

A backcasting exercise

by Arianna Rossi

In order to build the world where my short story is set, I've carried out a backcasting exercise to reconstruct how we could end up in such a scenario, given the present conditions. This exercise does not aim to be a future prediction, but it rather aims to describe plausible social, political, economic, cultural and environmental events that may lead us to that specific scenario.

2020

With the COVID-19 becoming a pandemic, various **lockdowns** follow one another all over the planet to fight the spread of the virus. The European Union approves **NextGenerationEU, an impressive stimulus package** meant to rebuild a post-COVID-19 Europe, with a strong focus on digitalization and the fight against climate change [1].

Homeschooling and homeworking become the new normality, with **public and private organizations increasingly relying on booming private digital services** (e.g., Zoom) [2] to operate.

Ransomware globally hit at an unprecedented rate. According to conservative estimates of the group IB, the global financial damage from ransomware operations amounts to over US\$1 billion, but the actual damage is likely to be much higher [3].

2021

Fierce protests against the introduction of the COVID pass flourish all over Europe.

Thanks to COVID-19 vaccine revenues in rich countries, **Pfizer, BioNTech and Moderna make combined profits of US\$1,000 a second**, US\$65,000 a minute or US\$93.5 million a day [4]. Low-income nations remain largely unprotected and new COVID-19 variants surge.

Facebook is rebranded as Meta, sign of the **crucial importance the metaverse** will take on in the upcoming years. Early estimates claim that the metaverse will become a US\$800 billion market opportunity [5].

Issues caused by climate change are under everybody's eyes. In Canada, 700 die over the summer due to an unprecedented heatwave. For the first time in history, temperatures reach almost 50°C. in Europe (in

Sicily, Italy). The **COP26 is considered by many as a failure**, as countries avoid taking concrete, necessary actions against climate change [6].

2023

As new COVID-19 variants continue to originate, **new immersive experiences for pupils and employees** are tested and commercialized. Although they seemed sci-fi only a few years before, **brain-to-computer interfaces** start being adopted in popular B2C services.

Severe cyberattacks against major hospitals, research institutes, educational entities all over Europe and the following massive data breaches make policy-makers finally face the urgent need of cybersecurity experts in all sectors of society.

Thanks to the massive sharing of FAIR data across the globe, new vaccines against COVID-19 and other illnesses **are rapidly developed**. However, the pharmaceutical and biotech companies refuse to lift their IP over their patents and hence do not allow low-income countries to become independent in the creation of vaccines and drugs. As new COVID variants, together with the new SARS23 pandemic, continue to appear, **biotech companies become even richer and more powerful**. Pfizer, BioNTech and Moderna take their place as world's top 20 companies next to entrepreneurial giants like Amazon and Meta.

2025

After its adoption in 2024, the **Data Governance Act enters into force**. Its goal is to foster a **European data space for trustworthy information sharing** and the **development of services funded on European values**. The Data Governance Act mandates that entities managing sensitive data or children's data shall create an **internal cyberforensic unit** to prevent and respond to cybersecurity accidents.

Thanks to widespread vaccination campaigns and the appearance of less virulent variants, **COVID-19 is unranked to the level of a seasonal flu**.

Over summer, the temperatures spike at 49°C. for over four weeks and **kill over 25,000 people in the EU**. In Italy, where there have been alone 5,000 victims, a new ultra-liberalist Government is elected based on a **firm technosolutionist belief** and with the promise of heavily financing companies and startups that will develop technologies against climate change.

2027

In a society where everything has been datafied, the multifaceted **information contained in users' profile rapidly becomes a bargaining chip for personalized services**. With European data spaces rapidly flourishing, **dynamic consent models** leave theoretical academic discussion and start to be largely implemented. However, the significance and implications of data sharing in areas such as healthcare and employment and the complexity of such choices for lay users stimulate the emergence of **personal consent manager brokers** that support them to take decisions based on the opportunities offered by their specific data profiles.

A **data black market emerges**, where stolen or synthetic data are sold to boost the monetizability of user profiles on metaverses and other digital platforms. The first EU-wide estimate of such market amounts to 450 million euros.

As automated decision-making becomes pervasive, **Automated Dispute Resolution AIsistents** (ADRAAs)

are established to **democratize access to justice**. Ironically, they take automated decisions on whether a party has the right to redress and to a human-led trial.

2029

An increasing number of **everyday activities shift to the metaverse**, where the first academic metadegrees are issued and open the doors to other educational experiences that are completely, or at least partially, delivered on the metaverse.

A review of the Data Governance Act is carried out, as individuals are enthusiastic about sharing their data for profit, but do not care and do not know how to ensure a high quality of their information. **Low data quality damages the precision of the models** built on such data. The first scandal caused by low-quality data is unveiled, with dozens of deaths after the commercialization of a personalized treatment against breast cancer based on wrong models. To address such issues, the European Commission begins to draft a new legislative proposal, the Data Altruism Act.

In southern Europe, periods of severe drought last over a five-month span, while in northern and continental Europe floods put in peril crucial energy production plants, including nuclear facilities. EU countries generate plans to **lower their water consumption rates**. Activists protest against an increasing digitized society that is accused of **exacerbating the climate crisis by draining energy and water for unnecessary services**, while agriculture and biodiversity are on their knees.

2030

Countries that have received multi-billion loans with the EU Recovery Plan in 2020 like Italy realize that they are not going to be able to give the money back and to conclude the requested systemic reforms. Such nations elaborate **drastic, unpopular solutions based on the privatization of certain public services**. Healthcare and education are the first to be targeted since they have needed conspicuous investments for decades, which never arrived, and are now in very poor conditions. Many companies propose to develop **smart tailored digital solutions “for the public good” in exchange of the freedom to reuse the data** they collect through such services.

Citizens are increasingly called to **donate their data in exchange of highly performant, personalized services**. Personal consent manager brokers increasingly help users navigate the myriad of opportunities that are offered to them and predict the impact of personal choices on the value of their profiles' information. The profession of **Personal Profile Curator** is born. Most curators are smart, AI-based assistants, but users can pay an extra fee to obtain the unique touch offered by a human expert. Power shortages, though, prevent profiles to be updated as often as they should, which engenders **inconsistencies across different services and low quality data**.

As a burgeoning number of jobs is taken over by robots and AIs, **low skilled workers find new ways to supplement their income**. Many of them resort to **Automation Turk**, where they are requested to repetitively perform simple human actions to engender robots' learning of micro-gestures and to debug code for AI-based services.

With all human activities shifting to the metaverses and most services being partially or completely privatized and automatized, the planet gets more and more energy-hungry. The EU approves a **new impressive stimulus package** (the GreenerThanGreen plan) meant to foster **sustainable energies for a highly digitized, dataified and robotized society**.

2033

The **Data Altruism Act** amends the Data Governance Act. It includes stronger measures to support data sharing across the EU and ensure higher data quality. **Donating data to develop services becomes a duty** for all European residents (including minors), who are vigorously nudged to fuel the data economy, **under the penalty of being excluded from the benefits** deriving from the data-driven scientific and industrial progress. The Data Altruism Act foresees **educational interventions** to foster the sharing of high quality data since a very young age, like the obligatory Social Accountability class in every school, which is a mix of civic education and personal data profile curation. **Ecological measures**, like the highly contested “one secure copy only” policy against useless data replication, are also included. Other nations (e.g., U.S., Brasil, South Africa) publish similar regulations.

The so-called “**data-egoists**” **start massive protests**. They organize to produce synthetic, random data that pollute data models on purpose as a way to rebel against forced data altruism. Like no-vax protesters years before, they oppose their individual freedom against public welfare. **Children and teenagers participate in the protests**, demanding that their data is not harvested until they reach the age to make free, informed decisions, as until then consent to data sharing for targeted services must be provided by parents or legal guardians.

2035

Due to the **extreme air pollution levels**, Southern Europeans are not allowed to leave their houses for months, where air filtration systems are installed. A **complete ban on fossil fuel** is introduced. The air quality enhances rapidly but people have to wait for a few more months before they can start to venture out of their houses. Despite that “life goes on” in the metaverses, it is a period of withdrawal, solitude, apathy, depression, violence and suicides for all ages. The **reliance on private services** for all sectors of life dramatically increases. Huge investments into **surveillance measures and technologies** are made for the double reason of controlling compliance with the climate regulations and collecting data to develop services, mostly in a joint venture of public entities and private companies.

2038

Life goes on in **hybrid mode**: pupils and workers spend half of the time at home and the other half in schools and offices. **Personalized AI-based services** are increasingly embodied by robots that start to be seamlessly integrated in everyone’s daily life. Despite the ban on fossil fuel, **the climate is running more and more chaotically**.

This is when the story is set. 

About the author

Arianna Rossi is a research scientist at the Interdisciplinary Center for Security, Reliability and Trust (SnT) of the University of Luxembourg, where she carries out research on online manipulation (dark patterns), usable privacy and legal design. Arianna has a mixed background, with a joint international Doctoral Degree in Law, Science and Technology (University of Bologna) and a Ph.D. degree in Computer Science (University of Luxembourg). She holds a M.Sc. in Linguistics with a focus on natural language processing. Arianna is an accomplished speaker with extensive experience at international conferences and routinely provide training to academic scholars, students and practitioners. In addition, as lead for Luxembourg Legal

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Notes

1. https://ec.europa.eu/info/strategy/recovery-plan-europe_en
2. <https://www.theguardian.com/technology/2020/jun/03/zoom-booms-as-teleconferencing-company-profits-from-coronavirus-crisis>
3. <https://www.helpnetsecurity.com/2020/11/26/ransomware-cost-2020/>
4. <https://medicalxpress.com/news/2021-11-pfizer-biontech-moderna-profit-analysis.html>
5. <https://www.bloomberg.com/professional/blog/metaverse-may-be-800-billion-market-next-tech-platform/>
6. <https://www.forbes.com/sites/globalcitizen/2021/11/15/cop26-a-failure-for-the-planet-and-the-worlds-poor/>

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