



2016 IDEAFACTORY

The Digitalisation of Society

about the

OECD IDEAFACTORY

The OECD_IdeaFactory invites global experts and Forum participants to work together to explore significant social phenomena, combine their perspectives, and discuss the potential of new approaches and solutions.

Inside the IdeaFactory, everyone is part of the process, everyone's experience counts, and ideas can be combined, tested, prototyped and formed into potential new solutions.

This report contains a summary of all the content captured by the facilitation team through writing and visual dialogue mapping. It is not a complete transcript and does not claim to be precise; we hope it captures the main ideas and concepts that emerged and were discussed during the session.

The opinions expressed and arguments employed in this report are those of the participants in the OECD_IdeaFactory and do not necessarily reflect the official views of the OECD or the governments of its member countries.





THE DIGITALISATION OF SOCIETY

As the **technological revolution** advances every millisecond that passes, with each tap of a finger and linking of a code, this session was an opportunity to discuss the most critical challenges and the main dilemmas provoked by the current and future developments of the digital world.

While some of the benefits of the Internet Age and “gig economy” are visible and abundant, we have yet to fully understand the unexpected consequences, such as the shift from collective to individual risk or the complicated relationship between privacy and security. **How can we better align our policy and regulatory frameworks with the experimentation and innovation driven by these relentless waves of transformation?**

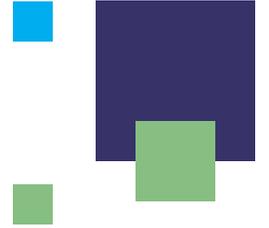
The following pages capture some of the key ideas that came up during the session, some of which were shared by IdeaFactory Rapporteurs with Ministers at the Ministerial Council Meeting on 1 June.





ANDREW WYCKOFF

Director, Science,
Technology and Innovation, OECD



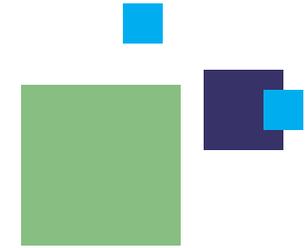
“The ubiquitous computing revolutions of the last few decades are having a transformative impact on society. For instance, in the past the term **“community”** was associated with our neighbourhood. Community boundaries have moved far beyond close geographical borders, and **this concept is now more closely related to social media platforms such as LinkedIn and Facebook.** This is very important for both economy and society.

When I recently visited the Yale University campus, I noticed some graffiti on the sidewalk that said **“STP TXTNG – stop texting”**. This message was telling students to pay attention to their real-life surroundings. Students had stopped talking to each other while walking between classes, preferring to text on their smartphones instead. **What is “community” becoming?**

Another important aspect is that, in the past, **society used to be shaped by common experiences.** I remember when, in July 1969, I was woken by my parents to watch the first man walking on the moon. Now these common experiences – partly because of the fragmentation caused by the Internet – are far less frequent. Instead, we are going to see little niches and select groups or “grouphink” which, I think, will have profound implications for the development of our societies.”

WYNTHIA GOH

Chief Digital Officer, Aviva Asia,
ARO Strategy & Proposition



“I’m a digital optimist. **I believe that every wave of new digitalisation generates new jobs, new skills and new experiences.** Google has created search specialists. Social media has created social media strategists. The current explosion of big data and unstructured data has created data scientists. However, **new, large companies in the digital economy, unlike the companies of the past, are able to scale their services and revenues while generating a relatively low number of jobs.** For example, Facebook produces \$1.4 million per employee but globally has less than 30,000 workers. To put this into perspective, IBM has almost 400,000 employees. This is an interesting phenomenon and a complex challenge for society.

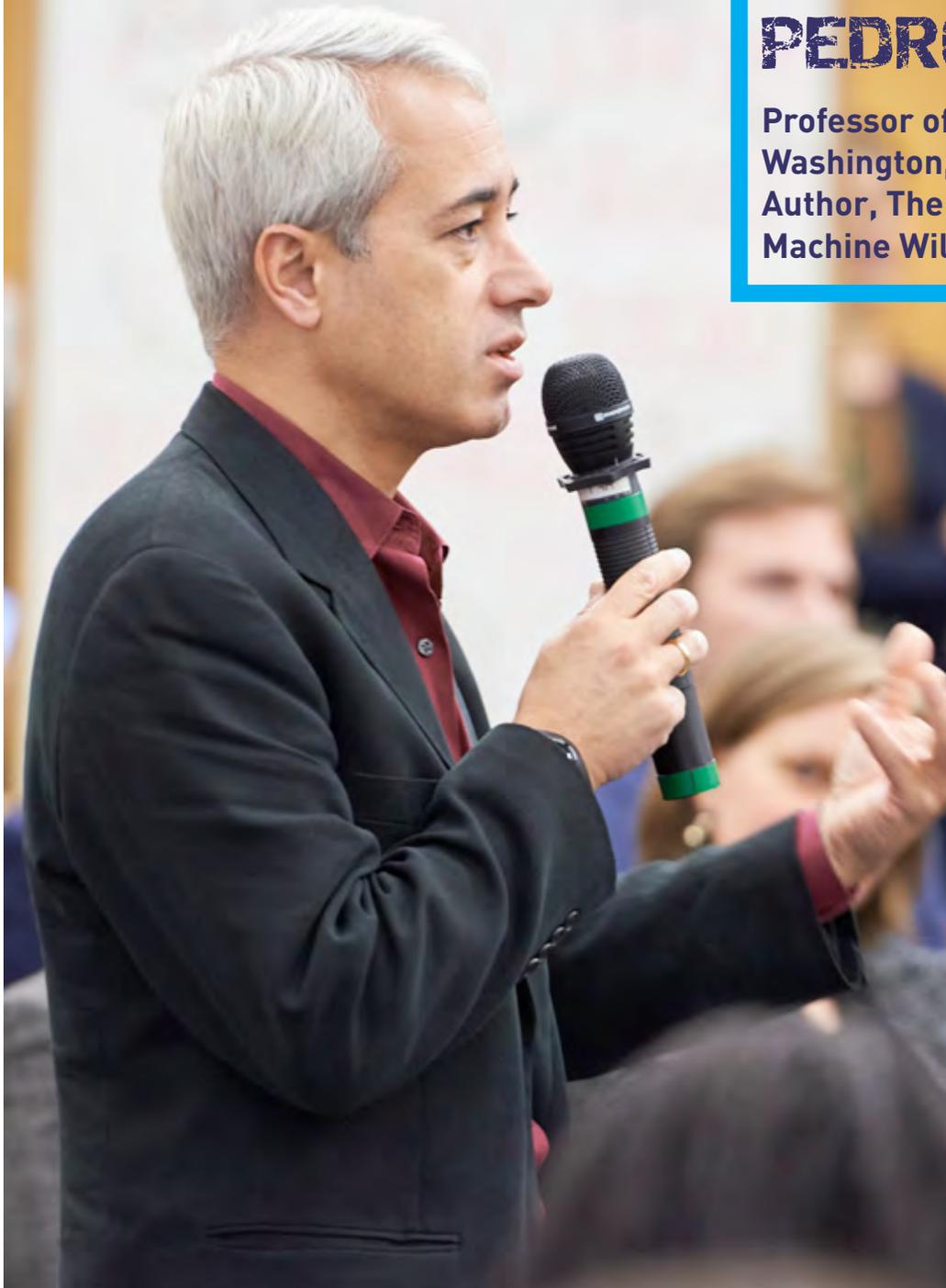
The second thing I would like to mention is the crucial role of policy makers in the digital domain. Policy makers have to set standards and principles that protect **consumers interests, balance privacy and personalisation, and ensure accountability, fairness and accessibility.**

Finally, as more and more people have access to content through digital devices, we have to make sure that they don’t become just passive consumers, but that they make the effort to understand digital technology and **become active creators in the new digital economy.”**

PEDRO DOMINGOS

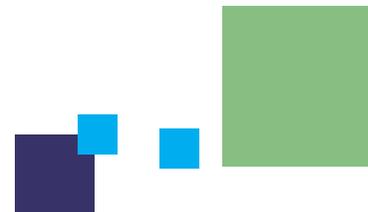
Professor of Computer Science and Engineering, University of Washington, USA

Author, *The Master Algorithm: How the Quest for the Ultimate Learning Machine Will Remake Our World*



“The world is going through a period of fast and enormous change, caused by the digital revolution. We need to be aware of the forces that are transforming our future. We also need to understand how to shape it in a better way, both as individuals and collectively. My book “The Master Algorithm” is an attempt to explain “machine learning”. **I believe that everyone should understand the relevant phenomena in the digital domain. There are very interesting issues to be discussed: What will happen to jobs? What functions will be automated? Should we ban or should we welcome innovations like “intelligent weapons”? Should we give up control and let algorithms do the work?**

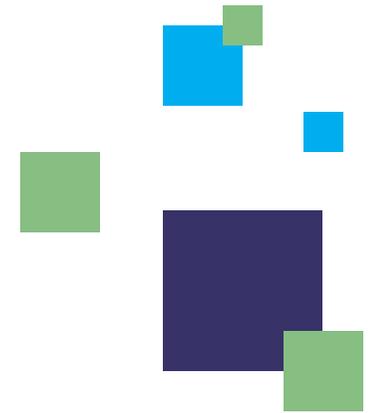
I think that digitalisation and technology have enormous potential, but good things do not happen by default. We need to take the reins and contribute actively to set the right direction.”





MAURIZIO TRAVAGLINI

Founder, Architects Of Group Genius,
IdeaFactory Designer and Facilitator



“The aim of this IdeaFactory is to explore together **how the increasing influence of digitalisation and virtualisation may impact the way society’s roles, aspects and processes will evolve in the future.**”

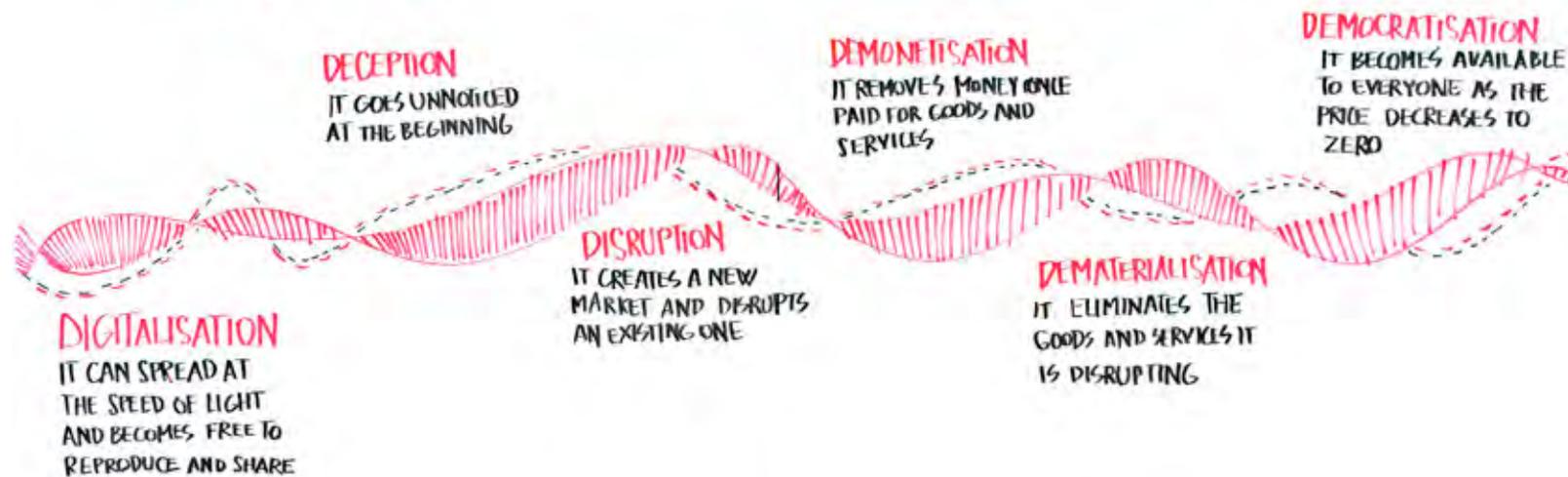
Will technology enhance and augment, or fragment and worsen our societies?

Which strategies will allow us to leverage new technologies to enhance the way we work and live as well as augmenting the meaning and quality of our human experience?

The ambition of this collective conversation is to discuss complex issues and challenges, without finding unique and clear answers, but trying to glimpse different future scenarios for different slices of society.

We will look at the future using the “Exponential Innovation” framework developed by Peter Diamandis. He uses six “Ds” to explain what makes exponential technologies exponential.

"6Ds" EXPONENTIAL FRAMEWORK



Digitalisation: Anything that can be digitised can be distributed at the speed of light and its growth can be exponential. This is the case for products and services shared on the Internet and through digital devices.

Deception: When a new technology emerges, its early growth rate is so minimal, that nobody cares about it. It goes unnoticed for an initial period of time.

Disruption: When this growth rate creates a new niche, a new market is created and an older market disappears - for example digital music replacing CDs.

Demonetisation: This happens when money vanishes from the equation - as for Skype, Napster, and the WIFI connection inside Starbucks.

Dematerialisation: This is about goods and services vanishing. The most powerful example of this phenomenon is the mobile phone. It contains devices, once separate physical objects that are now fully embedded in it: a torch, a GPS, a camera, a clock, a cardio application to measure our heart rate.

Democratisation: When physical objects are turned into "bits" and then hosted on a digital platform in such high volume that their price approaches zero. As a result of dematerialisation and democratisation they can be used by everyone."

2030: LOOKING BACK AT EVOLUTION

Participants were asked to explore and understand the inner workings of the best and worst case scenarios that may unfold around a relevant component of our society's infrastructure:

Media and the Dissemination of Information to the Public
Government and the Democratic Process
Global Corporations and the Local/Global Regulation
Financial Institutions, Banks and Capital Allocation
Small Enterprises and the Competition in the Global Ecosystem
“Sharing Economy Players” and the Competition in the Global Ecosystem
Not-for-profit Organisations and the Advocacy Process
Academia and the Teaching and Research Processes
Taxation and the Process of Wealth Distribution

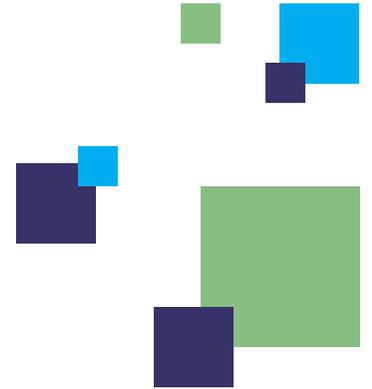
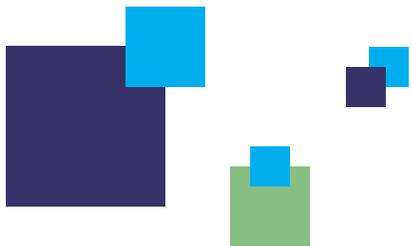


2030: Looking Back At Evolution

- > What “exponential innovations” have unfolded in the last 15 years?
- > What events, innovations, crises and dilemmas represented critical moments?
- > Which constituencies played the most important roles in influencing its evolution?
- > What conflicts emerged? How were they resolved?
- > What critical choices were made (or not made) that determined the evolution of the scenario?

Best Case and Worst Case Scenario Snapshots

- > What is “the difference that made a difference” in tipping towards your scenario?
- > What is the main area where policy makers should focus their efforts in order to facilitate the unfolding of the best case scenario/to prevent the worst case scenario?

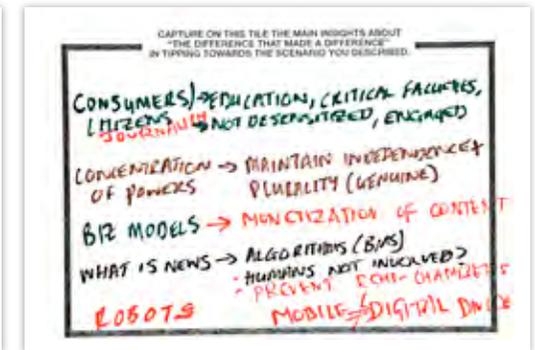
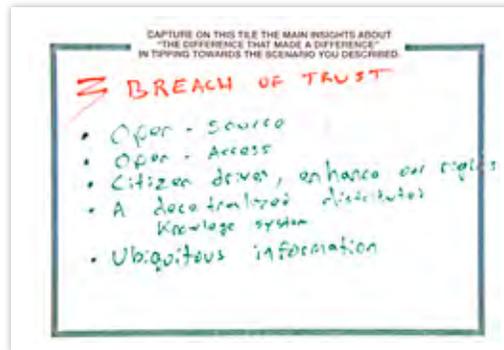


BEST CASE AND WORST CASE SCENARIO SNAPSHOTS

Media and the Dissemination of Information to the Public

Best Case Scenario

- Our vision is to **have a world without media borders.**
- Our principle is to create a more open media system with ubiquitous information.
- We can foresee a pathway from now until 2030:
 - A crisis will happen.
 - Another breach of trust will occur.
 - It could involve the algorithms that control the Google and Facebook feeds.
 - As a reaction, crowdsourcing and open source might become the dominant platforms.
- **Transparency, access to information, security and privacy, and distribution of control** will be the most complex issues.



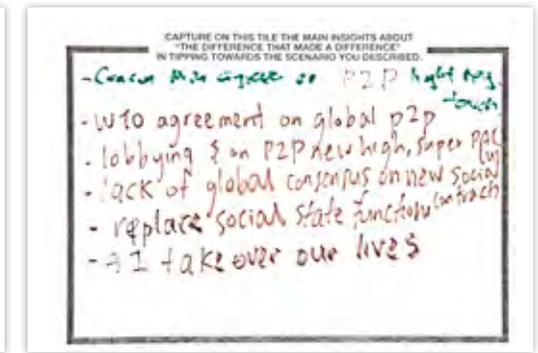
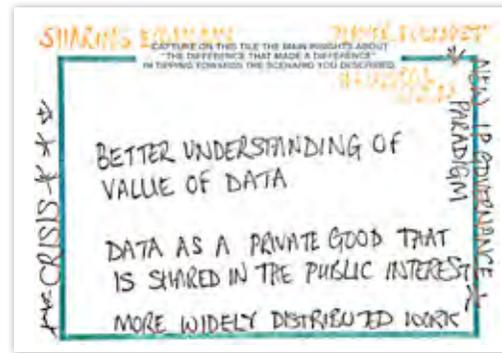
Worst Case Scenario

- Isn't the worst case already here?
- **Overload and decentralisation of news** increases.
- **The concentration of power** increases.
- **Lack of authenticity and truthfulness** are crucial problems.
- The role of governments and businesses becomes more relevant.
- Independence and plurality fade.
- New business models do not appear.
- **Bias and algorithms** become deeply intertwined.
- Robots producing cheap content are a possibility.

“Sharing Economy Players” and the Competition in the Global Ecosystem

Best Case Scenario

- Our assumptions: world peace, no “rogue states”, and an efficient copyright regime.
- A crisis will happen. It will help us to better understand the value of data.
- A new IP governance paradigm will emerge, together with a new intellectual property system and **a new concept of “data”: a private good but shared in the public interest.**
- The information will be more transparent and controlled by an international institution.
- There will be more widely distributed work.

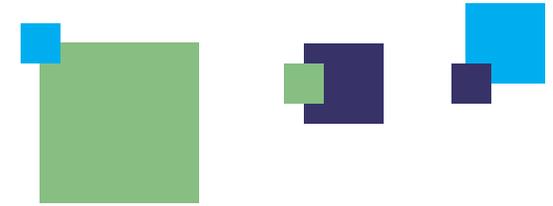


Worst Case Scenario

- We have identified a timeline of crucial events from now until 2030:
 - **Peer-to-peer (P2P) platforms will become successful and dominant** in the global competition ecosystem.
 - P2P platforms will exert higher influence and pressure on international institutions and governments.
 - Some crucial events will happen: the Cancun Ministerial on a P2P-like regulatory touch, the first World Trade Organization agreement on global P2P network, U.S. SuperPACs supported by P2P platforms.
 - P2P platforms will replace central government functions.
 - AI will take over our lives.
 - **How will our current societal structures and governments react to these phenomena?**
 - **How can we ensure that these platforms really incorporate the value of “Democratisation” and are at the service of the public?**
 - P2P platforms could entrench existing inequalities and wealth: in order to participate in the sharing economy you need to own goods (a car for Uber, an apartment for Airbnb, etc.). Society could end up being divided into “the haves” and “the have-nots”.

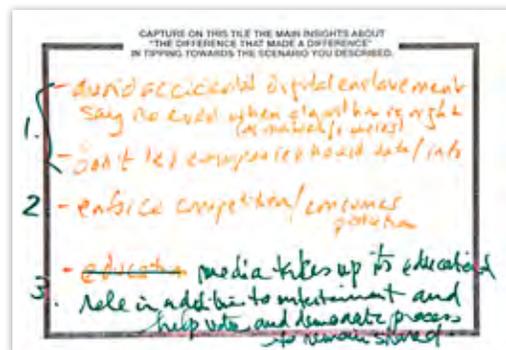
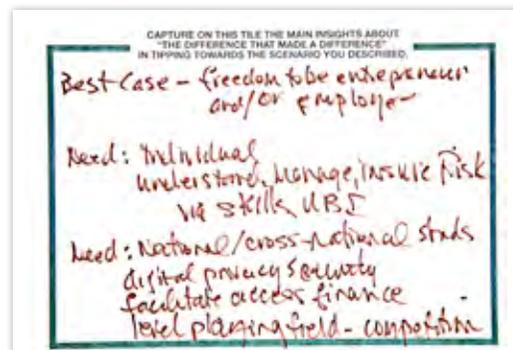


Small Enterprises and the Competition in the Global Ecosystem



Best Case Scenario

- **Individuals can choose to be an entrepreneur and/or an employee.**
- **Two main needs:**
 - Create a system where individuals could understand, manage and insure against risk. The solutions are: high-quality skills and a universal basic income.
 - Establish some crucial national and cross-national standards about: ensuring digital privacy and security, facilitating access to finance and creating a “level playing field” for competition.
- **Two main challenges:**
 - Also create policies and interventions for those who do not want to take risks, but want to live and work in a stable standard employee system.
 - Understand how policy makers in different countries can align their current different policies into common standards.



Worst Case Scenario

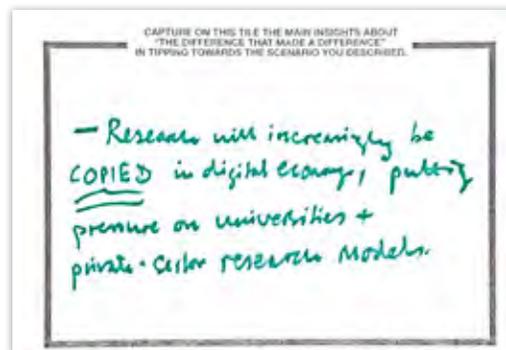
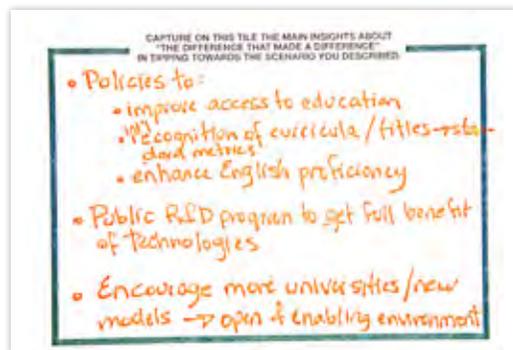
- **Small companies are eliminated** from the global competition. They do not exist anymore.
- The world’s biggest companies have merged into **several powerful multi-national companies.**
- Consumers have **no choice.**
- **Four main focus points:**
 - Avoid accidental digital enslavement, so that, as companies march toward algorithms, they keep the human aspect.
 - Prevent companies from hoarding data and information without being monitored by an institution that protects consumer interests.
 - Enforce competition and consumer protection through government intervention.
 - Focus on the education and civic role of media.



Academia and the Teaching and Research Processes

Best Case Scenario

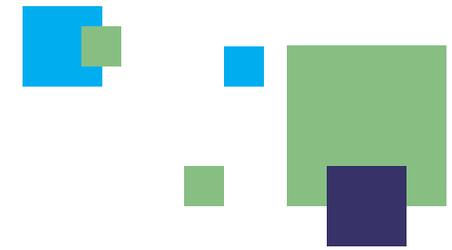
- Digitalisation and virtualisation are already part of academia and the teaching and research processes. The current main channels are: MOOCs, peer-to-peer learning, large-scale research collaboration, open digital research platforms.
- In 2030 we will witness **a big enhancement of the quality and quantity of teaching**, using highly personalised platforms, adaptive learning, digital assessments and active feedback from virtual communities.
- Metrics to evaluate the value and the quality of these universities will be introduced.
- **A policy intervention will be needed** to facilitate and leverage the full potential of teaching and research digital platforms. Three focus points: improve access to education, create a public R&D programme to draw maximum benefits from technology, encourage the emergence of new models and new kind of universities.



Worst Case Scenario

- **Academic research becomes too slow and disconnected** from the digital economy, and too easy to copy for free by competitors.
- The government and private sector stop funding research.
- **The quality of teaching is declining** outside of elite universities. The concentration of the power and influence of the mainstream is increasing. The “public value” of universities is declining.
- Universities and research centres are under pressure, struggle to survive, and start to disintegrate, with a big negative impact on economy and society.
- **The presence of a democratic state** that develops a very responsive education system would be a solution.

Government and the Democratic Process

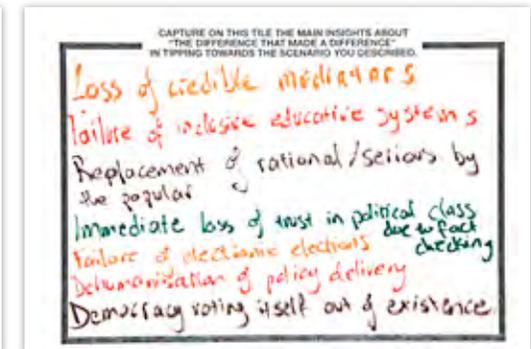
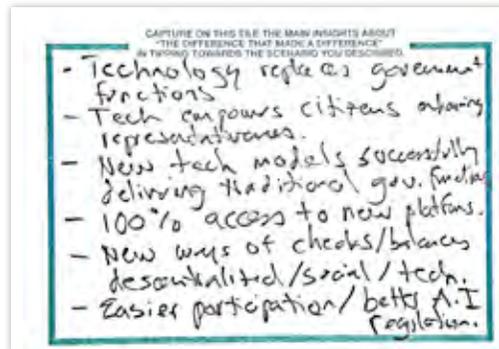


Best Case Scenario

- A huge amount of information about citizens is accessible.
- This helps to provide high quality and tailored public services.
- New technologies increase **citizens' empowerment and protection** from abuse of power and any form of authoritarianism.
- New technological models replace government functions.
- There is a reduction in government size, a blurring of national borders and a reduction in what citizens are subject to.
- **New systems of checks and balances** emerge.

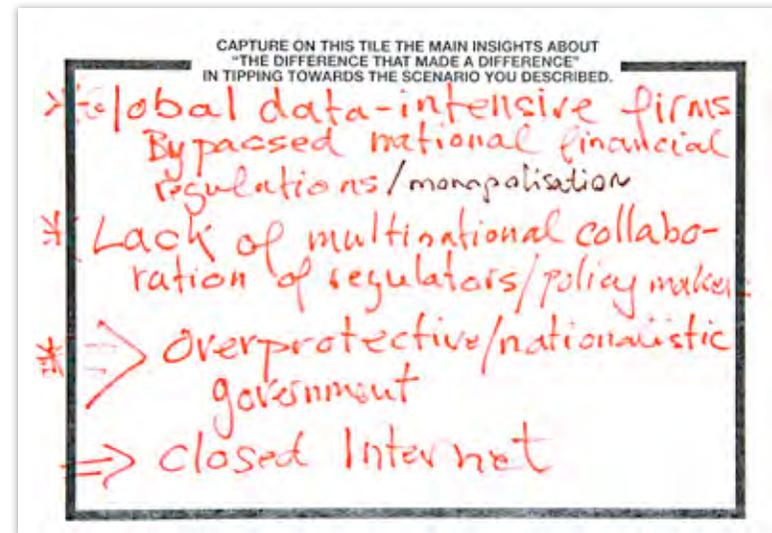
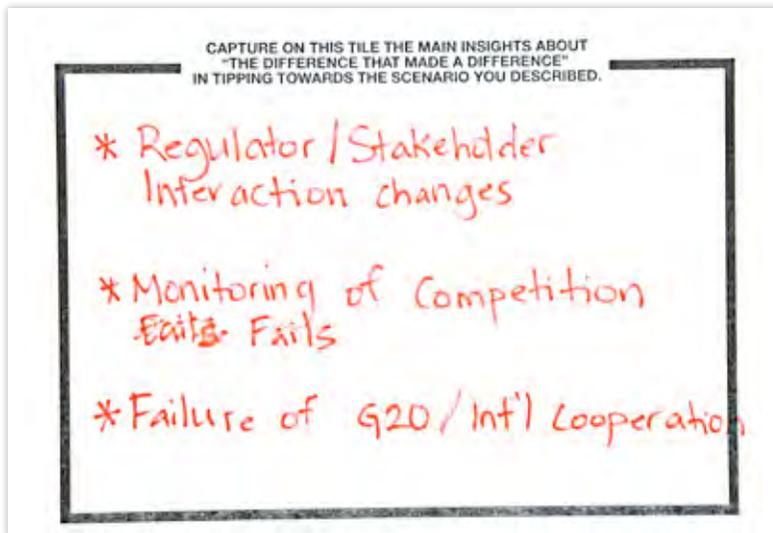
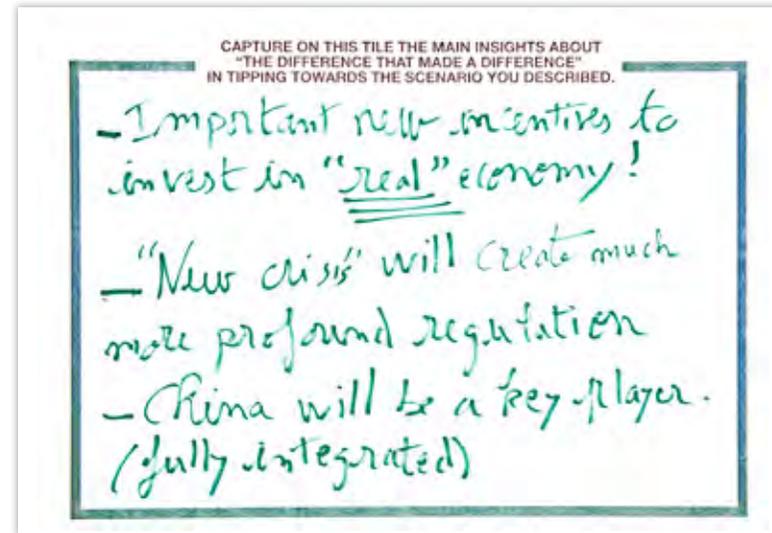
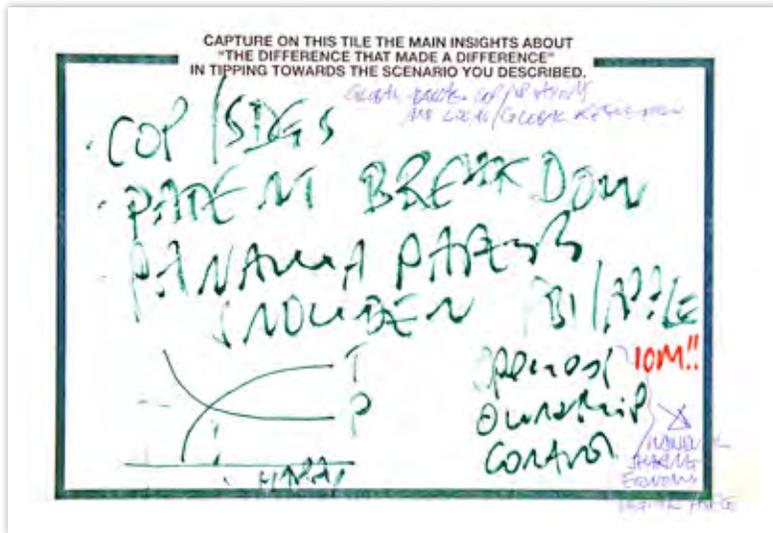
Worst Case Scenario

- **Higher risk of authoritarianism/demagogy.**
- Democratic voting becomes extinct under the digitalisation of democracy.
- **Main factors:**
 - Loss of credible mediators (media or political parties).
 - Loss of face-to-face interaction with political actors.
 - Failure of inclusive education systems.
 - Growing loss of trust in political systems due to an increased ability to conduct fact checking through the Internet.

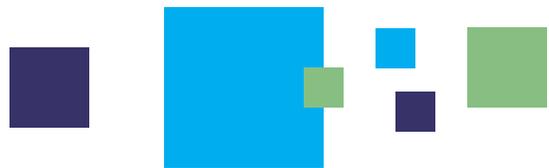
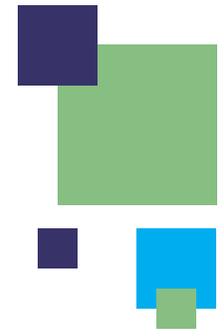


Global Corporations and the Local/Global Regulation*

Financial Institutions, Banks and Capital Allocation*



*The above visuals are an example of other groups' work conducted during the session which were not debated due to time constraints.



Not-for-profit Organisations and the Advocacy Process*

CAPTURE ON THIS TILE THE MAIN INSIGHTS ABOUT "THE DIFFERENCE THAT MADE A DIFFERENCE" IN TIPPING TOWARDS THE SCENARIO YOU DESCRIBED.

- LEVERAGING DIGITAL
- MACHINE LEARNING & DATA
- SUSTAINABLE FUNDING MODELS
- STANDARDS & WATCHDOGS
- CROWDSOURCING
- GLOBAL POLICY SPACES
- WELL-ORGANIZED DEBATES

CAPTURE ON THIS TILE THE MAIN INSIGHTS ABOUT "THE DIFFERENCE THAT MADE A DIFFERENCE" IN TIPPING TOWARDS THE SCENARIO YOU DESCRIBED.

white blowing away / VR > reality / elicitivism
 Uniqueness data => Manipulation
 Anxious / stress / heart rate / info
 State of emergency / awareness
 Info hierarchy / new social classes
 DISSOLUTION 7/2/20

Taxation and the Process of Wealth Distribution*

CAPTURE ON THIS TILE THE MAIN INSIGHTS ABOUT "THE DIFFERENCE THAT MADE A DIFFERENCE" IN TIPPING TOWARDS THE SCENARIO YOU DESCRIBED.

- Digitisation of taxing & gov. spending.
- Disruption: de-linking of taxation & place of residence
- More choice in public spending (wiki-budgets)

CAPTURE ON THIS TILE THE MAIN INSIGHTS ABOUT "THE DIFFERENCE THAT MADE A DIFFERENCE" IN TIPPING TOWARDS THE SCENARIO YOU DESCRIBED.

auto tax - make world more fair
 hackers - high frequency wealth alt.
 nanobots subvert citizen sense of inequality
 SDGs replaced by wealth DGs
 rise of the island quadrillionaires

*The above visuals are an example of other groups' work conducted during the session which were not debated due to time constraints.

OTHER INSIGHTS

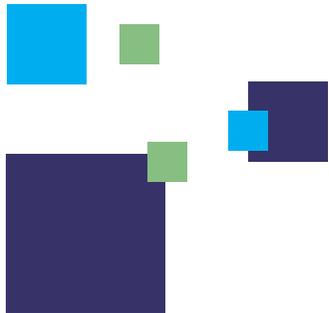
“Who is in control of algorithms?” How can we build them in an effective way?
How can we avoid “media slant”? What is the role of “machine learning” in improving democracy?”

“We should be the ultimate regulators.” Our focus should not be just “the Internet of Connected Things” but also “the Internet of Minds.”

“E-government is a key issue.” How can governments adapt to this new reality? How can they develop technologies that allow them to respond quickly to the waves of changes in the digital environment?”

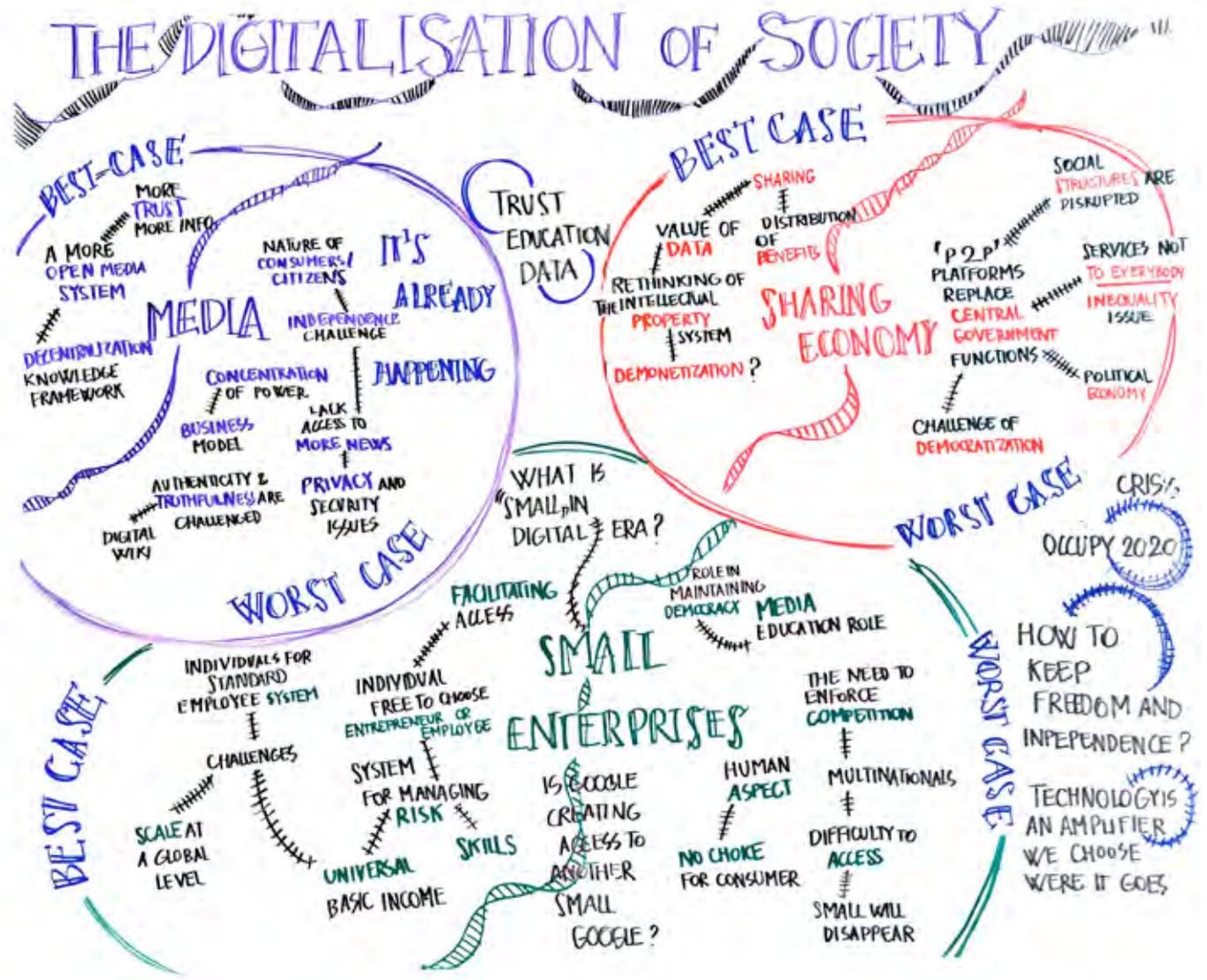
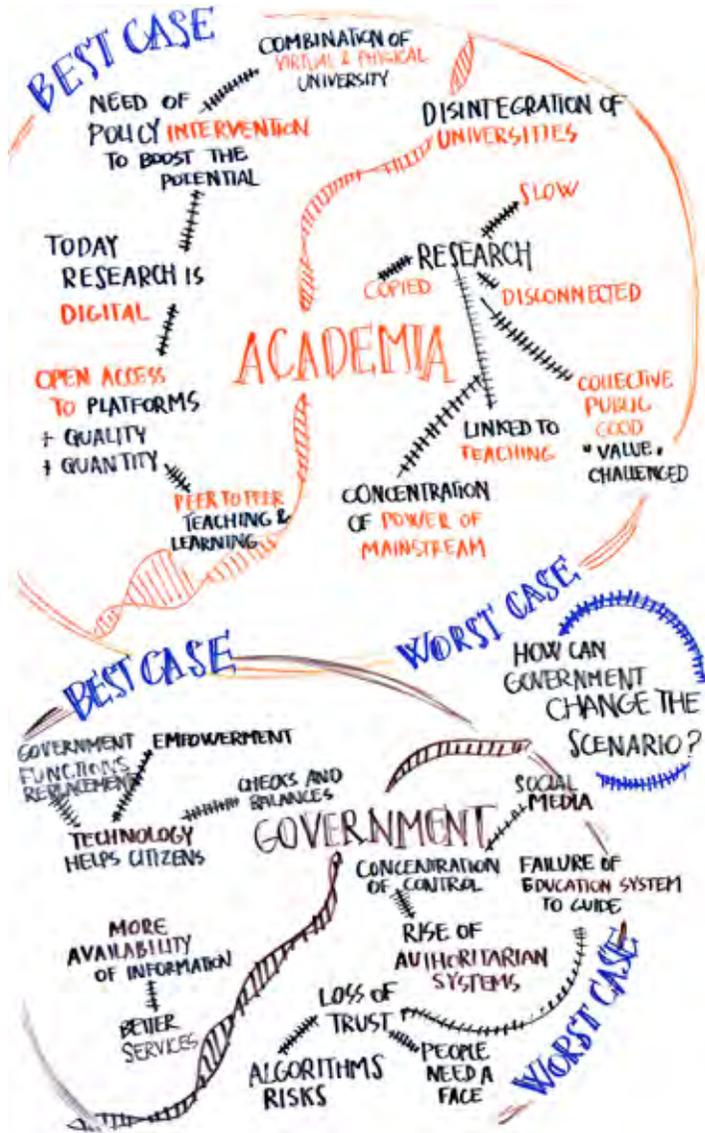
“The technology is moving very fast and is becoming ubiquitous in our lives. **How can we maintain freedom and independence, engage through face-to-face interaction** with other people, and avoid the risk of falling into the trap of “click-ism”, “echo chambers”, and superficiality?”

“Technology is an amplifier.” It expands both positive and negative aspects. We determine its direction.”





LOOKING BACK AT EVOLUTION - SNAPSHOTS





ANDRÉS GÓMEZ-LOBO

Minister of Transport and Telecommunications, Chile

“I would like to mention a few important themes that emerged from our conversations.

The first theme is **“Data”**. The control of data is an important source of power. This is relevant for global corporations, governments and, ultimately, for all of us.

The second theme is **“Policy”**. We should really focus on how governments and policy makers will play an active role in shaping or changing the scenarios that we have been working on. I see many opportunities but also many risks coming from this new digital reality and the possible scenarios that may unfold.

The last theme: **“Face-to-Face Interaction and the Human Side of Reality.”** I believe that even if, in the future, we will be surrounded by more tools, and machines, technology will not be able to replace the main aspects of the human character, personality, or needs. Human nature will always win against technology.”



OLLI-PEKKA HEINONEN

State Secretary in the Ministry of Finance, Finland

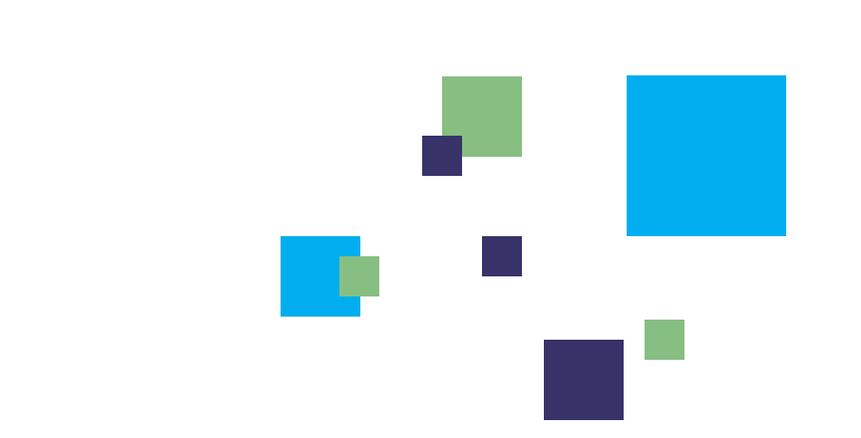
“We have discussed the best and the worst case scenarios and which one may unfold in the future. This conversation has reminded me a Charles Dickens’ phrase: “It was the best of times, it was the worst of times”. We often tend to look at reality from a unique perspective, the good one or the bad one. **However, reality is a combination of both components** - they happen simultaneously.

Another important point that emerged from our conversation is that **we have to show up for digitalisation** – things do not happen by default. This is a crucial point. We must play a role in shaping the way things will unfold.

We have also discussed the role of government in the digital world, in particular regarding relevant and complex issues like freedom, humanity and power. I think that **it is now time for policy makers to think about what digitalisation really means for these fundamental issues.**

Finally, three important horizontal points emerged from the different interventions:

- 1) **Trust** (very fragile in these digital times)
- 2) **Education** (more important than ever before)
- 3) **Data** (those who control the data, control the power).”



Discussion Leaders

Alain Staron, Vice-President Digital Offers, Veolia Environnement
Anabel Gonzalez, Senior Director, Global Practice on Trade and Competitiveness, World Bank
Andrés Gómez-Lobo, Minister of Transport and Telecommunications, Chile
Andrew Wyckoff, Director, Science, Technology and Innovation, OECD
Angela Wilkinson, Counsellor for Strategic Foresight, OECD
Anthony Teasdale, Director General, European Parliamentary Research Service
Catherine L. Mann, Chief Economist, Head of the Economics, OECD
Charlotte Holloway, Head of Policy and Associate Director, techUK, United Kingdom
Diane Coyle, Director, Enlightenment Economics
Eszter Ozsvald, Founder, Notch Interfaces
Francois Grey, Director, Geneva Citizen Cyber Lab, University of Geneva, Switzerland
Gareth Mitchell, Presenter, BBC Click
Gylfi Arnbjörnsson, President, Icelandic Confederation of Labour
Madis Tiik, Senior Advisor, SITRA, Finland
Marcos Kulka, CEO, Fundacion Chile
Olli-Pekka Heinonen, State Secretary in the Ministry of Finance, Finland
Pascal Lamy, President Emeritus, Jacques Delors Institute
Pedro Domingos, Professor of Computer Science and Engineering, University of Washington, USA
Wynthia Goh, Chief Digital Officer, Aviva Asia

Rapporteurs to the OECD Ministerial Council Meeting

Andrés Gómez-Lobo, Minister of Transport and Telecommunications, Chile
Olli-Pekka Heinonen, State Secretary in the Ministry of Finance, Finland





2016 IDEA FACTORY

2020
AUTONOMOUS CAR
AS PEOPLE PROTECTIVE, BEING TO
AVOID SWIFT THROUGH CITY STREETS,
EQUIPPED WITH A LAMB TO ADDRESS A
CRISIS, A CAMERA, AND SERVICES THAT
LIVE, AND A HYPER-ACCURATE GPS.

2025
3D PRINTING
ON DEMAND
ORGANS

2030
LOCAL MANUFACTURE

2030
THE SINGULARITY

2050
THE SINGULARITY
2045

OECD team

- Anthony Gooch
- Cristina Smith-Quintana
- Gráinne Mooney
- Holly Richards
- Irini Hajiroussou
- Jennifer Bisping
- Silvia Terrón

Architects of Group Genius team

- Andrea Ghisalberti
- Barbara Fabris
- Chiara Ghidelli
- Gianfranco Barnaba
- Giordana Vilardi
- Giulia Ricci
- Lucy Meekley
- Luisa Cornoldi
- Maurizio Travaglini
- Patsy Kahoe
- Simone Bettini