as study, career, and retirement break down and bleed into each other, how will we make sense of our existence? Moreover, if we can live multiple lives online, in virtual reality, at different speeds, with different trajectories and life goals, what will mark our days, decades and destinies? *In “Society 4.0”, how will we master time itself?*

Fourth, **value**. For many, the meaning of existence relates to what individuals live for and by extension what they choose to value. The future of society may therefore rest on the question of value. Traditional notions of value are already being challenged and current measurements (such as productivity, GDP) are increasingly found to be inadequate. Inventions like bitcoin, crypto-currencies and the pervasive attention economy already speak of new sources of value creation that are re-defining our fundamental value systems. With new ways to experience life and “time”, what might we find important, beyond economic gains and traditional relationships? In many ways, this fourth thread will shape and be shaped by the first three. *In “Society 4.0”, what will we value and how will that change us?*

# PROGRAMME

# DAY 1

- 9:00 AM *Welcome Remarks*  
**Peter Ho**
- 9:15 AM *Opening Keynote*  
**Catherine Fieschi**
- 9:30 AM *Discussion*
- 10:00 AM *Tea*
- 10:30 AM *Panel 1*  
Individuals
- 11:00 AM *Discussion*
- 12:30 PM *Lunch*
- 1:30 PM *Panel 2*  
Relationships
- 2:00 PM *Discussion*
- 3:30 PM *Panel 3*  
Time
- 4:00 PM *Discussion*
- 5:30 PM *Round-up of  
Day 1 Discussions*  
**Aaron Maniam**
- 6:00 PM *Free & Easy*
- 7:00 PM *Welcome Dinner x CSF  
10th Anniversary  
Commemorative Dinner*



## DAY 2

---



|          |                                       |
|----------|---------------------------------------|
| 9:00 AM  | <i>Opening Keynote</i><br>Ken Liu     |
| 9:20 AM  | <i>Discussion</i>                     |
| 10:00 AM | <i>Tea</i>                            |
| 10:30 AM | <i>Panel 4</i><br>Value               |
| 11:00 AM | <i>Discussion</i>                     |
| 12:00 AM | <i>Lunch</i>                          |
| 1:30 PM  | <i>Break-out Sessions<br/>and Tea</i> |
| 3:30 PM  | <i>Share-back</i>                     |
| 4:00 PM  | <i>Closing Panel</i>                  |
| 5:30 PM  | <i>Free &amp; Easy</i>                |
| 7:00 PM  | <i>Closing Dinner</i>                 |

# day 1

A balance of extremes,  
between points of polarities

The middle state

Empty spaces  
- for humility.  
Where we may  
find answers.

changing  
parts of  
our identities

individual

**NEGATIVE  
IDEAS**

individuals not tyrannised  
by communities

long term **POTENTIAL  
FOR GOOD** not  
pushed out by short  
term frictions

Simplicity

Bonds

Optimism

constant,  
fundamental

social/  
community  
forms

new modalities of being  
new ways of imagining

**NON-PLACES**

**NEW COMMONS**

- ensuring they aren't  
underused?

complexities

Transactions

Pessimism

"Know then thyself,  
The proper study of  
God, teach Eternal Wisdom  
how to rule -"

presume not God to scan;  
mankind is man. . . .  
Then drop into thyself,  
and be a fool!"

- Alexander Pope

Start with utopia  
complexities emerging  
Darkness under all

# day 2

2040

**HUMANS STILL  
the KEY FACTOR**

"permanence"

Tangibility  
cults  
Return to place  
**PHYSICAL**

food  
production  
↓ carbon  
footprint  
The lux of  
nature  
Mass refugee,  
migration

**CLIMATE**  
Subterranean  
living  
entire  
countries  
moving to more  
hospitable  
places

Create  
Optimal  
Versions  
of ourselves?

**SELF**

Deeply  
accepting  
who we are,  
who others  
are.  
**NATIONAL  
THERAPY**

Back to spirituality  
to find certainty

**DEATH**

more knowledge,  
choice - when  
to die

slowing  
down, REFLECT

**HEALTH**

Bio hacking  
informed by data

Social-  
emotional  
health

Frustrated men

"demise  
of man"?

drugs, tech  
for cognitive  
enhancement

**EDU**

Transmission  
of VALUES

Corporate  
Unis

PLAY  
less  
leisure?

push to  
gig economy

**WORK**

soft  
'touch' skills

Economic  
models

Gramification  
of work

Women! power

Being part  
of the  
greater  
SG

"citizens"?

young / old  
traditional / liberal

from where?

Migration - How?

Anxieties about  
relationships  
↳ (multiple over  
lifetime)

tech-mediated  
prompts

less about  
choice, more  
about matching

Human-  
machine  
relationships

Sex with  
robots

Create machines  
to fulfill the  
need to be needed

# PARTICIPANTS

---

## TERENCE CHIA

*Senior Director, National Security Coordination Secretariat.*

## PAMELA CHNG

*Founder, Bettr Barista Coffee Academy.*

## CHNG KAI FONG

*Managing Director, Economic Development Board.*

## ANDREW CRITCH

*Research Scientist, UC Berkeley Center for Human Compatible AI.*

## CATHERINE FIESCHI

*Founder and Executive Director, Counterpoint*

## IAN GOLDIN

*Professor of Globalisation and Development, University of Oxford. Director, Oxford Martin Programme on Technological and Economic Change.*

## PETER HO

*Senior Advisor, Centre for Strategic Futures.*

## HOE WEE MENG

*Director (Futures), Strategy Group, Prime Minister's Office.*

## KANG SO-YOUNG

*CEO, gnowbe.*

## CINDY KHOO

*Director (Strategic Planning), Strategy Group, Prime Minister's Office.*

## SORAPOP KIATPONGSAN

*Managing Director, Institute of Public Policy and Development, Thailand.*

## GABRIEL LIM

*Permanent Secretary, Ministry of Trade and Industry.*

## JANE LIM

*Assistant Chief Executive, Infocomm & Media Development Authority.*

## KENNETH (KEN) LIU

*Hugo- and Nebula- winning author of speculative fiction, programmer, lawyer, technologist.*

## CHRIS LUEBKEMAN

*Global Director of Foresight, Research and Innovation, Arup.*

## AARON MANIAM

*Senior Principal Researcher, Civil Service College.*

## ANN METTLER

*Director-General, European Political Strategy Centre at the European Commission.*

## GEOFF MULGAN

*Chief Executive, National Endowment for Science, Technology and the Arts (NESTA).*

## NEO GIM HUAY

*Managing Director, Temasek.*

## PHILIP ONG

*Deputy Secretary, Ministry of Culture, Community and Youth.*

## PAO JIA YU

*Director (Social), Strategy Group, Prime Minister's Office.*

## JACQUELINE POH

*Deputy Secretary, Strategy Group, Prime Minister's Office.*

## HUW PRICE

*Bertrand Russell Professor of Philosophy and Fellow of Trinity College, University of Cambridge.*

## NOAH RAFORD

*Chief Futurist, Dubai Future Foundation.*

## PETER SCHWARTZ

*Senior Vice President for Strategy, Salesforce.co. Author of 'The Art of the Long View'. CSF Distinguished International Fellow.*

## SUZAINA KADIR

*Associate Professor, Lee Kuan Yew School of Public Policy.*

## JAAN TALLINN

*Co-founder, Skype and Kazaa. Co-founder, Centre for the Study of Existential Risk, Cambridge University. Co-founder, Future of Life Institute, MIT.*

## KRISTEL VAN DER ELST

*Executive Head, Policy Horizons Canada.*

## EUGENE WEI

*Angel investor and former Head of Video, Oculus VR.*

## CÉCILE WENDLING

*Group Head, Foresight, AXA. Researcher, Centre de Sociologie des Organisations.*

## NICHOLAS (NICK) YEE

*Co-founder and analytics lead, Quantic Foundry.*

## YEO WEI WEI

*Writer, translator, and former lecturer and tutor in Literature and Creative Writing, National University of Singapore.*

## YEOH CHEE YAN

*Chairman, National Heritage Board & Senior Advisor, Ministry of Culture, Community and Youth.*

# THE CSF TEAM

---

## ANGEL CHEW

*Senior Strategist*

## YULIA HARTONO

*Manager (Information Research)*

## LEON KONG

*Senior Strategist*

## LEE CHOR PHARN

*Principal Strategist*

## LIM PEI SHAN

*Head*

## INTHIRA MAILVAGANAM

*Senior Executive*

## SEEMA GAIL PARKASH

*Lead Strategist*

## KENNETH POON

*Strategist*

## GURUBARAN

## SUBRAMANIAM

*Senior Strategist*

## LIANA TANG

*Deputy Head*

## TSE HAO GUANG

*Strategist*

# SPECIAL THANKS

---

## RICHARD O'NEILL

*President, The Highlands Group. CSF Distinguished International Fellow.*

