
INGSA-GESDA Simulation Game

NEUROTECHNOLOGY WORLD BUILD

Governance of Revolutionary Technology

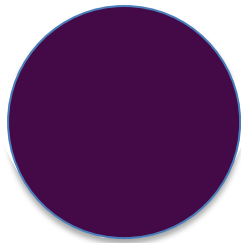
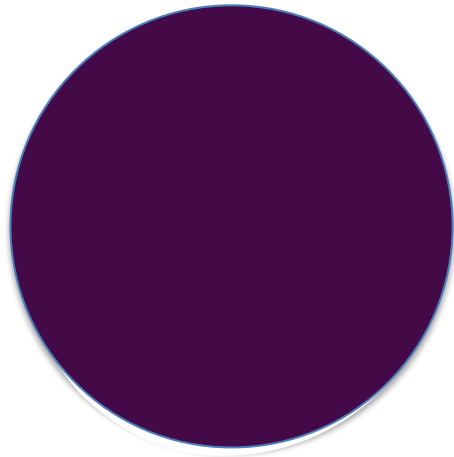
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1. Background and Scene Setting



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About the Geneva Science and Diplomacy Anticipator Foundation (GESDA): An independent non-profit foundation under Swiss law and a private-public partnership with the Swiss and Geneva authorities, GESDA was created in 2019 to strengthen the impact and innovation capacity of the international community through science and diplomacy anticipation. For more information, please visit the Foundation's website: www.gesda.global

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INGSA is a New Zealand-based International Organisation hosted at the University of Auckland by *Koi Tū: Centre for Informed Futures*, and operating under the auspices of the *International Science Council*.

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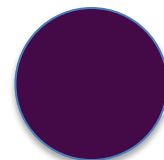
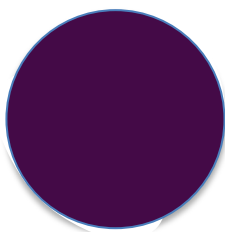
Aims of the workshop

To explore such issues as:

- What decisions could different parties make that will help direct the application of neurotechnology towards beneficial use cases? What fundamental questions need to be asked to better understand the possibilities of the technology and how to direct its use?
- How should we deal with technologies that have fundamental implications for our perceptions of personal identity, autonomy, and responsibility? Are there (should there be) social, political, collective considerations for how they are utilised?
- What happens in the absence of technology regulation, and what would ideal regulation look like? How can we regulate before we know what the technology might do?
- What is the interplay between national and international systems, and how might solutions be fostered and develop between the two?

To provide a stronger appreciation for:

- The potential of neurotechnology and its applications
- The nature of technology development and the complex interface between government, industry, philanthropy and publics.
- The power imbalances that can be created by disruptive technologies and ways to address these.
- The implications of developments in science and innovation on geopolitical relationships, and vice versa
- The value of a pluralistic and anticipatory view of technology governance
- The importance of science diplomacy and science communication for building trust
- The value of anticipating scientific developments and their innovative potential



Setting the Scene

The year is 2043, and neurotechnology is widespread. Scientists use it to open new frontiers of understanding about both humanity and the universe. Workers in almost all industries use neurotechnology to keep up with the AI-enhanced pace of business. Artists use it for inspiration and quicker renderings of their imagination.

But perhaps the greatest gift of neurotechnology is the relief of suffering it has brought. Some who were born blind can now see. Some with chronic pain are now pain-free. Media outlets publish articles on “a revolution in human cognition” and speculate about “the end of Alzheimer's”.

These benefits are unevenly spread however, as the technology is still developing and remains expensive. Yet there are paths to access the technology for those willing to take them.

One such path has been established by Esme Crane, a reclusive tech billionaire. Crane offers affordable access to both medical and non-medical brain implants. But there are conditions: these inexpensive implants are supported by very granular data collection, while also trialling new forms of advertising on the recipient. Crane’s aim is for the collected data to help her company develop technology that will one day enable brain-uploading and “digital immortality”.

Not everyone is happy with this state of affairs. For religious, philosophical, or cultural reasons, some consider the more powerful and invasive forms of neurotechnology to be immoral. Others acknowledge its benefits but fear potential abuses. And even with Crane’s subsidised models, the benefits of neurotechnology are still out of reach to many.

Nonetheless, recent surveys show that most people, in most countries, feel they are better off in 2043 than they were 5 and 10 years ago. They look to the future of neurotechnology with optimism rather than with dread.

The Crisis

This fragile but promising state is broken by a massive ransomware attack targeting brain implants.

Those with Crane’s affordable implants are hit particularly hard due to the comparatively substandard cybersecurity provisions in these inexpensive models.

The attack is devastating as implants have become almost a necessity of daily life for many. Because people cannot afford to wait for an outside fix, they feel they have no choice but to pay the ransom. Consequently, it is one of the most lucrative and high-profile ransomware attacks in history.

Public confidence in the brain implant technology is heavily damaged. Victims agitate loudly for those responsible to be brought to justice. After months of searching, the perpetrator is finally identified. He is Adrian Camier, a philanthropist who is currently living in the small nation of Wakke.

When located, Camier’s legal defence is unprecedented. He acknowledges carrying out the attack. However, he claims that traumatic feelings of intense guilt and remorse led him to attempt to use his own implant to erase his memories of ever having planned and executed the attack. In the process, Camier has lost many of his other memories. Indeed, despite neurotechnology’s many advances, this technique is still somewhat clumsy and indiscriminate.

His lawyers argue that this makes the Adrian Carmier that exists today, a substantively *different person* from the one who is truly “culpable” of the ransomware attack. Moreover, he has donated considerable funding to high-profile local causes in Wakke and is helping to develop the country’s innovation ecosystem.

Perhaps it is these facts that influence Wakke's High Court. In a decision that shocks legal observers globally, Camier's defence is accepted. He is sentenced to community service and a nominal fine.

This decision sparks international outrage and threatens Wakke's growing reputation as an emerging innovation and human rights leader in the Global South. The Wakke government cannot interfere in legal processes, yet other countries with affected citizens denounce the Court's decision as illegitimate. They jockey with each other to have Camier deported to face their justice systems.

The international appetite for stronger consequences is not solely driven by a desire for justice. Camier's attack, and the media circus of his trial, have turned the case into an important tool for those opposed to neurotechnology. They celebrate Camier's case for striking a blow against "elites" and exposing the breakdown of traditional notions of justice and autonomy in a world where you can erase memories and buy personal characteristics.

Consequently, social divisions sharpen and hard-line opponents of neurotechnology are emboldened. Both conspiracy theories and extremism run rampant. Every administration wants to be the one to punish Camier - both to deliver justice to his victims, and to quell the fires of unrest at home.

But there is no easy justice. Instead, the situation intensifies. A powerful and largely autocratic nation formally signals its support for the decision in the Camier case. Its leadership has recognised that the "Camier Defence" could set a useful precedent allowing their leadership, military, and covert agents to operate with greater impunity. It could support the work of those carrying out deniable, risky or reprehensible actions on behalf of the state, if there is a way for them to avoid consequences if caught.

In other countries, both state and non-state entities begin to adopt versions of the Camier defence for its utility to their aims. While in theory the defence can be used by anyone, in practice only the wealthy and the powerful have the resources to successfully deploy it in court.

This increased sense of impunity begins to drive more reckless decisions by political, military intelligence and industrial actors, leading them to exacerbate already high geopolitical tensions, engage in ever more egregious human rights abuses, and raise the risk of war.

The world is more chaotic, less safe, and in greater danger than it ever has been. Those who can access the benefits of neurotechnology are more reluctant to do so, and those who seek to abuse it are emboldened and see no boundaries, whether economic or moral.

Plenary Discussion

How did we get here, to a (hypothetical) place where the potential of neurotechnology has led to a significant social, judicial, political imbalance that undermines the revolutionary potential of the technology?

This outcome is avoidable! Every future is the result of a reactions in web of influences and of a set of decisions made along the way. What might an alternative future look like? How could citizens and their governments have amplified the positive potential of neurotechnology, while mitigating the negative?

What systems and safeguards might be put in place to minimise the known and unknown risks related to releasing revolutionary technology on society? What might be the best types, sites, levels and timings of interventions?

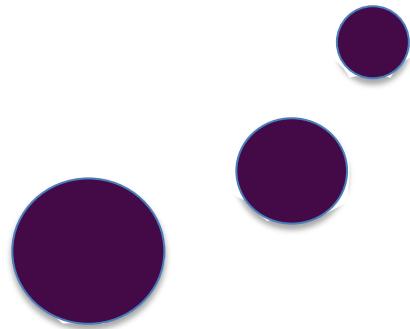


Let's rewind to 2023, when we have the chance to shape the future...

It's 2023 and you are among the high-level stakeholders gathered at a workshop run by the International Technology Governance Observatory (ITGO), which is hosted at the National University in Bria, a highly innovative and technology focused nation. The ITGO has been commissioned to develop a green paper for input into a planned UN Security Council (UNSC) meeting on Neurotechnology. Participants at the workshop include officials from the university and government of Bria, host nation of the ITGO, along with national officials from neighbouring countries Solte and Wakke, whose emerging investment and R&D footprint in neurotechnology is among the most competitive in the world. The multi-lateral and NGO community are also represented.

The UN Security Council is seeking to set an agenda on responsible innovation and use of the technology. It is examining measures such as an international governance or standards framework on neurotechnology, a 'cognitive bill of rights', or even a temporary moratorium on neurotech development. Recommendations made by attendees at ITGO's workshop could influence not just neurotechnology's governance, but the development of the technology itself.

You will take on the role of one of the workshop participants. During this ITGO meeting, **it is up to you to negotiate and push for measures that your character believes would provide the best outcomes for your country/organisation and for the future of neurotechnology (but all participants will inevitably have some personal stake in the outcomes too!)**. The ITGO hopes the workshop will produce actionable, evidence-based recommendations to the UNSC that will enable neurotech's benefits to flourish while minimising its inherent risks.



Participating Countries

Bria

Bria is a large and wealthy nation that is the political and economic leader in its region and an innovation leader globally. It is led by a centre-right government that emphasises economic growth, prosperity, and free-market ideals. The economic prosperity of the last few decades has largely been due to its strong investment in industry innovation, led by the privately-owned Medormar Corporation, a company with diverse technology projects.

Bria is known for using its international influence to protect its technological supremacy. This has made the government popular with citizens, but on occasion has created tension with Bria's neighbours, who tend to see it as unwilling to compromise in diplomatic negotiations and willing to use its economic power to get what it wants. Bria's early investment in neurotechnology has made it a world leader in the field and the Government had announced additional investment of \$500 million into the technology over the next 10 years.

Population: 128,000,000 (census last conducted in 2019). The generally well-educated population mostly live in large urban clusters throughout the country (with over 80% of the population in these cities), particularly on the Western edge of the country bordering Lauze and Solte; mountainous areas in the centre of the country with deserts in the northeast.

Government type: Constitutional federal republic with bicameral legislative branch

Solte

Solte is a small nation with skilled researchers and engineers but not enough scale or funding to compete with larger, more wealthy countries in most fields of tech development. Instead, Solte works collaboratively with others internationally and offers **generous research grants to attract promising scientists and engineers** in emerging fields to their research institutions. This has particularly paid off with regards to neurotechnology, as a pioneering scientist born in Wakke, but studying at Solte's largest university, has made several breakthroughs and established Solte an outsized player in the field.

The centre-right government of Solte has a strong history of political and financial investment into its science diplomacy, relying on science partnerships and sharing agreements to stay technologically relevant. The country also has a long history of social welfare innovation, with the highest tax-free income level in the world and a few trials of Universal Basic Income in particular regions.

Population: 6,000,000 (census last conducted in 2020). Population Distribution: one major city in the Northern region, and a series of fishing villages/towns towards the South; vast forests are distributed throughout the country, although a lot of this has been cleared for farming in the past.

Government type: Federal republic with six states/regions represented in a unicameral legislature

Wakke

Wakke is a nation with limited wealth and relatively low technological capability, though this is steadily changing with its recent investment in education and research. Still, it is strongly affected by the impacts of global challenges like poverty, pollution, and climate change. The country has an agrarian and manufacturing economy and ultimately ends up being a critical provider of goods to its richer neighbours. It suffers from brain drain with the migration of skilled workers to countries with stronger economies. While there are some **early-stage startups in Wakke, of which WK Tech is the most successful**, many of the country's most promising scientists and engineers choose to go elsewhere for greater opportunities. **One particularly prominent Wakke-born researcher has become the nucleus of Solte's burgeoning neurotech research sector.**

Bria provides significant amounts of foreign aid to Wakke and was supportive of its petition to participate in this ITGO workshop. However, the government of Wakke is conscious that it needs to set out its own path and doesn't want to be overly dependent on others. To that end, the government has been investing in education to grow its own people, including full scholarships for high-performing students to attend overseas universities as long as they return to Wakke and spend at least ten years contributing to local businesses. In addition, to attract investment, the government has also relaxed its personal and corporate taxation structure. This has drawn some concern from Bria in recent years, which is worried about losing business. Bria may start reconsidering its aid to Wakke.

Population: 32,000,000 (census last conducted in 2020). Population Distribution: the capital city is on the Eastern edge of the country, with a number of satellite cities nearby, with the rest of the population distributed between smaller towns and villages throughout the country; most forests have been cleared for farming and industrial hubs, although there has been a recent revival of tree planting activity in the West.

Government type: Unicameral parliament directly elected in single-seat constituencies

ABOUT INGSA

INGSA provides a forum for policy makers, practitioners, academies, and academics to share experience, build capacity and develop theoretical and practical approaches to the use of scientific evidence in informing policy at all levels of government.

Anyone with an interest in sharing professional experience, building capacity and developing theoretical and practical approaches to government science advice is welcome to join INGSA.

By signing up to the INGSA Network you will receive updates about our news and events and learn of opportunities to get involved in collaborative projects.

Go to <http://www.ingsa.org> for more information.

This simulation was developed under the auspices of the Geneva Coalition on Anticipatory Science and Diplomacy, initiated in 2021 by the Geneva Science and Diplomacy Anticipator (GESDA) encompassing 14 Swiss and global institutions to empower the current and next generation of leaders with a multilingual mindset in science and diplomacy.

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