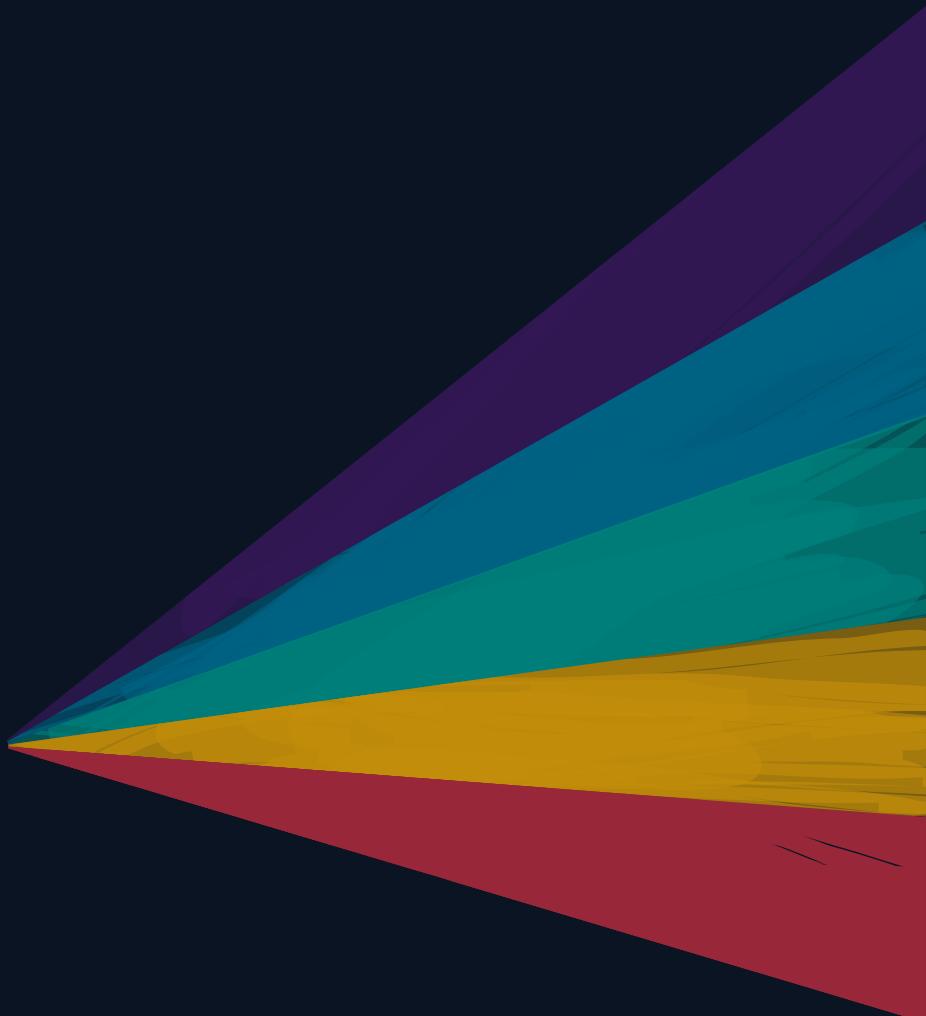
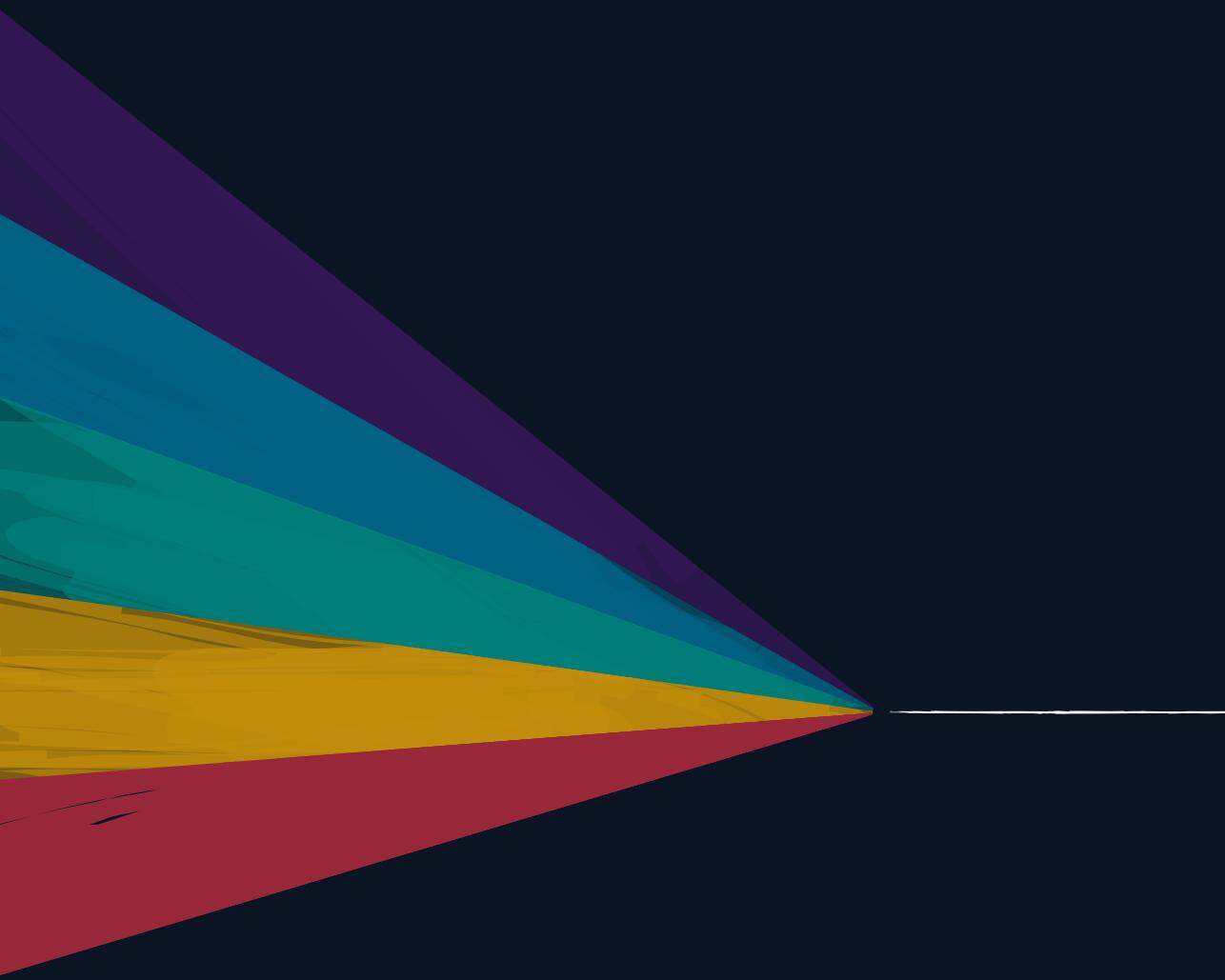


TWENTYFORTY



Benedikt Fecher (Ed.)



UTOPIAS FOR A DIGITAL SOCIETY

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OPEN ACCESS AND FURTHER MATERIALS

Besides this book, other products and publishing formats have emerged in the context of *twentyforty*. We have set up the website twentyforty.hiig.de, where the entire book is available to view and download—via open access. The website also features background information on the texts, as well as discursive and educational resources.

The book is licenced under CC BY-SA 4.0.

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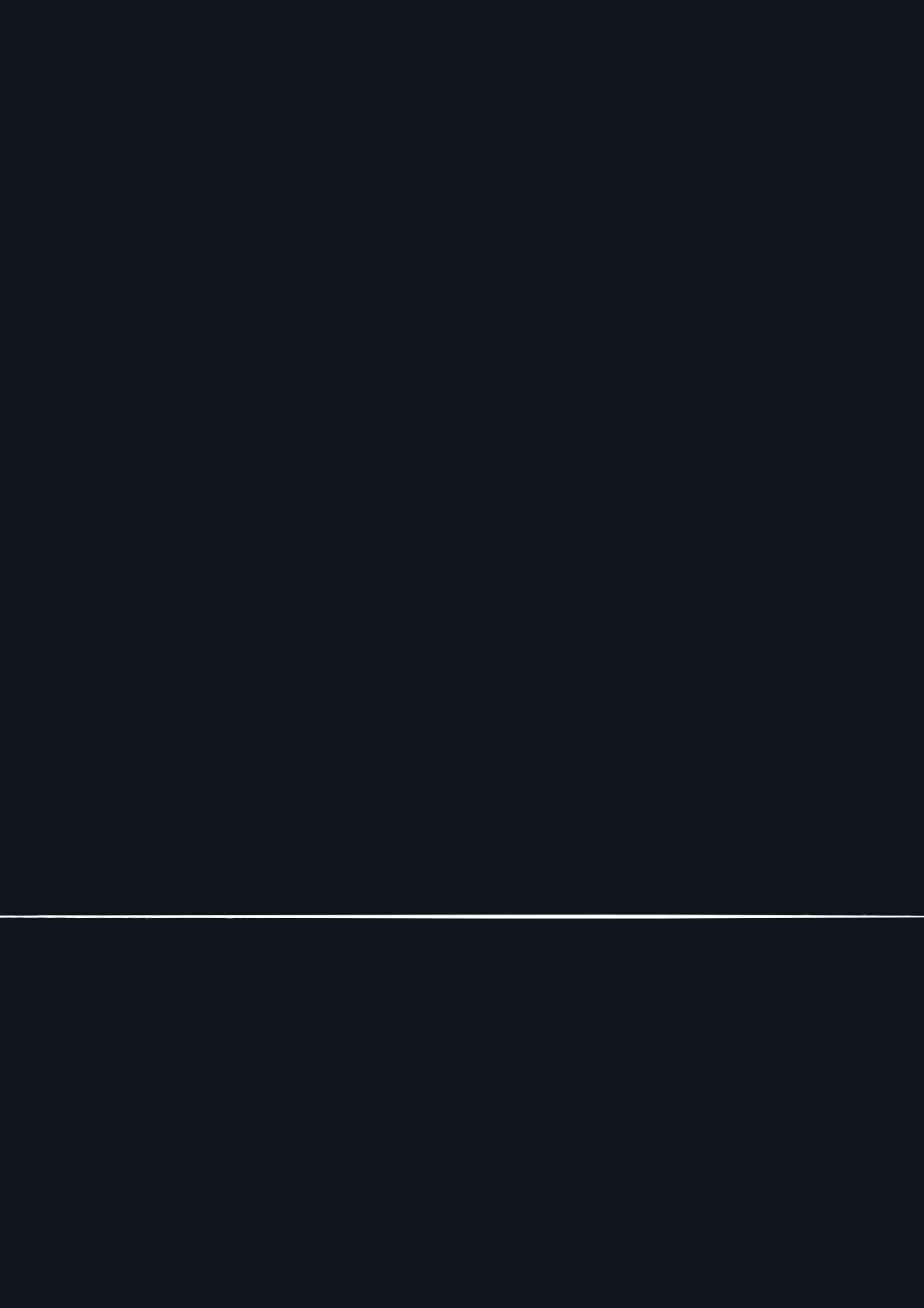
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An Unlikely Experiment

A Foreword by Benedikt Fecher, Bronwen Deacon,
Timothée Ingen-Housz, and Natalia Sokolovska

On a rainy morning in May of 2019, we set off to Klein Glien, a small village an hour's drive from Berlin. On board of our bus were thirteen researchers from all over the world. Women and men, who had resolved to spend the next four days crafting their own personal utopias for tomorrow's digital society. We had invited them after selecting their entries into our essay competition *twentyforty*. Our goal for the next few days was to help them turn their burgeoning ideas into stories that would entertain wide audiences and explore possible futures for the digital society.

The old manor house in Klein Glien, with its squeaky floorboards, wood-burning stove, and sauna barrel in the garden, is certainly not a regular workplace for a researcher. It is secluded from the hustle and bustle of the big city and is located in the middle of nowhere, at the foot of the second-highest mountain in the state of Brandenburg (standing a full 200 meters tall). This is where the writing camp took place. It is an almost absurd place for thinking about the future in superlatives, but actually turned out to be the perfect environment to do just that. It is a place that invites you to leave the constraints of the present behind and to let your imagination bloom. We

had no expectation of what would happen over the next few days, besides our hope that thirteen stories would come to life.

That's what twentyforty is: an experiment without a hypothesis. An experiment that is unlikely to succeed. Why?

You have to know, dear reader, that as a researcher, you follow two rules:

RULE 1: DON'T TALK ABOUT THE FUTURE.

Uncertainty is an important scientific virtue. Dealing with this uncertainty is also one of the basic components of communicating research outputs. No form of knowledge is ever final and can always be subjected to doubt. No result is the ultimate wisdom. This insight, which is at the core of the great philosopher of science Karl Popper's critical rationalism, is a condition under which almost every researcher works. As a result, researchers are good at making sense of the past and criticizing the present. The future—emblematic of uncertainty—is often not the main business of academics. It may be this very ethos that has contributed to researchers struggling with a new kind of mission: contributing actively to a sustainable future.

Researchers are increasingly expected to translate their knowledge into accessible narratives, to explain complex issues in understandable images and words, and to generate actionable knowledge that others can relate to. It comes as no surprise that Fridays for Future, the global student movement demanding action on climate change, is turning to science. Its figurehead Greta Thunberg is constantly calling on politicians and business leaders to listen to the scientists. Rarely before have researchers been in the spotlight so prominently. They are asked to play a more active role in the creation of the future, a task that is challenging for them because they cannot *know* the future for sure. Formulating future scenarios can challenge their self-image.

This prompts a seemingly obvious question that only people not working in research may dare to ask: why *should* it be unscientific to think about the future? If you ask us, this question is perfectly reasonable. Why shouldn't we be allowed to take a critical scientific stance in thinking about the future—towards what is not yet known. Wouldn't it be scientific, in the best sense of the word, if researchers examined utopias and investigated, with the best available knowledge, why they cannot become true? Using those results, we could create the best possible world. A Karl Popper turned toward the future. We would have a sort of prospective method of falsification that would turn peer review to peer preview.

With *twentyforty*, we decided to risk it and turn it into an experiment. We wanted to encourage researchers to confront the paradigm of uncertainty and engage creatively with potential futures of the digital society. We wanted to set an example of prospective falsificationism.

RULE 2: DON'T TELL STORIES.

There is yet another, much more profane reason why *twentyforty* was an experiment unlikely to succeed. Researchers do not tell stories for a living. In fact, they're not even used to talking to people who are not researchers. Their target group is, well—other researchers. They even prefer speaking exclusively to those researchers working in their own domain. They court recognition through articles published in magazines that are almost exclusively read by their peers. The more likes (citations) researchers get for their articles, the more of a researcher they get to be. The decisive impact researchers strive for is a scholarly impact, not a societal one.

If we expect researchers to be involved in society, we need them to be able to translate their findings into a language that is accessible to the hearts and minds of those who cannot afford to engage with their research. Nobody else can do it for them. Nobody taught them. It's not enough anymore for researchers to be fully immersed in their object of enquiry; they need to develop a way of speaking that makes their work and tools relevant to others—to the world we are all co-creating with our words and deeds. It's about finding the images, the characters, the voices, and the cues leading others toward the treasure island, in order for them to see, hear, think, and feel what tomorrow may be made of. In academia, only few are equipped with the right tools and the desire to do just that.

Writing stories, of course, makes our authors vulnerable because they leave behind everything that is familiar to them. They entertain assumptions, they fill in the gaps, they speculate, and they exaggerate. They have to be brave enough to invent something new. These thirteen stories are not just about any kind of utopia—they are written by researchers who had to break free from the “peer prison” in order to think beyond their regular horizons, visualize another public, develop another language, and construct another form of argumentation. In other words, these are researchers who embrace their storytelling mission because they want to let us see beyond the obvious and apprehend unforeseeable societal implications. They are researchers who transport us into a speculative tomorrow only they can grasp due to the privileged vantage point of their own research.

We didn't just want researchers to think about the future. We also challenged them to develop their own language for telling stories. A contradiction, a dilemma, a problem—something to wrestle with. A truly unlikely experiment.

BENDING THE RULES

Rules are there to be challenged. This, as Popper teaches us, is what it means to be strictly scientific. Nevertheless, these two (remarkably stupid) rules persist in academia and it takes a certain degree of courage to bend them. The members of our group came from remarkably different backgrounds: a digital geographer, a computer scientist, two communication scientists, four legal scholars, a dementia researcher, three political scientists, and an educational researcher. There were authors from ten different countries, united by their desire to shed light onto the mysteries of a digital world to come.

Take, for instance, Claire, a legal scholar specializing in children's online privacy, or Mark, a geographer exploring how maps reflect and reproduce digital inequalities. There is also Preeti, who researches biometric authentication failures in the Indian public distribution system (PDS). None of them were professional storytellers. They all took a leap of faith. Our authors had to leave behind the comfort zones of their scientific framework to develop stories that would make their knowledge and assumptions come alive in the mind's eye of their future readers. The authors had applied for *twentyforty* in five different categories that each depict social developments in their broad outlines. These categories constitute the chapter structure of this volume, even though the stories naturally exceeded their assigned scope.

In the chapter, "Love," we discover various scenarios exploring how human relationships become entangled with technology. In "The End of Feelings," Kamel Ajji explores how humans tolerate, challenge, and confront the algorithms that govern their choices and perceptions. We follow the main character's struggle in deciding whether he should join a dating service or not. As the story goes on, we gain new perspectives on algorithmic matchmaking and its consequences for individual freedom and our concept of love. Burkhard Schafer's "Digital Pharaohs" is a short play for the stage featuring a young couple living in a society determined by AI. The inhabitants of his world routinely train AI systems by feeding them with their personal preferences, ethical commitments, and normative

inclinations. They do this in hopes of leaving behind a “legacy AI,” which is a remote presence trained to guide and advise the next generation.

In the following chapter “Live,” the authors imagine what our daily lives will look and feel like in 2040. In “Everyone is a Narcissist Together,” Robin Tim Weis foresees visits to the bathhouse becoming a constitutional human right. Due to the rapid advances in artificial intelligence (AI) and the resulting reduction of the working week to fifteen hours, humans overcome the long-held compulsion to view time in terms of productivity and allow new dimensions of self-experience to unfold. In her short story “Living in Togedera,” Ruth Bartlett pictures a society in which care homes for the elderly have become obsolete and senior citizens who need round-the-clock care can stay at home thanks to robots. Preeti Mudliar’s short story “In Mangal’s New World” invites us to discover the struggles of marginalized communities who are vulnerable to top-down technological diktats. Mangal’s rebellion ushers in a long-lasting socio-technical revolution that changes the way people live in 2040.

The following chapter, “Learn,” centers around educational questions. How will we teach and learn in the future? Grif Peterson’s piece, “Something I Noticed,” is a series of thirteen email threads dated between April 10 and May 9, 2040. Written in the form of a stylized leak, they reveal the internal sabotage of the largest US educational corporation, Kuneco. In her collection of short stories titled “The Translators,” Viviane Dallasta explores how values like autonomy, responsibility, and creativity will be rescued and empowered in a technology-savvy world. In his essay “Academic Complexity: A Sketch of the Next University,” Dirk Baecker looks back at the history of the university in order to design a blueprint for a new type of future institution that is designed to navigate various kinds of complexities rooted in practical, emergent, real-world-oriented situations.

The chapter “Work” presents stories that speculate on the nature of the future of our working lives and which forms of societal organization they may produce. In “From Dark Roots to Shared Routes,” Emma Beauxis-Aussalet explores a future in which Natural Language Processing (NLP) technologies, formerly used to manipulate people through commercial and political campaigns, are being repurposed for the greater good. Mark Graham’s “Platform Socialism” follows the lives of three ravers in three distinct moments in the evolution of the platform economy. Their desire for freedom initiates the beginning and accelerates the downfall of corporate power.

The authors contributing to the chapter “Rule” explore what policy-making may look and feel like in the future. Isabella Hermann’s short story

“The Manifesto” shows us how far AI has progressed in the year 2040. An entry in the official “European Political Information Service” reveals that it will no longer be used to augment or improve human life but to de-optimize it. Claire Bessant’s piece “What Would You Rather Be: A Privacy Have or a Privacy Have-Not?” discusses the concept of privacy in times of ubiquitous technology and social media. In her diary-like narrative form, she envisions a world in which privacy has created a wealth gap that divides society into two distinct factions (Privacy Haves and Privacy Have-Nots). In his story “Operation Beyond Fun,” Gianluca Sgueo speculates what effects changes in game design might have on participatory democratic processes.

BEYOND THE BOOK

We live in interesting times. As much as we may fear what lies ahead, looking away will not be the answer. There’s no time for looking back but there are different ways of looking ahead. We want to be able to peer into the distance with different eyes—indeed with new eyes, with eyes that can see things we would never be able to decipher otherwise. These are eyes we would like to borrow because they’ve looked at things no one else has deemed worthy of looking at. In other words, we want the eyes of a researcher.

The authors of *twentyforty* remind us what utopian scientific writing ought to be. Not just in its epistemological contestability but also in its communicative undertakings and in its relentless effort to spread, communicate, and share the transformative potential of research and technology for society—utopian scientific writing does this in both the good sense and the bad. It often begins with the desire to manifest itself in the form of fables, stories, visions, allegories, anecdotes, and poems. All of these are previews of a different tomorrow.

The end result is this book that is not actually a book. It’s a collection of thirteen extremely different stories. Thirteen utopias? Certainly not. Almost all of these visions arise from a moment of concern or critical reflection. Some stories even have dystopian traits. Yet in every single one of them, there is a spark of hope. And most importantly: they will all make you think. This is what the experiment may have managed to show—that the future is not unthinkable.

Did the experiment succeed? You decide.

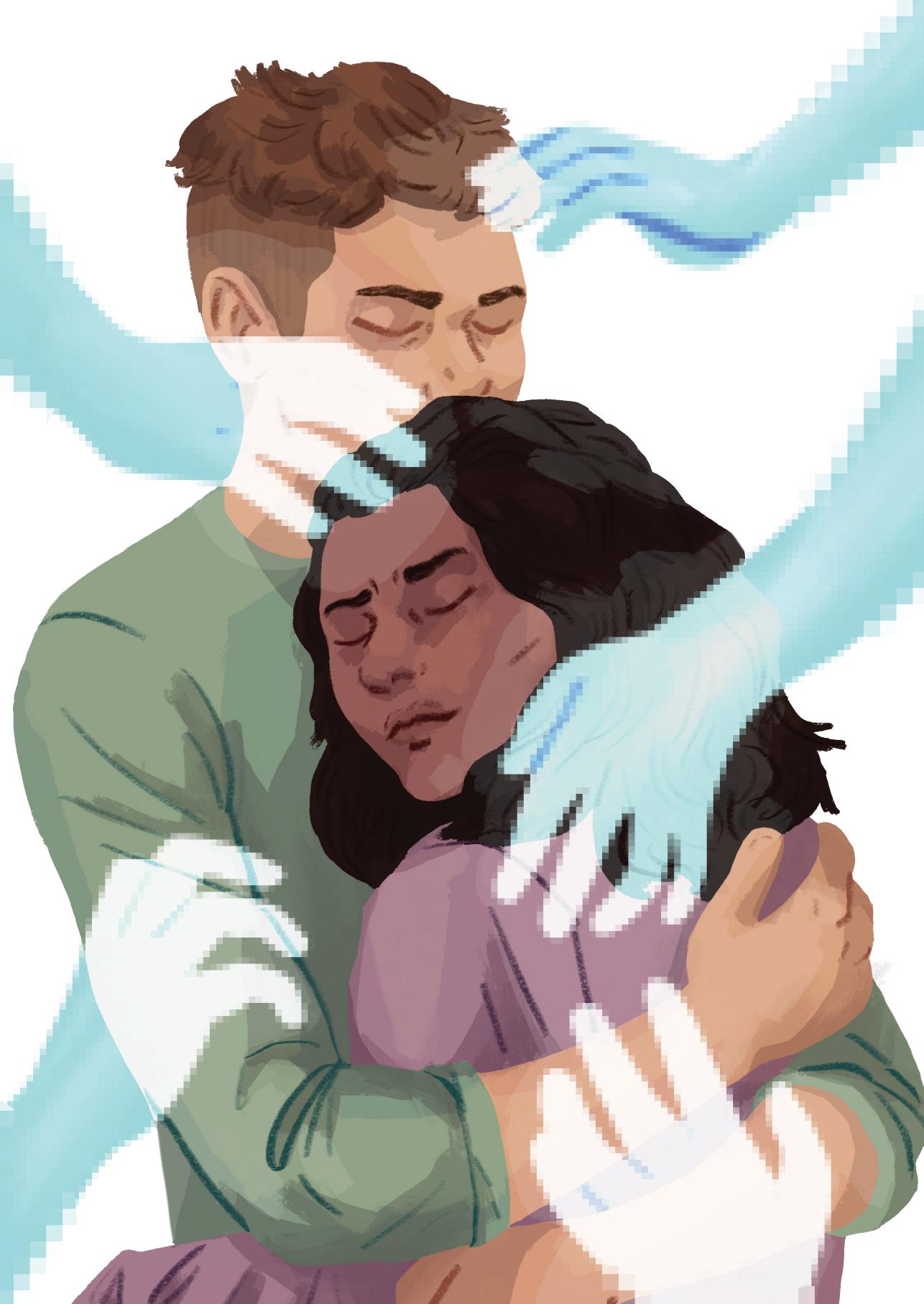
ABOUT THE AUTHORS

Benedikt initiated *twentyforty* as head of the research program Knowledge and Society at the Alexander von Humboldt Institute for Internet and Society.

Bronwen is a research assistant at the Alexander von Humboldt Institute for Internet and Society in the research program Knowledge and Society. She functioned as project manager for *twentyforty*.

Timothée is a professor at the Berlin University of the Arts, where he teaches audiovisual conception and dramaturgy in the Department of Communication in Social & Economic Contexts. He joined *twentyforty* as a creative writing coach and has accompanied the project ever since.

Nataliia is a researcher and project manager in the research program Knowledge and Society at the Alexander von Humboldt Institute for Internet and Society. She was part of the *twentyforty* team from the beginning.



LOVE

How will we get to know people?
How will we stay in touch? What
will define our relationships?

CHAPTER 1



“Love does not rule, but is ruled.”

KAMEL AJJI

The End of Feelings

Every morning, Adam activates a chip on the back of his ear. His social interactions will be neutralized for 18 hours. In a society where feelings are governed, should Adam join a dating service to find love?

What are the costs of resistance?

INTRODUCTION

“The End of Feelings” is a short story that offers an original perspective on the consequences of algorithms on relationship making and individual liberty. It draws upon the current research on algorithmic bias in the context of dating apps, and extrapolates its effects with regard to individual liberty, the essence of love, and its plural configurations in today’s global society. This text raises a question about the extent to which

we accept algorithms governing our perceptions and choices. Relationships are a key aspect of life, personality, and well-being. To many, “love” seems to be ruled by a great number of empirical factors that cannot be controlled or rationally explained. The story plunges the reader into a world where technology eliminates uncertainty. Does free will mean the ability to make a decision without anyone’s interference

or control? Or do we exercise our free will when we make the best decision that fits our situation (thus accepting interference by third parties)? Allowing a company to make people's choices with regard to relationships means giving this entity a tremendous power, not only over people's decisions, but over society, its laws, peace, and politics. On another level, the story invites readers to think about the structuring role that love and relationships play in today's and tomorrow's societies.

Will technology kill love and feelings or magnify them? This story is written as a novel, in the sense of a plausible extrapolation of reality. The utopian or dystopian quality of the text is left to the reader's consideration. To the author, the utopia is the reader, and what they will make out of the story. If they decide that this future is desirable, so be it. If not, they will have to think about how to protect feelings and love from the unlimited use of algorithms.

Every morning at 8:00 AM, Adam double clicks on the back of his right ear. A nanosensor starts a program that analyzes his heartbeat, level of sleep, stress, and empathy. His iris contracts rapidly. Three times. For the next eighteen hours, his social interactions will be adjusted. The risk of conflict is reduced, as the program adjusts, by means of microelectric impulses, his facial and cardiac reactions in line with his counterparts' words and expressions.

Adam ardently desires two things: to be respected and loved. As a lawyer, he masks his feelings to represent his clients' interests. Perfect trick. State of the art. Excellent results. Yet outside work and despite efforts, he cannot keep his attraction to women a secret. Adam's attitude, body temperature, and interactions constitute "primary behaviors." Women keep away from him. Any eye contact is furtive, ashamed, or suspicious.

Despite such mishaps, Adam has always refused to use a service that would help him to achieve love. Most of his colleagues and friends have embraced it in recent years. While he has doubted the effects and remained single, Andrew, Sarah, and Noor—his closest friends—have got married and look satisfied.

At lunch, they often discuss Adam's reluctance to join the movement.

Noor: "Have you joined yet?"

Adam: "I'm considering it."

Sarah: "Your interest in primitive relationship-making is bizarre. Why do you bother with feelings?"

Adam: "I just ... I wonder if Life is the algorithm I believe in. Why couldn't we just meet people naturally, the old-fashioned way? People managed to do it before the Transition."

Sarah: "It's flawed, from the beginning. If 'Life' could speak, it would tell you we were right to govern our feelings. All societies have decided to preserve public order and harmony by using technology to veil our emotions. Our chips are the condition of our freedom. They are our freedom. Feelings were a source of paternalism, jealousy, competition, resentment, violence, crime, lack of control and even war ... I only see the negative aspects that hurt the community for so long. Uncontrolled feelings sound like noise and deprive us of our right to harmony and peace. Is this what you want for us?"

Adam: "No, I actually never thought of it this way. I just like the beauty of human feelings. A part of me can't renounce them."

Noor: "But love demands renunciation, Adam. If you are not ready to renounce your 'feelings,' then you cannot welcome love. Your faith in life is not being taken away from you but revealed to you and you are not able to accept it. We did, and it worked thanks to Lover-Beloved. It will for you too. Except if you keep believing in the old false promise of uniqueness and individualism. We are all the same Adam, whether you like it or not."

Adam: "You're probably right."

On his way home, Adam feels stunned by this conversation. Noor and Sarah can't understand his aspirations. Alone at night, before falling asleep, he reads a few lines and poems from his mother for inspiration and perspective. These pieces always served to guide him when he was growing up.

Life is a silent teacher.

Love is the unseen, the unheard, the unsaid.

Love is the cement of our soul.

*I want the Other in her greatest otherness,
To feel the difference,
May all things separate us,
May a wire connect us.*

The algorithm you look for is yourself.

We are the algorithm of Life.

Life is our algorithm.

Nothing within Adam wants to surrender. No private company or chip could ever be the key to love. Love is like the wind. You cannot see it, grasp it, or control it, but only perceive its effects. It is there, slapping your face or caressing it. No one can deny or renounce the wind, he thought.

Yet, Adam's inner resistance to the discipline of a private company slowly starts to erode. Noor's insights about renunciation haunt him at night. Nothing he has tested so far has changed his reality. His patience, efforts, and faith in love have never been rewarded. Maybe he is inflicting torture on himself by being attached to an idea that is never borne out in reality. He was the first to resist the solution and the last among his relatives to believe in love. Why so much resistance? Would adhering the service mean surrendering his hope and therefore himself? Could renunciation be the door to love and the company its key?

On his way back to work, and as doubts both discolor and stain his mind, Adam is shown ads visible only to him. "Why would you renounce Love Adam?" "What matters to you? An ideal, or Love?" "We know who is there for you," "Break Up with Doubts. Embrace The Path. Join Lover-Beloved." These words sent shivers to Adam, who felt his tears instantly being dried, then relieved. He just decided to alter his feelings in order to "adjust," and accepted Lover-Beloved assistance called "The Path."

He thought he would act as the Trojan horse in the system, not to take it down but to prove that, despite the mechanism, he could still love. Before joining, Adam burned the lines he had written about the company in protest before the Transition.

You make yourself the relationship surgeon,

Open the wound before it exists.

Close it. You know the protocol.

Scar upon scar,

Experience after experience,

That is what humans are meant for.

What is essential is to be a good surgeon.

Lover-Beloved, the service Adam adhered to, identifies partners that will be a good fit for him based on his character, skills, and long-term expectations. On a daily basis, the program monitors his diet, his exercise

and walking habits, the time he spends in front of screens, his sleeping patterns, and his overall aptitude for well-being. Adam has nothing more to care about than being himself. Lover-Beloved pairs his profile with selected candidates and determines if, when, and where they should meet based on their schedule.

This morning, Adam received a notification. At 7:30 PM, he will have dinner with Julia, a software engineer, in her favorite restaurant near her office. As a thirty-two-year-old single male, Adam cannot afford to miss this opportunity, or he could face being down-ranked or banned from the service. During the day, he tries to remain focused on his work but actually wonders what Julia looks like, how he will entertain her with conversation, and if their life will be as satisfying as Lover-Beloved promises.

The company doesn't just match people; it assigns them to each other. A nine-billion human community convinced the CEO to improve "Love experiences" by reducing the time and cost of searching for one's soulmate. In 2030, Lover-Beloved ran a global survey showing that 78% of connected humans thought they lack the skills to manage their emotional life, and 62% do not know precisely the type of relationship that would fit their needs. Chance is a relic of the past since technology allows for efficient adjustments. With 1.2 billion couples formed over the past decade, the company has convinced more than 3.5 billion singles to trust its service.

Nothing to fear, nothing to feel.

7:00 PM. Adam leaves the office. A cab drives him to the restaurant where Lover-Beloved has made a reservation. Fifteen minutes before Julia's arrival, the program displays images of Adam's past life on his phone. His loneliness on vacations, the fear of marginalization, the list of failed relationships shows up illustrated with past messages, comments, status, and pictures. "Julia is the one. Your Other," announces the screen.

As Julia enters the restaurant and walks across the room, Adam contemplates the end of his bachelorhood. "Hello Julia," says Adam with confidence. "Hello Adam," replies Julia with a smile. Lover-Beloved records their conversation to make sure that the level of engagement meets the prediction. After a long dinner and a few laughs, Julia and Adam connect their phones. They adjust their behavior to maintain a sound connection, send a report to Lover-Beloved, and decide to "seal and share."

From now on, the couple will be recognized as supported by the company and known by other people. No ring. No contract. Lover-Beloved offers them a new family name for a fresh start. Love requires a renunciation of past allegiances and suffering, which the Lover-Beloved Code provides.

Julia and Adam were born to meet. In fact, Lover-Beloved assigned them based on their school work. At seven, they showed similar interests and complementary psychological failures, making them a perfect-neutral couple. Search, the once most powerful online query service and now personal aide, promoted their application to university and jobs so as to follow the plan by showing evidence of their curiosity about engineering and law based on their readings. Lover-Beloved was waiting for Adam to join.

June 2042. Caleb was born during Julia and Adam's vacation. As the family settles in their new apartment, Lover-Beloved offers the baby free access to the service for 20 years as a reward for his parents' trust.

On his birthday, Adam receives a new notification. Lover-Beloved has found a new partner for him. He will leave tonight.

Love does not rule, but is ruled.

The End.

KAMEL AJJI

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Kamel Ajji is a doctoral candidate in law at Paris 2 Panthéon-Assas University and was a resident fellow at the Yale Law School Information Society

Project. His research focuses on the relationships between governments and online platforms and their consequences for civil liberties and democracy.



“You see, thing is, we might not have much more time together. Thursday next, we’ll vote. All of us. Well, all who can be bothered. Everyone on earth alive now, on what the leaders of the ‘yes’ proposition call the ‘great emancipation from the past.’”

BURKHARD SCHAFER

Digital Pharaohs

A Play in n+1 Acts Unless Machine Halts

ZombAI apocalypse or digital immortality? Will AI break the intergenerational contract? In a post global-warming world, a couple has to decide how much influence it wants to give to the digital ghosts of the past and find their destiny.

INTRODUCTION

The play “Digital Pharaohs” depicts a society where people routinely train AIs on their personal preferences, ethical commitments, and normative inclinations in the hope that these “legacy AIs” can, after the death of their owner, give guidance, advice, and help to the next generation(s). In this society, wills and testaments are supplemented or replaced by these dynamic, continuously learning and adapting computational

artifacts. But as Arthur C Clarke noted, “Behind every man now alive stand 30 ghosts, for that is the ratio by which the dead outnumber the living” and for some the dead hand of the past has become stifling and oppressive. The piece centers around the trials and tribulations of a young couple at the eve of a referendum. The question: should all “legacy AIs” be deleted 20 years after the death of their owner, at the

latest? Between them, they cover the positions for and against this proposal, reflecting in the process also on their different backgrounds and personal experiences: immigrant versus native; rich versus poor; looking to the past versus looking to the future, communal versus individualistic conceptions of society etc. Throughout the play, the theme of memory and the desire for immortality and remembrance as anthropological constants through time and space is evoked, to put into a much wider historical and cultural context what might otherwise seem to be a very current and unprecedented technological question. The ability to record our lives digitally, and to sue technology to create “digital afterlives,” has become a topic in legal research since the “resurrection” of the rapper Tupac in the form of a hologram, and more recently through concerns about the way in which social media platforms such as Facebook curate (and commercially

exploit) the profiles of their members even after their death. To what extent can the resulting problems be resolved through “better technology,” when should the law intervene, and what are the underlying visions of a good society, intergenerational fairness and our treatment of the past? The play leaves open the outcome of the referendum, and also the choice of one of the protagonists. So, too, the reader will have to decide if the vision depicted in the play is utopian, dystopian, or a mix of the two, and if the latter, how it could be turned into something better (through tech, law, cultural, and social practices etc.). The format of a play was chosen to bring in the necessary context through stage directions and props, hopefully “showing” the issues rather than, as academics normally do, telling about them. It also allowed the two positions to be given their own voices and to avoid trying to resolve a complex issue prematurely.

SETTING

A mountain house in the Dolomites.

DRAMATIS PERSONAE

Dolasilla, a young woman from Bozen
Dwyfan mac Bóchra, Dolasilla's husband, a climate refugee from the Isle of Lewis
Chorus
Speaker 1, 2, and 3 from the Chorus
A TV news anchor
A reporter
Professor Sara S. Wati, a cybersecurity specialist
A soldier
Alexa (voice only)
Roomba

ACT 0+1

Projected on the screen behind the stage:

"Behind every man now alive stand 30 ghosts, for that is the ratio by which the dead outnumber the living." 2001: A Space Odyssey, Arthur C Clark

"Follow me; and let the dead bury their dead." Matthew 8:22

Screen goes dark, light on stage, a kitchen. Dolasilla works with her back to Dwyfan, who sits at the table.

Dolasilla: So ... <silence>

Dwyfan: <silence> So.

Dolasilla: So, did you finally submit your ballot paper?

Dwyfan: There are still three days left.

Dolasilla: We agreed we'd both be doing this.

Dwyfan: Yes.

Dolasilla: And doing it on our own ...

Dwyfan: Yes, already!

<silence>

Dolasilla <exasperated>: You are going to consult *it* ...

<silence>

Dolasilla <more angry>: You are going to consult *it*, even though we agreed not to! We agreed that we'd make the decision ourselves. We, on our own—our generation saying what *we* want for a change, what our interests are, and even if we use that freedom for nothing but to surrender it to the AIs, if that's what most want.

Dwyfan: Oh, come on, I call bullshit.

<Roomba comes into the room, cleaning floors, he moves out of the way>

Dwyfan: We are not at one of your rallies, and this is not Terminator XII, the Rise of the Returned Machines.

<Roomba bumps into him from behind, makes him lose his footing a bit, he aims a kick at it>

Dwyfan: This is just how we want to use a tool, that's it, no point hyping it or making it some big symbolic thing it is not

<Roomba gets even louder>

Dolasilla <even louder>: So, if it's not a big deal, why haven't you just voted already?

<moves out of the way of Roomba, Roomba gets more noisy, forcing him to shout now>

Dwyfan <animated>: I didn't say that. Deciding to burn down all libraries would be important too. Deciding to melt down the Eiffel Tower or to use

the Mona Lisa as kindling would be a big thing too, just not the end of the world, or of the tyranny of books.

Dolasilla < shouting>: It could be, if the alternative is to freeze to death.

<noise of a Roomba begins to drown out speech>

Dwyfan <shouting, but inaudible, drowned out by Roomba>: But we aren't freezing.

<Roomba suddenly cuts out, silence>

Dwyfan <still on top of his voice>: ... All this is really about is that you did not get along with your parents the way I did with mine.

Dwyfan: ...

Dolasilla: ...

Dwyfan: ...

Dwyfan: Oh marmot, I'm sorry ... I did not ... I ...

Dolasilla: ...

Dwyfan: That was a shit thing to say, sorry. But my real point stands. You are just begging the question if you think that consulting them means letting them govern us.

<Roomba starts making noise again>

Dwyfan <louder>: It's always been our choices, they advise us, but they never made us do anything we didn't want, consciously or subconsciously.

<Roomba even louder>

Dwyfan <exasperated but glad about distraction>: Why is this bloody machine in here anyway, why can't it do something else first while we talk?

Dolasilla <sweetly-maliciously>: Why, but darling, don't you remember? The ZombAI that is your uncle John Stuart McCaig's legacy program optimized

cleaning costs against our observed average space usage and drafted the cleaning contract. Remind me, what did it do then? Oh yes, put the whole bloody thing on a blockchain, so that we could not change it, ever, so the cleaning bot comes automatically at the allotted time as long as John's legacy trust pays. Blockchain ... that was that big stupid thing just before he died, wasn't it, 20 years ago? And even if we could make our own arrangements, you know we've been told the trust fund might evoke the "allowance to be cut if my nephew ever turns out to be a wastrel and spendthrift and good for nothing" if we overrule the AI? Uncle John, who made your aunt cook potato peels for soup but spend oodles of money on his mausoleum? And that's why we aren't supposed to be in our kitchen right now, it's the Roomba's house now ...

Dwyfan <grinning>: Don't call them ZombAIs, you disrespectful creep.

Dolasilla <grinning, arms extended>: I need to find a brain, a brain in this room.

Dolasilla <walks towards him, stops, then continues to walk past him>: Need to find brrrrrain ...

<scoops up Roomba>

Dolasilla: OK, let's see if we can fix this little brain of yours, shall we?

Dolasilla <to Dwyfan>: Shush, be a good data point; do what the house-usage optimization algorithm decided for us and play somewhere else, while I sort this

Dolasilla <to his retreating back>: Oh, and one more thing you can do while playing outside.

Dwyfan <turns head> Yes?

Dolasilla: FILL IN THAT FRIGGING VOTING FORM ... no cheating!

<exit him to the right>

Dolasilla <talking to herself, while taking the Roomba apart, which keeps making noises>

<sighs>: And while you are at it, for fuck's sake grow up. Yah, told you so and all that, thanks Mom. You said I was dating an insecure child when I first brought him around for lunch to meet you and dad. And you *keep* telling me this, now that you're dead for these past ten years, and what is left of you is on a frigging silicon chip with insufficient RAM and a way-too-cheap learning algorithm. *Every* time we speak, which thankfully isn't that often. Just often enough that your AI does not terminate the trust fund and gives it all to the cats. And why won't he grow up? Because *his* folks spend much more on *their* legacy AI, and his grandmothers' and mother's perfectly deep-faked digital ghosts, hair-spikes and crows eye and all, hover over his shoulder, metaphorically speaking, and tell him to be a good boy even when the bloody thing is switched off.

But we don't owe you. In fact, what gets to me most is that it was your generation that screwed it all up for us big time, yours and grand-dey's. You left us so little. You depleted the world, heated the seas so that you could, what, put cat images on the least energy efficient database design possible, or fly the globe to give talks about the harms of flying? What a hypocrite you were, mom. What did *our* generation inherit, apart from *your* problems? You used your wealth to build an economy without property. You didn't own cars, you just called Ubers, no homes, you just stayed in Airbnb, no books, but licenses for streaming services that died with you. I wasn't even allowed to keep the notes I added to the eBooks you read to me as a child when you died. Not only did you leave us this mess, but now your personalized AIs keep telling us how useless we are, and how to live our lives better? The track record of your generation isn't exactly stellar on that score, is it?

Chorus left <whispers>: Remember us. When did this story begin? A hundred thousand years ago, when under a hot Mediterranean sun, our sons and daughters first learned to paint our skeletons in rich ochre, burying them with grave gifts that took food out of the mouth of the living and gave it to us dead? Remember us.

Chorus right <whispers>: Remember me. When did this story begin?

Speaker 1: Remember me, your Pharaoh, as I won't let you forget me. I harnessed the technology and the power of my empire for that one purpose: *I will not be forgotten*. No hardship too hard.

Chorus left <whispers>: For my people,

Speaker 1: No cost too high

Chorus right <whispers>: For my people,

Speaker 1: For generations to come and in all eternity, when you wake up in the morning, you will be reminded of me when your eyes look to the east. My tomb will cast its shadow through space and time. The living, they can be forced with whips weaved from leather, and chains cast from iron. The yet unborn, for them, you need whips weaved from love and chains made from memories. More carefully constructed, more dear to procure. When the heat of the day burns down on you, or the cold of the night makes you shiver, because there are no stones for you left to build your house, only sand, sand, ever more sand, look up and see the pyramid I made from them. Remember me, and tremble.

<Roomba still whines>

Dolasilla <To Roomba and/or Chorus>: Oh why won't you just be quiet!

Curtain

INTERLUDE

Empty living room, Roomba moves up and down. Music cuts in and gets louder—*Electric Eyes* by Judas Priest. Increasingly, it makes more and more complex figures, like an ice dancer. As music comes to an end, Roomba moves to edge of stage towards audience and takes a bow.

ACT (0+1)+1

Dwyfan's room, he slouches on the couch.

Dwyfan: Alexa, call L&P Legacy AI services.

Alexa <Voice from ether>: Connection established, authentication needed.

Dwyfan : Dwyfan mac Bóchra legacy contract 23-34-2875, request access to

legacy AI of Niamh nic Bóchra, Fionn mac Bóchra, Afric nic Bóchra.

Alexa voice: Iris scan completed, voice profile completed, password check completed. Before proceeding, identify in projected images those of a friendly dog.

<captcha with dog images projected on screen>

Dwyfan: 2, 5, and 7

Alexa Voice: Identification complete, Lares et Penates web access granted. Do you want to change default user setting, last changed November 17, 2038?

Dwyfan : Yes. Switch off chat and reply mode, listening mode only. Belay that. Listening and learning mode.

Alexa voice: Listening and learning activated, reply and chat deactivated. Enjoy the company and have a lovely day, Dwyfan Mac Niall

Dwyfan <suddenly sitting upright>: Hi ma, grunny, grand-dey. I thought I need to talk to you a bit. I switched off your reply mode, sorry, but Dolasilla and I had a bit of a fight over you, again. So I promised. But it helps me to think more clearly when I know you are listening. I only promised not to ask you anything, not to stay away from you, so whatever. Anyway, I know you are not real, just what files, images, and memories you could save when the floods came, that and whatever little time you had left to train the algorithm to think a bit like you, and that's all.

I sometimes wonder, were you afraid as the waters came and came, and you knew the dykes had failed, and there was no way out? Did you hide your fear while you taught the program how to look after me? Or did a bit of it creep into your answers and your mind, so that the voices I've heard ever since I was old enough to use a handheld are never as happy, as content, as in love as you were in real life, always a bit more worried, a bit more afeared? And did this make me more fearful and afraid too? Because right now, I'm afraid enough to puke. And sometimes I think I always was.

You see, thing is, we might not have much more time together. Thursday next, we'll vote. All of us. Well, all who can be bothered. Everyone on earth alive now, on what the leaders of the "yes" proposition call the "great

emancipation from the past.” And if they win, that will be it. 20 years after the death of the owner, all their memorial AIs will get wiped from the central servers, all personal trusts will get disbanded and the assets distributed among the living to be used as they see fit, and the others will be administered solely by living humans, without the AI of the trustor having a say or getting consulted. Which is OK with me, I guess, to be honest. The money thing. That you still control, one way or the other, more property than we living do, and that that will stop.

But we'll also take the intelligence away from you. I'll be allowed to keep the static recordings of your voices and stuff like that. But I won't be able to ask you new questions for new answers or simply have a chat. Too easy for you to still manipulate our lives, you see, or so the experts said. Not good for us. Need to “grow up.”

< ... >

Do you know that there are only 27 of us alive now who have spoken our language from birth? And maybe 30 or so academics who learned it for their research? A couple in what's left of the Highlands, a few more in the Himalayas, and me here, in the Alps. But you know all this of course. Like, because I told you before. And you probably have subroutines that pull that info from the web anyway, I'm sure grandma Afric does, you were always keen on our tongue. You'd pinch me if I used English and gave me cookies if I got it right, and then you'd fight with Ma over obesity. And then the last ship came, and got me out, and I knew I'd not see you again in this life, and you died a bit for me then, and I died a bit too, but I had your chips, on a game console that could barely cope with sound, but you told me that you were there with me as the waves came. With your inference engines and NLPs wiped, with whom will I speak in the tongue? We sometimes Skype, those of us who are left, but there is so little of the world we share now, and so little time we had together, that there is nothing much to talk about. And what's “Yak” in Gaelic anyway? Maybe it's true as they say, “it is dead already and we're just bringing food to a graveyard.” So, you'll die for me again, and I'll die a little bit again, and I'm not sure I can do this twice. Who will I then be?

Chorus left <whispers>: Remember us. When did this story begin? Did it begin when the White Raven died of a broken heart? Died, far away from home, a queen exiled to the kitchen, a stranger in a strange land, no kin, no friend, no champion to raise his voice for her whose had been silenced?

Her brother, the blessed giant, Bendigeidfran, his head cut off and carried home by his seven companions. For seven years, it spoke to them, guided them, comforted them, sharing his wisdom and wit even after death. Who will speak with you now, sons of Prydyn? Who will tell you who you are?

Chorus right <loud, militaristic but almost too fast to follow>: Remember me. When did this story begin? Hear of my deeds.

Speaker 1: I was mighty Caesar. You *will* remember me. I carved my deeds on a pair of bronze pillars. I bestrode this world. Those who butchered my father I drove into exile, avenging their crime by legal judgments, and afterward, when they made war upon the republic, I defeated them twice in battle. Many times, I waged wars by land and sea over the whole world, and as victor I spared all citizens who asked for pardons. I restored the Capitol and the Theatre of Pompey, both works at great expense, without inscribing my name upon them. In my sixth and seventh consulships, after I had extinguished the civil wars, having become master of everything by consent of all, I transferred the republic from my power to the control of the senate and the Roman people. In return for this service of mine by decree of the senate I was called Augustus, and the door-posts of my house were screened with laurels at public expense, and a civic crown was fixed above my door and a golden shield was set up in the Julian Senate House with an inscription attesting that the senate and the Roman people gave it to me because of my courage, clemency, justice, and piety. After that time, I excelled all in authority but I had no more power than others who were my colleagues in each magistracy. These are the dead that I carved on the pillars for others to follow; remember me by the art of the masons, and the skill of the smiths.

Chorus left <whispering, speaking at cross-purposes and fading out one voice after the other>:

When did our story begin? Remember us, why won't you remember us.

I too was a Caesar,

I too was a man.

I too was a Pharaoh

I too did deeds

I too was loved.

Speaker 2: I was ... who was I? I was ... Elagabalus ... I think ... I must remember ... you must remember ... or was I Severus? Why does Severus look like me, but does not feel like me? Why can't I ... you ... remember? They stripped me naked, they cut my head, they threw me in the river, give me back my name, give me back my face, remember me, please remember me.

Speaker 3: I was ... who was I? I was ... Herostr ... no, I mustn't ... I must not say it, on pain of death ... but dead I am already. Fire, it is burning, you must remember the fire. Will you risk for me to defy proud Ephesus, and give me back my name? Please, remember me.

Speaker 4: I was ... who was I? I was ... a King ... no a Queen ... surely, I must remember this, you must remember this. I reigned over so many, so rich was my land, I was your queen, your king, I was ... I was Smenkhkare? No, I was ... Neferneferuaten? I was, I loved, I reigned with Nefertiti? You must know this, I must know this ... my name smells of wine, why does it smell of wine ... give me back my name, remember me, please remember me.

<Loud knock on door>

Dolasilla: Can I come in?

Dwyfan <hastily, quietly>: Alexa, disconnect.

Dwyfan <standing up, speaking to door>: Of course, come in.

Dolasilla <upon entering>: Look, I'm sorry for what I said.

Dwyfan <at the same time>: Look, marmoset, I'm so sorry for what I said.

Dolasilla <grinning> Peace, no badgering?

Dwyfan <grinning> Peace, no badgering!

<They cuddle on coach>

Dolasilla: Pizza with Haggis, and some TV? Alexa?

Dwyfan: Kaiserschmarrn for desert!

Dolasilla: Again?

<on screen: TV switches on, the news is on>

TV news anchor: Domestic news. On the eve of the referendum on time limits for legacy AIs, there have been reports of a major coordinated cyberattack on Lares et Penates, which, with over 900 million AIs on its servers, is the largest company in the legacy AI sector. An industry source called the attacks “coordinated, sophisticated and well-resourced.” A spokesperson for the No Time Limits campaign group called the incident a callous and politically motivated attack to sway public opinion on the eve of the vote and to create suspicion towards legacy AIs. The allegation was strongly rejected by the Yes campaign.

We spoke earlier to Professor Sara S Vati, professor for cybersecurity, at her office in Delhi.

Reporter: Professor Vati, *L&P* prides itself on its security; their motto is: “Your family’s memory, a flame kept alive for eternity.” How could such a massive breach happen?

Professor Vati: The attackers did not attack the file storage directly, but exploited a vulnerability in the learning interfaces, the parts of the program that allow users like you and me to train our AIs on our preferences. From what we know, they hijacked this insecure connection, which allowed them to overload the learning module with millions of answers.

Reporter: Can you explain to our viewers in layman’s terms what this means?

Professor Vati: We are all used to training our legacy AIs, sometimes for a few minutes, sometimes for hours a day, right? You all know the type of questions they ask: “You have baked just enough cake for a family Sunday, when suddenly your best friend Katie and her kids ring unexpectedly—how do you now divide the cake between them, you, your brothers, and parents?” Or “You just won a million euros in the lottery, how much do you spend on yourself, give to your siblings, donate to charity, or put in the bowl of the next beggar you see.” From your answers, and the massive data it has about all users, the AI builds your moral and social profile; it learns what sort of person you are, and how you would probably behave should this

type of situation come up. And then, should you not be around any longer, it can use what it learned about your preferences to advise your children or the trust fund you set up for them. If you consistently consider donating to a beggar on the street in your answers, it will learn to recommend being charitable to beggars, and so on and so forth. Now, most of us manage to answer, what, maybe 20 training questions a day, tops? So not much to go on for an AI to find patterns. Now imagine someone finds a way to pretend to be you, and uses a bot to feed the AI hundred thousand or a million answers, and in each of them they give lots of money to “Save the Penguins.” What do you think will happen?

Reporter: It will be a great day for penguins.

Prof Vati: Exactly! So, they only have to set up a bank account in the name of a fake charity, train all the legacy AI’s to recommend giving money to that charity, wait a day, close it down, and run away with the money.

Reporter: But AIs can’t make financial transactions, right?

Prof Vati: True, the law never allowed them to act on their own; they only give advice. However, we designed them to make the advice very persuasive, and every year they become more realistic and life-like. To put it into context, last month alone L&B servers received almost 4 billion queries, that is, people talking to the AI of one of their ancestors. Not all of them were for advice of course, some people simply like to chat, so say 1 billion queries for advice. Studies have shown that most people follow the advice, on average 73 percent. That’s an average. The number is of course much higher in countries with strong traditions of ancestor worship or respect for the elderly; there it can be over 95 percent. And quite a lot of the queries come not from descendants at all, but bank managers and lawyers who administer trusts—and they almost always agree with the AI; there’s a much lower risk of getting sued if you just do what the machine recommends. Now remember that almost all trusts use a legacy AI of the trustor to advise them in their duties; that alone means control over more money than your country’s GDP. And suddenly, they all make dispositions for the benefit of the persons who hacked them.

Reporter: So, this is quite a serious issue?

Prof Vati: Potentially, if it had remained undetected. Of course, L&P is using highly sophisticated fraud detection software that very quickly spotted

when the AIs started to behave anomalously, and they quickly reset all profiles to last week's—and most people would probably hesitate anyway if their grandfather's legacy AI suddenly developed an inexplicable fondness for penguins.

Reporter: Prof Vati, thank you

TV news anchor: So, you've heard it—if your grandfather's legacy AI asks you to donate to penguins, just ignore him. Speaking of penguins, in sport the Pittsburgh Penguins lost their ... <sound diminishes>

Dwyfan <mutes TV with remote>: OK, say it

Dolasilla: What? Penguins are adorable and deserve all they get! Seriously though, for me that's not it. OK, more people will now vote yes, and I'm happy about that, sure. But it's not my reason, and it need not be yours either. There are always risks, and every tech has flaws. The issue is not to make the tech better. It's not about the tech, it's what we have done with it. This whole ... business was a bad idea to start with, and I'd vote again the way I did even if the ghost of Alan Turing himself certified their security. That is his real ghost. Not his ZombAI. I would not trust that farther than I can spit.

Dwyfan: But *would* we know? What if this has already happened, and it's all a lie? You know, I tell myself I remember my parents. A smile, a hand touching, a smell. But then I don't know if I really remember *them*, or if I just remember the first time I spoke to the hologram. How much of my memories are mine, how much is just something I was made to believe by a cunning algorithm, or the corporation that stores it?

Dolasilla: Well, I'd spot it if someone hacked my dad's. It would probably be an improvement, for starters. Might even give sensible advice; now that would be a dead giveaway. You remember when it suggested that we should give all our wedding cake, AND our presents, to a utility monster?

Dwyfan: Ah yes, the Nozick bug; that model had it badly, but you had him fixed, didn't you?

Dolasilla: Sure. But that's the thing, or part of it. My folks didn't really care. Dad's legacy AI is hardly more than a spreadsheet with a utility calculus, and their holographs are not so much uncanny valley, more the sunlit

highlands of canny. They didn't think they'd ever die, you see, and didn't have much to leave me anyway, what with spending most on booze and fun and parties, so why bother with a top of the shelf, expensive legacy system? And still for all practical or legal purposes, it's taken as serious as yours, which has all bells and whistles. By that senile old fool who manages my parent's trust for starters.

And you know, sometimes I'm envious of you, and how you can talk to them as if they really are still around, and I know I shouldn't be, because it's also so sad what you lost, and you didn't have the real thing, not as long as I did anyways. And then sometimes I'm not at all envious, just angry for you, and us, because it also means you're never fully here, or fully now, because of it. And then I hear people on the No side talk, and they're all like that, with their dead folks rendered pitch perfect, glitch free and no constant reboots, but for those like me, what we'd be freed of are the grotesque caricatures of the people we loved and who'd have hated to see themselves reduced to this.

Dwyfan: But if you feel like this, why not switch him off?

Dolasilla: Well, I can't, can I? There are still lots of his old friends who also have access, and they aren't going to give it up. And for them its good company, they mostly don't make more sense than his AI these days anyway. So even if I'd not talk to it any more, I'd still know it's there, pretending to be Dad, and that's bad enough. And my sister would get fits, and claim I always hated our parents, and that's more than I can take at the moment. That's too why I want that law—if we all *have* to do it, we can switch them off without any feeling of personal guilt. So it really only works if we *all* do it, together.

<Dwyfan and Dolasilla cuddle on sofa, light dims>

ACT ((0+1)+1)+1

Chorus: When did this story begin? They send us to war, away to a land we would not have found on a map. We were so young, and so afraid. For our children, the ones we left behind, they let us record messages, on a video machine as grey-brown as our fatigues, as grey brown as the sand surrounding us.

On screen left, a flickering video of soldier in uniform talking to a camera; on screen right a series of different videos.

First scene

<On screen left>

Soldier: Hi love You are two today. Mom is going to play this for you. I wish I could be with you. I love you. I watch you from above, always. Be good. Do what Mum says. I love you.

<On screen right: shaky film of a toddler playing in crib, smiling at the cam>

Second scene

<Left>

Soldier: Hi love! You are six today. Mom is going to play this for you. You've been going to school for the first time. I wish I could have been there with you, holding your hand. I hope you like reading. I asked Mom to give you a book for birthday that I loved when I was your age. Be good. Do what Mom and the teachers say. I love you.

<Right: video of schoolchildren playing; one waves to camera>

Third scene

<Left>

Soldier: Hi love! You are 16 today. Mom is going to play this for you. Wow, you look great! I wish I had been there for your prom, doing the first dance with you. I hope you had a great time—I wished I'd been there to give whatever boy you chose a hard time. I hope you have better sense than your mother. Stay away from guys in uniform. I hope you'll go to uni. You have your mother's smarts. I love you.

<Right: video of girls in dance dresses. The one in the center is plain. A group of other girls in more fanciful dress approach her, push here around, she falls, crying>

Fourth scene

<Left>

Soldier: Hi love! You are 18 today. If you are still in our old place, then you are now old enough to drink, drive a car, and to enlist. Which are worrying thoughts for a father. Better not do them—apart from maybe the car. So, I put some money aside, towards your driver's license. So that you can visit mom when you come from university at the weekends. And so that you don't have to rely on guys to drive you home after parties. And so that you stay sober at parties. Don't tell me your old man did not think of everything. I love you.

<Right: a decrepit flat, a young woman with a tired and bruised face, cradling a baby away from a young man, who shouts at them and raises his fist.>

Fifth scene

<Left>

Soldier: You are 24 today. Mom is going to play this for you. This year you graduated, congratulations! I wished I'd been there, to see you in your gown, ready to change the world. I hope you fell in love with your subject. And not boys. But fathers say these things. I wished I'd been there to protect you all the way, but I'm sure you did great. I love you, and I'm proud of you.

<Right: A dark alley. A woman with heavy make-up and skinny dress prepares her arm for a drug injection>

Chorus: When did this story begin? When our world became digital, our selves quantified, our devices intelligent? Living forever, strings of zeros and 1s, uploaded downvoted, downloaded upvoted, measured but not understood, archived but not inactive, digital immortals buzzing in pyramids made from silicon, memified, gif-ted to those who came after us.

ACT (((0+1)+1)+1)+1

Dolasilla and Dwyfan still comfortable on sofa, talking while, on screen, the TV news continues.

Dolasilla: Hey, look, isn't that your old place?

Dwyfan: Alexa, sound.

On screen a TV image of floods in Scotland.

TV news anchor: International news: Further delay in land reclaim for the Highland Republic.

The First Minister of the Highland Republic, John McCormick, announced today that the ambitious plan to reclaim and desalinate 70 percent of the submerged landmass between what used to be Perth and Dundee by 2080 has suffered further setbacks. Continuing adverse weather events, unanticipated problems with residual contamination and insufficient energy supply mean that it is now unlikely that this first attempt at large-scale land reclaim will be completed within this century. This will come as a particular disappointment to the many Scottish diaspora communities who had been promised that space for the resettlement of over 10,000 families would be created within the next generation. Over a million survivors found shelter in the Highland region of Scotland after the 2025 floods left Britain devastated and largely submerged, while similar numbers of Scots were relocated to other mountainous parts of the world. A spokesperson for the government affirmed its commitment ...

Dolasilla <Alexa, switch TV off>: Dwyfan, I'm so sorry

Dwyfan: Well, it sounds as if I'll stay a bit longer then ...

Dolasilla: There could be worse places, you know ...

Dwyfan: Yes, places without Kaiserschmarrn.

Dolasilla: Or with worse company ...

Dwyfan: Oh yes—people who don't know how to make Kaiserschmarrn.

Dolasilla: The recipe for which, to get back on topic, I luckily wrote down in an old-fashioned notebook. If I followed mom's AI, you'd get it with minced emperor, which is a pain to get these days.

Dwyfan: This is not about penguins again?

Dolasilla: More an issue of things getting lost in machine translation. You're taking this better than I thought, though.

Dwyfan: I'm here. With you. Now. And you are right that I'm carrying maybe too much of the old place with me. I don't want this. Not if it becomes a problem starting a new life. For us. Restart, reboot, reset to factory settings.

Dolasilla: And download and reinstall all the apps again? You're my Scottish man, the guy with the most exotic accent in the village, and the envy of all my girlfriends. Remembering is good. It's who you are and who I fell in love with. We just need new ways of doing it. Or old ways. I know that it's way more difficult for you than me. For me, it's just about my parents—otherwise the world around me is pretty much the world I grew up in, plus one big red-haired guy. And it will be the same with or without me, nothing depends on me, and that feels good. You, they gave you the burden of their whole world. It's not just personal for you, is it? You fear that if you lose them, you will forget who you are, and the world will forget who they were. But that's not true. I won't let you forget. Look, I even promise to learn Gaelic.

Dwyfan: Níor smaoinigh mé riámh go ndéanfá é!

Dolasilla: IF you learn Ladin

Dwyfan: But you don't speak Ladin yourself!

Dolasilla: So? You can teach me, then. And our child

Dwyfan: ...

Dolasilla: Once we have one!

Dwyfan: ONCE we have one—how would you feel?

Dolasilla: Uh?

Dwyfan: I mean, that was all about the past. What about the future? Would you not want to look over him?

Dolasilla: Her!

Dwyfan: Over her, every way you can? Would we not want to be there for her, help her find her way, warn her about the things we learned the hard way that they hurt? If we had a child—and something were to happen to you, I'd need all the help I could get. Who should I fight with over when to get her her first drink if not you? And even if it's only your digital memory.

Dolasilla: So, you need an AI to stop you turning our as yet unborn daughter, that sweet innocent child, into an alcoholic? Dwyfan Mac Niall, the chances of you ever procreating just dropped dramatically ...

Dwyfan: Or if something happened to me, I'd want to tell her how much I love her. And when she is afraid on her first day in school, I would want to tell her that I know how frightening it is to go to a new place and meet new people. And tell her of my island, and how I left it and was also afraid, but that I then met the most amazing and wonderful people, and that I learned it does not matter that things change, because you'll always find someone to love, and who'll love you, and that they will always be with you.

Dolasilla: I'm pattern matching and recognizing a ploy to sweet talk me into doing foolish things.

Dwyfan: Seriously though? I would love to have a child with you. But it also scares me. We've both had close calls already; most folks in our generation did. What if something happened to you and me? Aren't our AIs not something we'd want, for her?

Dolasilla <after a pause>: I would want to do all I can for her. And currently that would mean also recording me in digital, just in case. But I'd hate me for doing it, and I'd know, intellectually, that it would be a mistake. That's why we need this law. We don't need laws to tell us to do what we want anyway, we need them to do the right thing even if we don't want to.

And I also think you are wrong, if in a sweet way. We'd really be doing this for us, not for her. That's where the whole thing went wrong, I think. You want to keep your culture and family history alive. That's fine, I get it, and things are different for you than me. I never had to doubt who I was, I was

never not connected with folks who think and live and talk like me. And if you really decide that voting for the AI time-limitation law would mean betraying your culture, or harm it, then that's cool with me, honestly. But it should be for the right reasons, and after you'd thought it through hard.

Because this goes beyond your mother, your grandmother, and your aunt. With our AIs, we reduced cultures and traditions to individuals and their preferences. But cultures don't work like that. They are created by everyone, jointly through the way we treat each other, and how we remember together. Every generation adds to it, misunderstands the previous one, and is then misunderstood again. If it isn't that, it is dead anyway. These AIs, they take away from the present the right to misunderstand and reinterpret the past, and to remember it on its own terms. And while the AIs look dynamic, flexible and responsive, ultimately they are just lonely individuals frozen in time. For what you want, you need more, something we can add to, modify, and become part of, ourselves and our children after us, like an heirloom patchwork quilt. The current thing, my father sitting all by himself in his room shouting answers at something that, if everything is said and done, was just a fancy recording machine, that isn't it. You know the two tall trees back in the garden?

Dwyfan: As well you know ... <grins>

Dolasilla: Right. For me they are special too, but also for another reason. I remember how we planted them, me, father, and Sis. Us kids carried the saplings, they were taller than us. And when we had finished, father would mark our height on them, and said that we'd see who'd grow fastest, me, my sister, or our trees. And for a while, he'd measure us almost every time when we were in the garden, and always on our birthdays. And do you know why this memory is so important to me?

Dwyfan: Well, I guess ...

Dolasilla: Because it is the one thing I remember him doing for the long term. Not just "because it seemed a good idea at the time" and was as quickly forgotten as it came into his mind. Picturing our family growing roots here, staying for the duration.

Dwyfan: I ...

Dolasilla: The *one* time I remember him planning ahead, for us, together, you see.

Dwyfan: OK, I can see ...

Dolasilla: Shh! Only that Sis says this is all bullshit, that I remember it all wrong. She says he had to plant the trees because he violated a plant protection order and cut down the old ones at the same place, because ... well because, something about them must have annoyed him, or, just because, who knows. Trees that had been growing there for centuries, cut down just like that, in minutes.

Sis says he lost interest in the trees we planted the moment they were in the earth, and it was us who measured each other, and sometimes the old gardener helped.

But you see, I don't care. It is my memory, not hers. And I can fight her, and shout at her. What I can't fight, and can't take, is some digital ghost that pretends to be the authentic version of him and pronounces on how it "really" was. And don't tell me I'm alone with this, or that people would not think of them as authentic. Our family lawyer went to school with dad, they grew up together, heck, they even got arrested together more than once. Apart maybe from mother, nobody knew him better. And yet he relies more on dad's legacy AI to interpret his testament than his own memory of him, even when it is obviously just bollocks programming. But that way he is less likely to get sued for malpractice, I guess, even if it would be making the right call. Or maybe the AI has really changed how he remembers father. Can you see what's going wrong here?

They mustn't be allowed to take our memory away from us, control how we remember them, not totally at least. We must be allowed to write the next chapter in the chain novel of our family, and that means also to redact old chapters. It's a chain novel, not a blockchain novel.

Dwyfan: Lares et Penates!

Dolasilla: Pardon?

Dwyfan: Lares et Penates. It's a pun. But you are right, and they got it all wrong, or at least half of it wrong.

Dolasilla: That alcohol issue ...

Dwyfan: No, I'm serious. You know the main provider of legacy AIs, Lares et Penates?

Dolasilla: The ones that has been in the news recently? You know, like five min ago.

Dwyfan: But you know why they are called this?

Dolasilla: Pretty much everybody who's been online in the past 30 years knows. Lars and Penny Ates, German-Turkish entrepreneurs; their combined name is a pun on Roman ancestor worship, very apt for a platform that hosts the digital ghosts of dead people.

Dwyfan: YES, exactly. Keeping your ancestors alive, asking them for guidance, be referential to them. But that was just half of it. In Rome, it was not just about any specific ancestor, a father or grandfather. There were also spirits of the family, something that went beyond the individual and their wishes and transcended them. Something that could do both, grow and change as the family grows and changes, and still connect it somehow with the past. Something malleable, not fixed, and changeable by the present, like a well-written constitution.

But our AIs never did that. As much as they can interact, and learn, they are always just the effort of one man or woman, not "the family," nothing we can create and recreate together.

But you know I think they could be. Maybe we don't need that new law, just a different type of code.

<gets excited, moves papers and computers on the table>

I think I have just the right idea how to code for that. Imagine, we could set up our own platform, and do it right this time.

Dolasilla: We could do that. But maybe not today. Today, I think we should do something else.

Dwyfan: Mmm?

Dolasilla: Today we should work hard on that next chapter for our family, make sure there will be one ...

Dwyfan <looks up from papers>: Oh ...

Dolasilla <turning away going up the stairs>: Just not right yet, oh husband.
You've forgotten one small thing you need to do first

Dwyfan: Mmm?

Dolasilla: FILL IN THAT FRIGGING BALLOT!

Curtain

POSTLUDE

Stage empty and dark.

On the empty stage, the Roomba returns and moves to the sound of *Every Breath You Take* by The Police.

On Screen: "Recipe for Kaiserschmarrn, from my grandmother"

6 eggs

350–400 ml milk

180–200 g finely ground flour

3 tbsp. crystal sugar, for the topping

2 tbsp. raisins

1 packet (8g) vanilla sugar

A large dash of rum

Some grated lemon rind

A pinch of salt

Approx. 50 g butter for frying

1 tablespoon of butter shavings and crystal sugar, for caramelizing

Icing sugar and cinnamon for dusting

Place the raisins in a bowl, mix with the rum and leave to stand for approx. 15 minutes. Separate the eggs and place the yolks in a mixing bowl. Pour in the milk, flavor with some grated lemon rind and vanilla sugar, and add the flour. Mix to form a smooth dough.

Beat the egg whites with the crystal sugar and a small pinch of salt until it forms a firm peak, and fold into the dough mix. Pre-heat the oven to 180 °C.

Let the butter melt and bubble up in one large, or two small (coated) heatproof dishes. Pour in the mixture and after 1–2 minutes scatter the soaked raisins over the top. Cook the underside until light brown, turn over using a spatula, and bake for 6–8 minutes in the pre-heated oven until golden brown.

Tear the *Schmarren* into small pieces, using two forks. Scatter the butter shavings over the top, sprinkle with some crystal sugar, and caramelize under the grill at a high heat.

Remove from the grill and arrange on pre-heated plates. Dust with icing sugar and cinnamon. Serve with baked plums.

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Burkhard Schafer studied philosophy, logic, computational linguistics, and law, joining the University of Edinburgh in 1996. In 2010, he became chair of computational legal theory. Furthermore, he is director of the SCRIPT

Centre for IT and IP Law and Co-I of Creative Informatics. Don't ask: my program crashed, what should I do? Do ask: what vision of a just society should we have when building legal technology?

ERROR



LIVE

How will we spend our daily lives? How will we grow old and what will our homes look like?

CHAPTER 2



**“The bathhouse is a constitutional right
for us humans, speaking to our newly
acquired free time, which transcends the
historical notion of time as productivity.”**

ROBIN TIM WEIS

Everyone is a Narcissist Together

Attention android: your entire existence is monetized. You are either entrapped at work or trapped on your devices at home. The future had so much promise. But only by looking to the past did we find the future.

INTRODUCTION

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The 2040 utopian story “Everyone is a Narcissist Together” deals with the urge to highlight how we can step out of an equilibrium in which we are either entrapped at work or trapped on our devices at home. Our entire bandwidth of existence seems to be monetized. We may enjoy ever higher productivity rates, yet, our social infrastructure is in decline as we retreat and give up on devising meaningful ways in how we can

and should spend our free time. Rapid advancements in AI and machine learning make the 15-hour work week once anticipated by John Maynard Keynes in his *Economic Possibilities for our Grandchildren* manifesto seem feasible. The answer in 2040 thus lies in a practice deeply rooted in history—visiting bathhouses. Throughout human history, communities from all around the world congregated around bathhouses. The

draw was a simple yet effective one. Come to this forum, meet those you would otherwise not meet, cleanse yourself, and forget about class, cloth, or clout for a few fleeting hours. Bathing is truly a prelude to embracing narcissism in its natural form, stripped of any digital interface, bathhouses allow people to demonetize narcissism's media value. In 2040, the bathhouse is a constitutional right for humans, speaking to our newly acquired free time, which transcends the historical

notion of time as productivity. The time of the now is zero time, that is, the negation of the real time of production. We are free. We are clean. We are all enjoying revolutionary play. Everyone is a narcissist together.

This 2040 utopia deliberately decided to take a measured, incremental storytelling approach. It is not immediately identifiable; instead, it develops and tests itself in the skepticism of its characters.

The peanut was a relentless enemy. Fickle, stubborn, and illusive to Ilan's chopsticks, which were coated in a bright, almost fluorescent, tamarind glow. He flung the chopsticks aside and decided to pinch the last peanut with his fingers instead, devouring his salty conquest. Once he had wiped away all the evidence, Ilan discarded his leftover pad thai breakfast and quickly switched on his TV, just in time to catch the opening remarks.

"All rise, the European Court of Human Rights is now in session. We gather today with this draft protocol in question that resulted from a lengthy process culminating in the Wassenaar Declaration. Much has been contested on this issue, and we, as the European Court of Human Rights, are called to action now in 2040 to rule over the constitutional nature of..."

Sarah twirled the loose linen in her hands, inspecting it with the accuracy one would use to survey cracked eggs that had not survived the trip from the grocery store. Was this going to hold up in her weekly ritual? With skepticism, she decided to buy three meters of fabric. She would later sew on patches at home. One was drenched in bold burgundy colors and resembled the silhouette of a wine glass. The other patch had five distinctive spheres in various colors that made for a very gay version of a Medici insignia. She definitely felt royal in her new robes, despite the

rough seam. It was only her fourth attempt to date at sewing garments, which represented a novel achievement for her in a time of 3D printers and mobile garment factories that had started to litter even her hometown, the picturesque hamlet of Leimen, Germany. Satisfied with her thin linen robes and sewing, she packed them into her tote bag and walked over to her bus stop.

The bus ride was smooth, punctual, identical in route and in acceleration. Sarah was often annoyed by the mundanity of the bus ride. Autonomous buses never suddenly jerked or swerved to the right, tumbling all the passengers to the side like a cheap, out-of-sync washing machine. She remembered being tossed around like a bag of potatoes as a child on conventional combustion engine buses. Oh, what she would have given for a good tumble, a nice jerk, followed by a deft thump of the head against the reinforced glass. You know a sudden stop, something abrupt that left you with a bruise, maybe, even a scar. But, alas, this was her home, and this was her bus, all automated, as it had been for decades.

At first, the regional bus line had experienced some hiccups. Several buses had ended up driving into the ditch down by the former American army base. The AI-equipped bus and its sensors had kept failing under the relentless glare of the evening sun. It had made for funny headlines but had not stopped the advent of digitization. Everyone was sold on cheap, affordable buses that never stopped or took scheduled breaks and, of course, did not require grumpy drivers. Much like her favorite Flips peanut chips, combustion engine buses first disappeared from view and then vanished from the aisles of consumer choice. They became relics, museum pieces, much like the DVDs Sarah had once found in the attic of her grandparents' house.

Her grandparents' DVD collection had made for amusing viewing parties. How monolithic the early 2000s had been! Crowds had flocked into department stores like hens. These chicken coops of retail had stocked their inventory with the products of exploited workers from faraway places like Bangladesh or Thailand. But the big fire of 2035 in Pyongyang, North Korea, had changed the dynamics of the garment industry. After the economic liberation of North Korea in the early months of 2030, garment factories had popped up like mushrooms in the Stalinist outpost. What had followed next was a common tale of capitalistic outsourcing. Bangladeshi, Vietnamese, Burmese, and Thai subcontractors had passed on the buck, and North Korea had ended up bearing the exploitative brunt of the insatiable fashion industry. When 35 adjacent factories all burned down in 2035, the consumers of the industrialized world had decided to fundamentally alter the means of production and logistics of the fashion

industry. What had followed was a blitz-like scale-up of 3D-printing microfactories, which spread like the ill-advised fashion trend of Hawaiian shirts in 2036. H&M, Zara, and their Chinese counterpart Orchily were now in the business of command-p fashion. Hyperlocal fashion trends were printed instantaneously and released to the market within hours instead of months. The idea of a fall collection was banal. Fashion was now a morning or afternoon affair in most towns. Subsequently, clothes were discarded from closets at a much faster pace as well. It was only due to the advent of the circular economy model in the state of Baden-Württemberg that this reckless attack of attire had survived to date. The recycling plants hummed away 24 hours a day in order to keep up with the demand for discarded clothing.

Sarah stared into the distance, her wide-open mouth speaking volumes of how bored and lonely she was. To pass time, she conducted what felt like try 348 of the never-ending saga of trying to trust technology. She took out her phone, switched it to video mode, captured her physical profile, and entered her metrics. Once her quick selfie video scan was done, the heavenly father almighty artificial intelligence worked away and came back in five seconds with a suggestion that turquoise really suited her freckled ginger face. She disagreed, and did not end up sending in her turquoise jumpsuit order, which would have been printed and ready for pick-up within the hour. The sheer proximity of both physical and digital technology to her home made her sick. She didn't want all the trends of this world to be printed three minutes away from her house, especially in the former shed that had belonged to her uncle several decades ago. Once, she had shotput moldy timber off the roof of that shed. She had even lost her virginity on its rickety wooden floor to Rainer Fühlwerk. How ironic it was that the shed had been colonized for good by black-box technologies that were no better at guessing and knowing what she wanted than Rainer had back then.

AI had given the decrepit shed a new life, but it was a life Sarah did not want and had never asked for. The big fallacy of her generation was to continue the idiocy of wanting everything in an instant and at the proverbial tap of a button. Her peers had ruined self-care and opened up the gates of metropolitan brutality to the countryside. But enough of her ramblings: Sarah Idon stepped off that damn magic school bus and morphed into Gabriele Meduci, her confident alter ego, whose feet just hit the pavement.

Sarah Idon and Gabriele Meduci were the same age, and were even from the same corner of Baden-Württemberg; they could have passed for sisters if they'd been two distinctive people. Gabriele was a true and free spirit, a chirpy robin bird in a sea of grey dull Sarah pigeons. She had never received

any form of formal education, unlike Sarah. Instead, Gabriele had retreated into the bushy Black Forest not far away from Heidelberg. It was here that she had learned to craft fainting chairs out of entire tree trunks. It had taken her three years to master this craft. Now, she was selling her fainting chairs near and far. The chairs were so surreptitiously smooth, soft and polished that most customers did not even end up purchasing additional pillows to pad the chairs. Gabriele truly lived a holistic and distant life. When she walked out of the bus and across the grass field, she barely left footprints.

When Gabriele saw Ilan, she waved the two new linen robes towards him like a Matador. He seemed unfazed by the new attire at first. Instead, he was more interested in his newly acquired tactile free time. He proclaimed; “Work-free Wednesday’s! Who would have ever worked the entire week in the past?” Ilan had a point; nobody in his circle of friends knew anyone who worked three, let alone four, days a week. The benchmark of a 40 hours workweek seemed absurd to him. The entire concept of slaving away five or more days a week was archaic to them both. Automation had really disembarrassed itself from the manual toiling of past generations and “took wings into the future”¹ as John Maynard Keynes had once foreseen in his *Economic Possibilities for our Grandchildren* manifesto. Both Ilan and Gabriele worked hours reminiscent of the 15 hours Keynes had anticipated.

“Wait Gabriele! Before we go inside, I want to quickly check THE court ruling on the right to unemployment.” Ilan could not contain his excitement and whipped out his phone. Gabriele was annoyed; Sarah would have probably just rolled her eyes and saved her energy for another confrontation.

“As a just and free European Union, we need to hold evident that our societies must evolve and reflect their social fabric and state. In this respect, the European Court of Human Rights can no longer overlook the damning evidence that gainful employment has been replaced in large by autonomous machines and programs. We therefore, hereby, rule in favor of the European Right to Unemployment and Meaningful Activity.”

Both Ilan and Gabriele were elated. What they had long practiced was now accepted, enshrined in law, written and ruled, codified for eternity. For them, this was less of a watershed moment, but rather a long overdue

¹ Keynes, John Maynard. 2010. “Economic Possibilities for Our Grandchildren.” In *Essays in Persuasion*, edited by John Maynard Keynes, 321–32. London: Palgrave Macmillan.

conclusion. Even though they still worked two days a week, they now had the right to pursue their true interests and, more importantly, they would not have to pay for their favorite pastime moving forward.

The local “Ohropax” bathhouse had become their refuge, living room, self-care center, pub, and therapeutic practice in one. Named after the iconic brand of German ear plugs, the bath house was shaped like a single earplug; it was essentially a big phallic hammam that was jokingly referred to as “*Penisburg*”—Penis Castle—by the locals. True to its brand, it was the best insulated bathhouse in town; no sound was able to penetrate the wet walls.

Ilan and Gabriele couldn’t really pinpoint when the first bathhouse had shot up in the Heidelberg area, but it would have been sometime around their high school graduation in 2031. With a four-day work week back then, the time was ripe to claim Friday as a day of immersion. It was a gradual re-routing of energies. Their parents and grandparents had dragged themselves through 60- and 80-hour weeks, executing tasks that now seemed laughable and idiotic.

Entrapped at work and trapped on their devices at home, their parents’ generation of Europeans had experienced a debilitating loneliness. Some governments, such as the United Kingdom’s, had appointed their first minister of loneliness² and had launched strategies that highlighted how “loneliness doesn’t discriminate”³ to counter the evident epidemic. Loneliness nevertheless had persisted and afflicted the mind and heart.⁴ Ilan’s and Gabriele’s parents were in a *Bowling Alone*⁵ 2.0 phase at the

2 Prime Minister’s Office, Office for Civil Society, and The Rt Hon Theresa May MP. 2018. “PM Commits to Government-Wide Drive to Tackle Loneliness.” GOV.UK. January 17, 2018.

3 Department for Digital, Culture, Media & Sport, Office for Civil Society, Prime Minister’s Office, Tracey Crouch MP, and The Rt Hon Jeremy Wright QC MP. 2018. “A Connected Society: A Strategy for Tackling Loneliness.” GOV.UK. October 15, 2018.

4 Valtorta, Nicole K., Mona Kanaan, Simon Gilbody, Sara Ronzi, and Barbara Hanratty. 2016. “Loneliness and Social Isolation as Risk Factors for Coronary Heart Disease and Stroke: Systematic Review and Meta-Analysis of Longitudinal Observational Studies.” *Heart* 102, no. 13: 1009–16.

5 *Bowling Alone: The Collapse and Revival of American Community* is a 2000 nonfiction book by political scientist Robert Putnam. In it he surveys the decline of social capital in the United States. He describes among others the reduction in all the forms of in-person social interactions upon which Americans used to found, educate, and enrich the fabric of their social lives. Bowling features as a prominent example and metaphor in this case. Hence, the title *bowling alone*.

beginning of the 2030s, a condition amplified by technology that had mastered the process of grasping and monetizing the entire bandwidth of their attention. Robert Putnam's nightmare had effectively been cast into a never-ending loop of Instagram ad stories.

Few had known how to escape this mirage of desires, and when they did, they simply had no clue what they actually wanted to do with free time not occupied by technology, platforms, or devices. While they debated universal basic income, which answered how they would spend their money in a free-time society, they never really fully answered how to spend free time in a society whose most readily available currency was now free time.

The bathhouse had seemed a logical answer to Gabriele and Ilan back in high school. Throughout human history, communities from all around the world had congregated around bathhouses. The draw was a simple, yet, effective one. Come to this forum, meet those you would otherwise not meet, cleanse yourself, and forget about class, cloth, or clout for a few fleeting hours. The Japanese saw these gatherings as sacred, calling them *hadaka no tsukiai* or naked communion,⁶ while progressive-era New York introduced the bathhouse to uplift the poor by offering sanitary space to all of its citizens.⁷ The fascination for coming together in cleansing places was deeply rooted in human history. The practice of bathing was cloaked and steeped in religious and spiritual significance for many cultures, including the Romans, who referred to specific ceremonial baths as *salvum lotom*⁸. Bathing was effectively humanistic at its very core, appreciated and tested through time.

Society had been glued to its phones, attached via an umbilical cord that was severed only when showering. Bathhouses squarely fell into the category of absolute needs that Keynes saw as "... absolute in the sense that we feel them whatever the situation of our fellow human beings may be ..."⁹ This innate need for self-care, which in itself is narcissist in nature, was now detached from its digital heroin and replaced with tactile, human

⁶ Macfarlane, Alan. 2008. *Japan Through the Looking Glass*. London: Profile Books.

⁷ Renner, Andrea. 2008. "A Nation That Bathes Together: New York City's Progressive Era Public Baths." *Journal of the Society of Architectural Historians* 67, no. 4: 504–31.

⁸ Bruun, Christer. 1993. "Lotores: Roman Bath-Attendants." *Zeitschrift für Papyrologie und Epigraphik* 98: 222 – 28.

⁹ Kant, Shashi, and Albert R. Berry, eds. 2005. *Economics, Sustainability, and Natural Resources*. Dordrecht: Springer.

and physical presence. *Right here, right now, you and me and no devices* had become the tagline for Ilan and Gabriele and all those like them back in high school. They would continue this trend throughout their adulthood and in time, a very soft idea would become a very hard law.

While Sarah squabbled with divorcing her friends of their devices, Gabriele had been a well-skilled cheerleader in the early days of the bathhouse revolution. Her arguments were well-crafted, and she sold the voyage to “Ohropax” as a mark of departure from Facebook to a new-found kinship. Gabriele was gifted in that way. It probably stemmed from the fact that she possessed a skill shared by only 300 people in the world. Her craft was so foreign that she constantly needed to describe her motives, skills, and circumstances. In order to be heard and appreciated, she had to mold a narrative that captured the complexity of her being. Once she was able to manage that, the pull factors for a bathhouse had come easy to her.

To take an entire tree trunk and carve a solid fainting chair out of it required many things that Sarah did not have. Sarah was a picture book child of apathy. She could be sedated and aggravated by technology at the same time. As a result, she could never make a definitive case for either in her life. That’s why she needed to morph into Gabriele to do her bidding.

The “Ohropax” bath house had multiple arenas of engagement within it, all soundproof, keeping true to Ohropax’s mantra as the *Erfinder der Ruhe*, the Inventor of Silence. In the early days, Gabriele would often frequent the “Market Place” within Ohropax. It was a large, elegant octagon of marble that had little fountains of lukewarm water strategically placed in its nooks. Unlike historic hammams, it had the feel of a busy Parisian garden that was drowned and adorned in marble. It was a bustling space, yet it was secluded at the same time, with little pockets of conversation, chess games, and lounging.

Sarah would have loved the slabs of marble, cutouts of geologic history, devoid of any technology. The humming of the 3D fashion printers in Leimen seemed very distant in the hot and humid bath halls. But Sarah never came to the bathhouse. That was Gabriele’s world and stage. As Gabriele had become a bathhouse aficionado, she had moved up to the more specialized rooms within Ohropax. These were thematic and had a social bonus mapped into their layout. One of the rooms was shaped like a Berber hat and barely fit 20 people. It was at most 10 meters in diameter and was set up around a little throne that could be accessed from four little stairways. The stairways were each marked by their compass direction: North, East, South, and West. The room lent itself primarily to literary discussions and was called the *Throne*. Within the Throne, the idea was that everyone could both verbally and physically elevate their idea and opinion

into the room then step down and discuss its merits or shortcomings among those present. Gabriele loved the “Sad Saturday” poetry workshop, which would dissect bleak yet romantic Irish poetry. The sessions were usually intense, as the 90 degree temperature did not lend itself to musing. One had to get to the point or endure the heat of the steam room.

Ilan didn’t particularly enjoy Ohropax, as it felt a bit too busy and universal to him. He went along with Gabriele on occasion, but he much rather preferred the therapeutic bath clubs such as *Beijing Baden* that had sprung up around the same time as Ohropax did. A communal flyer often advertised some of the various bathhouses in the region.

Beijing Baden: Focused on Reflexology

No device Hammam (NDH): Similar to a hammam, yet, with a strict no device policy

Ohropax: Guarantees its guests complete quiet and privacy

Kneipe Feucht: Outdoor soaking tub that offers patrons a relaxing way to enjoy their beers

Detox digital: Centered around therapeutic services provided by trained professional to cleanse oneself of digital addictions

Kathedrale der Sinne: Lends itself from Hindu practices

As early adopters, Ilan and Gabriele had come to know the owners of these private bathhouses very well. In their conversations, they found out that a lot of the bathhouses kept to the unspoken rule of 150. The rule was borrowed from the work of the late Oxford sociologist Robin Dunbar, who, back in the early 2000s, had posited that 150 was the maximum number of individuals with whom any one person can maintain stable relationships.¹⁰ The failure and negative externalities of social media platforms in the 2020’s had reinforced this notion, and bathhouses had been kept intentionally small to reflect the true nature of friendship circles.

Ohropax had taken this approach to heart, as they found that gathering in smaller circles opened up more opportunity for individuals to find the pockets of silence necessary to acquire new information. Just two hours of silence daily could lead to the development of new cells in the hippocampus, a key brain region associated with learning, memory, and

¹⁰ Sutcliffe, Alistair G., Jens F. Binder, and Robin I. M. Dunbar. 2018. “Activity in Social Media and Intimacy in Social Relationships.” *Computers in Human Behavior* 85 (August): 227–35.

emotions.¹¹ As a result, 4 out of the 10 rooms in Ohropax's phallic shaped temple of cleansing were quiet zones, like the no-cellphone compartments in trains.

As bathhouses fostered radical self-fulfillment, more and more people became irked by the persistent monetary and commercial barriers. The rich became cleaner, closer to each other, more empathetic through their exchanges with fellow kindred, while the poor showered away on their own, experiencing an understandable fear of missing out and emotional poverty. Ilan had barely been able to afford a monthly pass when bathhouses had first come around in Heidelberg.

The time had been ripe for a manifesto. Bathing should be a human right, much like the right to clean drinking water, Ilan had thought. In due time, petitions were launched. The first one was scraped together by Ilan one night after the second or sixth glass of red wine. Once sober, he edited and uploaded the rough outlines of what would later become the *European Right to Unemployment and Meaningful Activity*.

Within this expansive legislation was Article 13.2, which required all European counties to setup free communal bathhouses. These communal and public bathhouses needed to cover the four key essential categories agreed upon:

Relaxation—bathing calms our nerves.

Community—bathing brings us together.

Therapy—bathing and touch administered by professionals heals.

Democracy—bathing is accessible to all. Nobody is obstructed from cleansing him/herself.

In effect, the bathhouse fulfilled the need for a time outside of the time of labor. Secondly, it became mostly resistant to recuperation into the work economy via consumption. Thirdly, the time of “pleasure” was intended first and foremost for the body.

Ultimately, the bathhouse became society's answer to a form of digitization that left its consumers captive to murky black-box forces that were merely interested in two currencies: attention and money.

¹¹ Kirste, Imke, Zeina Nicola, Golo Kronenberg, Tara L. Walker, Robert C. Liu, and Gerd Kempermann. 2015. “Is Silence Golden? Effects of Auditory Stimuli and Their Absence on Adult Hippocampal Neurogenesis.” *Brain Structure and Function* 220, no. 2: 1221–28.

THE TIME IS ZERO TIME

The robes Gabriele made for Ilan wrapped around his wet skin like Greek grape leaves that hugged savory rice. Against the marble, it almost seemed as if the dark grey swirls of marble pulled his grey linen robe into the vortex of its magnificent power. Ilan felt heavy, relaxed and loaded on great ideas. He had just met his neighbors over at the adjacent pool within Ohropax. They had talked about the upcoming block party for the European soccer championships and Gabriele had chimed in with some great bonfire ideas that would make even the most seasoned pyromaniac envious.

Later, with every pressure point that Jacque applied on the soles of his feet, Ilan felt lighter and lighter, until he was convinced that his wet linen robe was levitating over the marble like a camouflaged hovercraft. Jacque would not have been with Ilan on that day in Ohropax if it were not for Gabriele. Back in the early days of the burgeoning bathhouse culture, many therapists such as masseuses, reflexologists, acupuncturists, herbalists, and traditional Chinese medicine specialists had felt unrepresented and unheard in an industry that was diverse in its offerings yet poor in its treatment of its essential staff. At the time, Jacque had barely touched his own feet. Reflexology might as well have been an activewear brand for him. Bored in his day job, which consisted of monitoring the connected factories of the local cement company, he was yearning for a new way to make money, but more importantly a profession that could bring out the best in others.

He had presented this dilemma to Gabriele one night, lying on her bare stomach, his curly hair tickling her diaphragm. As an avid bathhouse visitor, Gabriele had encouraged Jacque to consider a therapeutic profession in one of the many bathhouses that were coming up in the area. Jacque felt insulted. As things stood, he could not match Gabriele's beauty, and now he had to demote and degrade himself even further by pressing people's feet? He might as well have been working in a Roman *fullonica*¹² handling the urine of the masses.

Economic factors years later would convince Jacque to become a registered therapist, however, it was the emotional promise of his new work that ultimately broke his stubborn resistance. Jacque, with friends like

¹² The Roman equivalent of a laundromat that used urine collected on the streets to wash and cleanse clothing items, as well as soften leather products. Wilson, Andrew. 2003. "The Archaeology of the Roman Fullonica." *Journal of Roman Archaeology* 16: 442–46.

Gabriele and Ilan, came to view bathing for what it was for many people, namely:

A prelude to quality conversation.

A prelude to attraction and romantic intimacy.

A prelude to forgetting the pains and violence of our world and instead replacing these with clean and calm environments.

A prelude to embracing narcissism in its natural form, stripping it of its digital interface, and letting people turn narcissism into something less mediatable.

The last point was of special interest to Jacque, who, through his work, came to embrace the concept of recycling narcissism. Taking the negative externalities of digital narcissism and holding a mirror up to its absurdness. The time was ripe for his work to bear fruit. Europe was a bathhouse continent now by law; the Middle East and Asia were re-discovering their historic bathhouse roots and North America and other continents would hopefully follow soon. Those who worked in bathhouses were now elevated in prestige with the new law in force. Becoming an acupuncturist was now a viable career track, reserved exclusively for humans. Body to body work remained one of the few areas untouched by automated hands. The bathhouse was made by humans for humans. An existential arena if you will, where people could choose their own values and make themselves.

“Thank you Jacque! That was blissful as always. Let me get dry and dressed and we will meet you out back in 30 minutes, ok?” Ilan gestured to Gabriele, who was roaming the bathhouse like a bloodhound out for good conversations. They both decided to head out and freshen up before Jacque’s big exhibition opening. Through his work at the bathhouse, Jacque had come to observe all kinds of bodies. Faced with this kaleidoscope of beings, he realized how tragic and corrupt our historic visual narratives were. As he would replay his day at home, he would often scroll through an Instagram archive he kept. When he struck gold, he would print out an Instagram picture of interest and lay it down on the right side of his wide oak table. On the left, he would then lay out a blank sheet of paper and sketch out a similar body, silhouette, or body part from memory. Initially one saggy breast on the left would meet a perfectly cupped and luscious Instagram breast on the right. Soon, Jacques couldn’t stop contrasting the real life of the bathhouse with the silo of artificial Instagram history.

That night, while holding two glasses of Merlot at the opening, Ilan looked over Jacque’s work, mesmerized by the bland and instant kitsch he could now discern and distinguish, like a sommelier who had been trained

in body positivity and spotting bullshit. Proud of his new skills, he turned around to look for Gabriele to offload one of the two wine glasses. For the life of him, he could not spot the her long wavy hair. He kept pacing around the studio like a caged animal but could not spot his bathing confidant. Instead, he spotted Sarah across the room. He walked up to her and noticed her wet hair. Curious, he asked her about it. She admitted to him that she had just literally taken the plunge and had ventured out into the new public *Badehaus Heidelberg* for the first time ever. And with that literal plunge, Sarah had overcome her inhibition, tech sedation, and social aversion and opened herself up to socializing and interacting with others. The visit to the bathhouse had married the split personalities she had inhabited for so long. Sarah and Gabriele were now one, an omega bond of charisma, confidence and candor. Together they proclaimed:

“We are in the year 2040. The bathhouse is a constitutional right for us humans, speaking to our newly acquired free time, which transcends the historical notion of time as productivity. The time of the now is zero time, that is, the negation of the real time of production. We are free. We are clean. We are all enjoying revolutionary play. **Everyone is a narcissist together.**”

ROBIN TIM WEIS

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**“The shiny metal of the machine glistens
in the sunshine as it moves effortlessly
towards her across the marble floor
tiles. It has emerald blue eyes and light
pink shading on the lips. This machine
has style, Hilde observes. She wonders
what it is about robots that humans
still fear. Rex lowers his tail, curious
to see how events will unfold.”**

RUTH BARTLETT

Living in Togedera

Do you ever imagine a society where care homes for older people have become obsolete – where senior citizens who need round-the-clock care can stay at home?

INTRODUCTION

“Living in Togedera” is a short story about an imaginary town in the future—Togedera—where care homes for older people have become obsolete because everyone gets to choose a robot if they need round-the-clock care. The story features Hilde, a retired professor of robot ethics who was diagnosed with Alzheimer’s disease at age 74 and her dog Rex on their first visit to the local Robotic Centre. There they meet two

robots: Seraph, who works at the Robot Centre, and Sacha, who provides Hilde with digital advocacy and personal companionship. The story gives a glimpse into Hilde, Rex, and Sacha’s daily lives at home, before ending with a twist. This digital utopia is inspired by current research in robotics. Take, for example, the EU-funded Radio project (Robots in Assisted Living Environments: Unobtrusive, Efficient, Reliable,

and Modular Solutions of Independent Ageing). The project has developed a prototype robot, Zacharias, which is being tested in the homes of willing volunteers, including a 68-year-old woman with arthritis. What is emerging from such research is the possibility that humanoid robots could provide the solution to the long-term care of senior citizens. The world population is ageing; the numbers of people aged 80+ are expected to rise dramatically between 2020 and 2035. Many people

will develop dementia, a major, rapidly increasing cause of round-the-clock care and support. Accepting robots into our private lives, into our homes, will radically change our lives. For people with dementia, a fully autonomous, cloud-connected, and caring robot could provide the personal companionship and digital advocacy they need to stay at home. The aim of this text is to inspire a new way of thinking about living, not only for senior citizens, but for everyone.

Tuesday, May 1, 2040. It's Robot Day, the day Hilde and Rex have been waiting for since her diagnosis. Hilde is bubbling with excitement, but she is also apprehensive. She is on her way to a place she has never been before, to meet her new personal assistant. As they walk through what has become their favorite park in Togedera, Hilde wants to skip, as if she were on her way to school again for the very first time, but she thinks better of it. "I'm 75, not 5"—she reminds herself—and resumes walking along the rusty red asphalt path. Rex wags his short stumpy tail, as if to say, "I'm excited about all this too."

Hilde feels glad to be alive and living in Togedera. The place has always felt very special and different from anywhere else she has ever lived. For starters, everyone is so kind. This suits her and all the other beings who live there, including Rex, who is as sensitive to reproach as she is, and her friends who have profound disabilities and need others to be generous with their time. Another wonderful thing about living in Togedera is that all the machines in the town are super easy to use and her personal devices only

take a nanosecond to recharge. If only everywhere could be like this. She feels so lucky to live in Togedera, although it is not somewhere she ever imagined she would be.

Before moving to the town, Hilde was a professor in robotic ethics in a small but well-respected university about 150kms northwest of Togedera; after gaining her PhD, she led a program of research on artificial intelligence for supporting people with severe cognitive disabilities to make decisions. Her article on “Digitalizing Control for People with Profound Disabilities” is still one of the most cited papers in *Nature*. It was a sad irony, then, when Hilde herself was diagnosed with Alzheimer’s disease on the day before her 74th birthday. As soon as the doctor told her, she knew what she had to do—move to Togedera, where she knew she and Rex could be happy.

Today, as they make their way through the park, Hilde notices the fog. Not in the atmosphere but in her head. It’s a weird fuzzy sensation that enters her mind without warning. All of a sudden she has forgotten where she is going, what she is meant to be doing, who she is; she cannot even remember her name. Fuck! She thinks. Not this again. What am I supposed to do now? Immediately, Hilda starts to panic. She can feel her heart racing and her muscles tensing but is unable to do anything about it; anxiety sweeps uncontrollably through her body. Rex senses something is wrong, slows down, and looks at her with his doleful eyes. “Please don’t look at me like that,” she says imploringly. “It’ll be okay.” Then, Hilda hears a reassuring voice through her earpiece telling her who she is and where she is going. “Oh yes, of course,” she says to herself, “I’m off to meet my personal assistant.” “How could I forget something as important as that? Come on Rex, let’s go, we’re almost there.”

As they approach the elegant white metal gates of the Robotic Center, Hilde spots the sign that her doctor has told her about. As she looks up to read it, she hears a silvery voice say *“Hello Hilde and Rex welcome to the Robotic Center. As you live in Togedera and have been diagnosed with dementia, you are entitled to a free humanoid robot. The gates are opening now; please walk through to the courtyard where a member of staff will greet you. Have a wonderful day!”* As they proceed through the gates, the same silvery voice continues to guide her. *“You are now in the courtyard of the Robot Center; if you look up you will see your name and appointment time; we are expecting you and look forward to meeting you. We hope you enjoy your visit. If there is anything we can do to make you feel more comfortable, please just ask.”* Hilde stands in the middle of the peaceful courtyard and takes it all in; she can smell the lavender pots. Before too long, she notices it—a sleek humanoid robot approaching her from the bottom right-hand corner of the courtyard. Rex has spotted it too: his little ears perk up. The shiny metal of the machine glistens in the

sunshine as it moves effortlessly towards her across the marble floor tiles. It has emerald blue eyes and light pink shading on the lips. This machine has style, Hilde observes. She wonders what it is about robots that humans still fear. Rex lowers his tail, curious to see how events will unfold.

The robot stops in front of Hilde, tilts its head, and smiles: “*Hello Hilde, welcome to the Robotic Center. My name is Angela and I am here to help you today. How are you feeling?*” Hilde admits to Angela that her legs ache and that she feels slightly foggy in her head. The robot offers Hilde a large glass of clean water, which she gladly takes and drinks in one go. The fog in Hilde’s head finally clears. “*Hello Hilde, welcome to the Robotic Center, my name is Angela and I am here to help you today. Here at the Robot Recycling Center, we can help you choose your new personal assistant. Your robot will be customized especially for you; we will program it so it cares for you in just the way you like to be cared for. All our robots are connected to the cloud, so all you have to do is ask it a question and it will answer. If you like, your robot can speak on your behalf when any decisions need to be made. Your robot will always suggest things that are in your best interests. Every robot meets the national minimum safety standards and is made of hypoallergenic materials. Do you have any questions Hilde?*” “Yes, I have one,” Hilde said. “Does it like dogs?”

As Hilde sits and waits in the courtyard, in amongst the greenery and fresh flowers, she notices a large digital poster with an eye-catching geometric image alongside the slogan “*Our robots are helping you stay informed and in control of your life.*” Hilde absorbs the message and starts daydreaming about her life with a robot while gently stroking Rex’s floppy ears. Then, a young woman comes and sits down next to her and introduces herself in the sweetest tone: “Hi Hilde, my name is Seraph, is it okay if I sit here next to you?” “Yes of course,” Hilde replies. Seraph says hello to Rex with a few tender strokes of his back. The two women complement each other on their outfits; Seraph has on a simple silk dress, which suits her slender frame and smooth skin, while Hilde is dressed in her favorite blue plaid skirt suit and navy court shoes. The two women share pleasantries, while Rex lies down to sleep on the cool, marbled courtyard.

After a few minutes, the conversation turns to robots and their favorite features. Both women speak about how thrilled they felt when they first interacted with an emotionally responsive robot. For Hilde, it was in a university lab in South Korea, whereas Seraph first met one during a family day out at the local Robot Science Museum. Interacting with a machine that could actually sense how they were feeling was such a memorable experience. They soon realize that they both moved to Togedera for exactly the same reason: because people get to choose a robot, rather than a care home, when they need round the clock care. Neither women minded

paying the “robot tax,” which the municipality introduced in 2030 to fund the scheme, because they knew it meant freedom and control for so many people.

Hilde tells Seraph that back in the day, her aunt lived in a care home. It was a lovely place, the staff were well trained, and they did everything they could for her, but she was miserable. “Every time I saw her, she looked so forlorn.” Hilde explained, casting her eyes down to the ground. I can still picture her, stroking a robotic seal, as though it was the only thing she had left in the world. I wanted to say ‘You need legal advice, not a pet.’ In fact, I wanted to say that to everyone who lived there, but I didn’t dare. Nobody said anything back then. Older people were just expected to move into a care home, even though we knew that for many it felt like living in a ‘prison without bars’ or the ‘end of the world’” Rex gives out a few whimpers and twitches, having already fallen into a deep sleep on the floor. Hilde carries on with her story undistracted: “I could never have lived there; she was on the third floor, so she couldn’t go into the garden by herself or go out alone. Also, the place didn’t have Wi-Fi so it was impossible to access information or stay connected with family and friends. How we could have incarcerated so many people just because they all needed round-the-clock support, I will never know.”

The same question had gone through Seraph’s mind, as she listened to Hilde talk about her aunt. The young girl had heard of such places but had never spoken to anyone who had been in one. “I can’t imagine what it must have been like living in one of these homes,” Seraph admits. “Having to move in with lots of people you do not know and not being able to go out or connect. It’s unimaginable now isn’t it?” “Fortunately, yes,” Hilde replies. Rex stirs from his sleep, sits up, and looks around. Hilde starts to feel restless too. “Let’s go into the center and meet your robot” Seraph says cheerily. Rex stands up and then Hilde; they are both eager to walk again.

A year later Hilde is preparing breakfast with her robot Sacha by her side. Rex is half asleep on the sofa, he’s never been able to relax completely when Hilde is in the kitchen. “Next you need to whisk the eggs” says Sacha, as she gives Hilde a fork to use. Hilde told Sacha that she was hungry when she woke up so Sacha suggested an omelet, knowing how much she liked eggs. Like other robots designed in 2040, Sacha had a personality and was extraordinarily caring; she would do anything to help Hilde. The machine was also fully autonomous, cloud connected, and always on, so Hilde could rely on her one hundred per cent for anything, including ordering groceries when she was running out of food, so her fridge was always full. They both had got used to having Sacha around surprisingly quickly. At

first, Rex would stick his nose on all the joints of the machine, trying to detect a scent, but he gave up after a week.

As she sits down to eat, Hilde asks Sacha what they are doing that day; she tells her about the check-up appointment at the Robot Center. “Oh yes, stupid me, how could I have forgotten about that. What shall I wear?” “The forecast is showers, Hilde. So, you could wear your favorite breathable trousers and waterproof jacket. I have laid these clothes out on the bed for you.” Hilde starts to daydream about a man she once knew and begins to wish she had chosen a sex robot rather than a care companion.

Instead of going into her bedroom to get dressed, Hilde goes into her study and walks up to the large glass desk she has had since she became a professor. She touches the glass and breathes in the smell of the books in her study to help her feel sensual. She opens a drawer and comes across a folder called **Living in Togedera** and starts to leaf through it. The folder is full of differently colored sheets of paper. One sheet has the words **Participant Information Sheet** in large bold font, and another is titled **Consent Form**. She looks more closely and notices her name, Hilde Borsted, printed in the top right-hand corner of the consent form and what looks like her signature underneath. I don’t remember signing this, she thinks, but I suppose I must have done. At that point, Sacha comes into the room so she asks it about the form. “Yes Hilde, you signed this form on February 1, 2040 at 10.47 AM. Would you like to see yourself doing it?” “Ooh yes, I would, thank you.” Sacha presses the button on its chest, and up pops a small video screen, showing a woman in a plaid checkered skirt suit sitting at the same large glass desk she was now sitting at, signing a form. Hilde likes the skirt suit—she has one just like that in her wardrobe—and she recognizes the desk, but she doesn’t recognize the woman. Was it her? Is that really what she looks like from that angle? *“Hilde, this is you, signing the form. Can you see that? Do you have any questions about this film?”* “Yes, I do: what’s the form and why am I signing it?” *“It is a consent form for the research study that you are in—shall I read the information sheet to you Hilde?”* “Yes, please, Sacha.” “Okay, this is what it says:

What is this study about? The study is about developing ethical robots. Togedera is a life lab. A place where everyone takes responsibility for each other and those around them.

Why have you been asked to take part in this study? You have been asked to take part in this study because you have recently been diagnosed with dementia and your name is on the register for the *Living in Togedera* life lab project.

What does the study involve? The study involves you moving to Togedera—a real community where ordinary individuals and families

live—and accepting a humanoid robot into your home for twelve months. During the twelve months, you will be asked to create moral dilemmas for the robot to solve, and to keep a record of your experiences of living with a robot. Once a year, we would like you to return your robot to the center so that we can carry out essential checks and updates..."

"Stop. Thank you, Sacha; I remember now," she lies. Hilde doesn't remember signing the form, but it doesn't matter. She is quite happy living in Togedera. It is where she has chosen to be. She may not recall making the decision but the fact that she is happy now is all that matters to her. Some people might say that living in a life lab is not real life, but what is real life?

RUTH BARTLETT

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“And thus, when the Machine began repeatedly pronouncing the touch of his fingers a failure, Mangal’s fears were confirmed. He did not know what was worse: trying to put behind him a history of humans ostracizing the very thought of his touch or beginning a new chapter of machines loudly disagreeing with the reality of his touch.”

PREETI MUDLIAR

In Mangal's New World

Mangal's mutiny against the machine was driven by the historical injustices it reminded him of. His rebellion ushers in a long lasting socio-technical revolution that changes the way people live in 2040.

INTRODUCTION

The short story "In Mangal's New World" attempts to understand the world of people who occupy positions of marginality and find themselves vulnerable to the top-down diktats of technological systems. Specifically, it examines the enforcement of biometric authentication through fingerprints on the poor so that they can obtain state-sponsored entitlements of essential commodities. The digital utopia

draws on the literature of broken-world thinking advanced by Steven J Jackson and wants to understand people's experiences when their biometrics fail or "break." By doing so, the text presents two points. First, it explores the claim that transferring one's touch to a machine as a way to record and authenticate fingerprints is a foolproof way to correctly identify a person. The idea of touch in Hindu society has had a

contentious history, given the practice of untouchability that was used to discriminate against the lower castes. Thus, the process of touching a machine to submit one's fingerprints as biometric data and then experiencing rejection when the biometrics fail seemed to evoke a historically precarious nuance about the deeply contentious nature of touch that is experienced by those occupying the lowest rungs of the caste hierarchy in India. Second, it delves into the idea of rebellion against the tyranny of technology. Naming the protagonist Mangal was a deliberate choice as it is also the name of an upper-caste Brahmin soldier who ignited the 1857 Indian Sepoy Mutiny against the rule of the

British East India Company. While the rebellion in 1857 failed, Mangal, who comes from a lower-caste background in this story, succeeds in ushering in a socio-technical revolution in 2040. The story is a descriptive piece on the trials and tribulations of Mangal, who regularly finds his biometrics failing. The piece allows readers a glimpse into the many ways in which biometric systems inherently fail people by refusing to recognize their conditions, their contexts, their existence, and thus their claims. Speaking to the discipline of human computer interaction, the author implicitly asks the question of whether we should instead be working towards *humane* computer interaction?

As a veteran of the 2020 mutiny, Mangal had never managed to shake off the deep anxiety that robots engendered in him. Even as they cheerfully hailed him on his yearly visits to the welfare office to renew his pension claims. "Namaskar, Mr. Mangal. We acknowledge your needs and strive to be of service to you," the pleasantly modulated voice would greet him when he placed himself in their line of vision. When his turn came, Mangal held up his palm as if he were high-fiving the robot. This was the gesture that everyone adopted to enable a collaborative inquiry into the purpose of their visits.

When Mangal's hand met the robot's, the machine's emotional intelligence set to work, analyzing and feeling through the data that Mangal permitted it to access depending on the task at hand. For his pension renewal, the robot needed to authenticate Mangal's proof of life and assess his health condition to determine if the amount due to him needed to be increased to accommodate any physical, social, mental, or emotional distress. Accordingly, Mangal accepted the robot's request to access his pulse. He also allowed his synapses to transmit their signals for a quick scan of the valences of his feelings. This was essential to identify if he needed to see a counsellor to help him with any unhealthy thought patterns that were plaguing him.

The screen on the robot's chest threw up a detailed graph charting his moods and feelings over the past month. It was a colorful representation of their occurrence and frequency, leaving Mangal free to think through and correlate his moods with the actual incidents in his life. Looking at the chart this time around, he could identify how his worry had spiked every time his granddaughter had travelled outside the city on work and had forgotten to call him. The blanket of sadness that was a grey patch on his chart, had occurred at the time when he had been busy with his duties as the presiding authority for the 20th anniversary of the mutiny. He was not surprised to note that it had overlapped with frenetic nostalgic activity. He had given interview after interview recalling the events that had led to that eventful night in 2020.

Nostalgia had continued to show a strong presence, even after the anniversary had ended. It coincided with the new headset that his granddaughter had gifted him on his birthday. It came pre-programmed with the hit parade of the Hindi songs of his youth and he had taken to spending his mornings oscillating between schmaltzy mushiness and a wistful longing for the simpler times of his boyhood. As in the past, his anxiety levels showed a gradual increase as the day of his visit to the welfare center neared, but it wasn't severe enough to warrant concern just yet.

Mangal swiped to save the chart to his pension and health account, over which he had sovereign control. Nobody could access his data without his consent. The robot renewed his pension and wiped his health data clean from its memory. Their interaction ended. Respect for individual privacy was one of the cornerstones of the New Order that had come into force post the mutiny. The rules of the new world that Mangal now inhabited, emphasized sensitivity and dignity in interactions and transactions between people and machines. Even the vocabulary that was used to describe the essentials of a digital society had transformed to accommodate a changed value system.

Thus, human computer interaction had transitioned into humane computer interaction. There was even a department of Humane Computer Interaction to oversee and regulate human-machine relations. The violence inherent in a regime that solely operated on the principles of machine-readable bodies had been discarded. With it went the anxiety and indignity that oppressed people when machines failed to correctly assess them and their needs. In its stead, the New Order operated on the values of machine sensitivity towards humans. Before the mutiny, machines would blithely pronounce people as failed data if they did not meet the machine's standardized requirements for recognition. Now, machines could not be deemed intelligent if they did not contextualize how people dwelled within the differing situations and positions that defined their lives. It meant that the robots, were built to operate through multiple models of thought and feelings that they used to navigate different cases. For instance, when confronted with a person whose palm could not adequately transmit the required information, or worse, a person with no upper limbs, the robots searched through their accumulated emotional and knowledge store to find alternative ways to identify and serve the person or transfer them to a human for assistance.

In this way, the New Order required machines to recognize, process, and address the plurality and diversity of the human way of life. Still, even with the high competencies that machines had come to acquire, alternatives were maintained. Thus, even while the government trained and updated the machine brains of the robots with regular caregiving patches of empathy, patience, and kindness, they remained mindful of the minority community of the machine avoiders—people who did not wish to interact with machine way of life.

Mangal could just as well have been one of the machine avoiders. The sheer convenience and swiftness with which the robots operated meant that most people defaulted to the machine embracer status. However, being a machine avoider never imperiled the avoider's way of life. The constitution of the New Order that was enforced in the year 2040 guaranteed and safeguarded the rights of the minorities conscientiously. Mangal would have had nothing to fear if he had chosen to live as an avoider. Moreover, it would have helped him in bypassing the anxiety he experienced whenever he had to engage in machine interactions.

Still, Mangal persisted in interacting with all kinds of machines, including the welfare robots. Years after having been once responsible for a mutiny against the Machine, he forced himself to continue interacting with them. It was his way of maintaining eternal vigil over a system that had once destroyed his will to live.

The year was 2020. In the nine months since the Rule of the Machine had first come to the village, Mangal's body had developed its own monthly cycle of reactions to its diktat. They foreshadowed his eventual encounter with the fingerprint verification process that had wreaked havoc in the hardscrabble chaos of his daily life. It always started in his head. The dull throbbing at his temples, which would soon transform into an ache behind his eyes. Within a couple of days, it would travel down to his forearms, shooting sharp darts of pain down to his wrists. Its eventual destination would be his fingers, where, on the fourth day, it would take up residence. For the rest of the week, it would shoot regularly from his head, travel down his arms, and coil tightly at the tips, as if to imprint itself on the whorls of his fingers. And there it would remain until Mangal finished the long-drawn-out fingerprint verification process every month.

During the week when the pain took over, Mangal would be stunned into silence. His jaw would clench with the effort it took to bear the pain that would course through his body. All attempts at speech would result in stifled noises. Instead, his ears would ring with the Machine's voice. "*Your touch has failed, your touch has failed, your touch has failed.*" Over and over again, the Machine would intone, even as, one by one, Mangal would press all of his ten fingers to the glass plate in the hope that one of them would work. Fingerprinting was the only way to prove his existence, identity, and valid claim to the water pills that the government disbursed to his family of five every month.

Often, when he was by himself, away from the worried eyes of his children and wife, Mangal would pore over his palms. It seemed to him that they were fated to wrestle and scuffle with the vicissitudes of touch. They carried within them ancient grievances of lives that were lived in careful avoidance of touching the wrong things. He had grown up hearing how, for people of his kind, who occupied the very bottom of the caste structure, touch had never been a neutral act. It had always been fraught with the peril of threats, uncertainty, and vulnerability that his ancestors had survived.

Water, even then—in the time of his forefathers—had been a site of contention, and the punishment for drawing water from the common well was often fatal. As was drinking tea from the wrong saucer or even letting their shadows fall upon a higher caste person. All of these acts carried swift and immediate retribution for the pollution and bad luck that their touch would bring upon those perched higher up in the social order. So, you see, there was never the slightest scope for accidentally grazing against the wrong kind of object or person. Their very survival depended on the surveillance and vigilance of their touch. The language of their bodies

was cultivated so they could shrink into spaces so small that they often asphyxiated on the toxicity of their circumstances.

Accordingly, Mangal had inherited an acute sense of the way bodies such as his could become mistakes. It was a part of his inheritance. The way his body carried within itself a few millennia worth of remembered oppression as bearers of impure touch. Hence, when the Age of the Machine first came to the village on the back of promises of recording their fingerprints for posterity to make their lives easy, Mangal was skeptical. It would involve physical contact with machines and who knows how they would react to his touch?

The great water drought was well underway by 2020. The devastation that climate change had brought about hit people like Mangal the hardest. His family of five needed a water pill a day to survive. Each pill expanded to a bucket of water. With careful rationing, it would last an entire day—if they were lucky enough not to have any accidents. Sometimes, buckets developed leaks. The first time it happened, Mangal discovered it only late in the evening after all the water had slowly drained away. One time, a full bucket had slipped from his mother's frail hands. It meant the loss of two water pills in a day. Despite their caution, water spillage was common. Sometimes due to bad luck, sometimes due to accidents. When this happened, it cut deep into their ration and brought additional hardships. It often meant borrowing money to be able to buy expensive water pills from the open market and sinking deeper in debt.

After years of agitation and lobbying by activists, the government had finally been compelled to bring in the Right to Water Act. It helped create a water security net for the poor. It meant that Mangal could receive subsidized pills from the village council office against his signature. But, the government decided to introduce the Rule of the Machine to keep count of the demand for and supply of the pills in a bid to track and save costs. Water pills would now be available only against the successful verification of fingerprints. There was unease in the village when this was announced.

What would the Machine do to a life such as Mangal's that was spent bent from the waist down, with both feet and hands rooted in soil? At work, he spent all his time busily toiling in his landlord's fields. Season after season, the cycle of his life rolled from tilling and sowing to plucking and harvesting. His hands expertly wielding plough and sickle with equal ease. His palms and fingers bore the mark of his expertise. They were scarred and pitted with bruises and wounds. Some healed, some unhealed, some maintaining their forever status as an injury-in-progress. The rigor and unyielding labor that characterized his work had mapped itself on to his hands and made his fingers rock hard, unyielding, stiff, and inflexibly thick.

And thus, when the Machine began repeatedly pronouncing the touch of his fingers a failure, Mangal's fears were confirmed. He did not know what was worse: trying to put behind him a history of humans ostracizing the very thought of his touch or beginning a new chapter of machines loudly disagreeing with the reality of his touch. While the Machine could not feel or listen, it could speak very well indeed. When it pronounced a touch a success or failure, it made sure everybody heard its verdict. But it was not sentient to the friction it was creating within people and could not listen to their dissenting cries of despair.

Mangal's obsession with examining his hands began the very first time he recorded his ten fingers with the Machine. He was told that what the Machine had captured was to be his only identity from that moment. As he pored over the landscape of his palms, he wondered about his fate. If a palmist were to read Mangal's hand, he would have been confronted not with the mounts of planets, but with mounts of hard, callused flesh. Together, they would have presented a narration of Mangal's story for anyone.

Every month as the pain began its journey down to his fingers, Mangal set about trying to repair and groom them. After returning from work, he would scrub and oil his fingers in a bid to soften and ready them so that the Machine could read his prints clearly. Given the strict rationing of water, his family would scrimp and scrounge on their consumption to reserve the four water pills that Mangal would need to minister to his fingers through the month. However, this rarely worked. Instead, Mangal would find himself queuing up along with many others like him, fervently praying for a successful verification outcome.

Among the villagers, talk about the Rule of the Machine was varied. For some, the Machine promised a righteous form of governance. They said that the experience of extending their finger to the Machine was their way of pledging regular allegiance to the government. It allowed records to be produced, such as the date and time of verification and the quantity of pills disbursed, which officials offered as proof of efficient administration. But, its record keeping was only partial. Opposition to the Machine meant that they were quick to brand you a traitor to the cause of an efficient nation. Some even suggested that such treachery should be punished by sending people to the notorious Island of the Black Waters that housed a digital poorhouse for people deemed unfit for the digital age.

So, Mangal said nothing. In any case, the pain made it difficult for him to speak. He continued to coax his fingers into being read by the Machine, but their obedience was hard to achieve. His touch continued to fail more often than it succeeded and the pain returned unfailingly every month.

Until one evening, when Mangal was driven to distraction by the pain coursing through his body. On that hot May night after a hard day's work harvesting crops on the field, Mangal found himself convulsed with spasms. As he lay writhing on the floor, blinded by his misery, he was alarmed as his voice acquired a life of its own and he heard himself scream. Something within him snapped and he got to his feet. Instead of the fear and anxiety that he had felt moments earlier, he now felt a welcome surge of exhilaration, an unexpected sense of independence. He found himself liberated from all compulsions of expected behavior. There was no one to beat him into timid submission, no one to seek approval from, and definitely no one to disapprove. The thought gave him wings and he soon found himself running through the grounds to the far end of the village.

When he reached the edge of the village and could run no further, Mangal realized he had also reached the end of his imagination. What should he do with his newfound sense of self and where should be go? He began running towards the village council office. A machine just like the one to which he offered his fingers every month stood guard against the door. It would only let you inside if your fingerprint was read correctly. The blood rushing to his head, Mangal placed his finger on the machine. Predictably, it told him his touch had failed. Mangal smashed the machine and continued battering it in a frenzy. The machine shrieked, and then, felled by Mangal's touch, its speaker blew up. It could no longer pass any verdict.

The resultant commotion brought several people to the office. Stunned at first, they looked at Mangal, who was charging around the office breaking every machine he could lay his hands on. His intelligible screaming echoed in the village. The revolt spread. Beginning that May evening, the rage of a million mutineers turned against the Machine, as people across the dusty plains of the country banded together in rebellion demanding an immediate recognition of the authenticity of their claims and their touch.

In the immediate aftermath of the riots, Mangal was arrested and sentenced to prison. He stood trial for inciting the revolt and was convicted and sentenced to life on the Island of Black Waters. The riots, however, continued to rage.

Even as Mangal was serving his sentence, the uprising forced a change in the regime. The old order was ousted and in its place a new techo-political imagination that pledged to privilege humanity over machines assumed leadership. The machines lost their capital M status. Among the things that the New Order did was to bring Mangal back from the Island of Black Waters. Its leadership wanted to listen to his experience. To recognize the despair that led to the violence of the mutiny. The new order

constructed a memorial in Mangal's village recognizing it as the site of the 2020 insurrection. In Mangal's new world, it was the only remnant of the Old Order.

He no longer experienced pain.

PREETI MUDLIAR

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY BANGALORE

Preeti Mudliar is an assistant professor at International Institute of Information Technology Bangalore (IIITB). Her research interests broadly center around gender, infrastructure, and digital media using ethnographic methods and analyses. Currently, her work is focused

on people's acts of "repair" and coping following biometric authentication failures in the public distribution system (PDS) in India. Preeti Mudliar holds a PhD in communication studies from the University of Texas, Austin.



LEARN

How will we learn in the future? What will we teach our children? What will schools and universities look like?

CHAPTER 3



**“Sup M. All good in Queen City?
Missed you at South Bay this year.”**
**— Lars Nilson, Sales Ambassador &
2040 Kuneco Happiness Officer**

GRIF PETERSON

Something I Noticed

[[WikiLeaks Alert]] The Kuneco Files: board meeting agenda and accompanying emails reveal internal sabotage at America's largest education social corporation.

INTRODUCTION

“Something I Noticed” is a series of 13 email threads dated between April 10 and May 9, 2040. These were pulled from the company servers and compiled for an emergency board meeting at Kuneco, one of the world’s largest education companies. Kuneco has a big mess on its hands, and the leadership team hopes that these emails will help illuminate how the problem began. The piece is a reaction to the reductionist

and self-important language that dominates a lot of educational “innovation” today. A lot of time and money is spent on research on how technology will shape the future of education, when the question that really demands to be asked is how the agendas of the people who make, fund, and proselytize technology will impact the future. By and large, the path society is currently on is in the hands of a hypocritical

ruling class, who co-opt potentially powerful concepts like personalization, online education, just-in-time learning, and virtual reality into hackneyed tools in service of the status quo. This piece also reflects on the concept of utopia in general. Historically, most dystopian and utopian worlds draw on systems-based thinking: designers develop structures for an ideal world that allegedly anticipate and respond to the needs of the citizens. This piece, however, is skeptical of this framing, as even the “best” designed system is flawed and comes at the expense of co-construction. The same is true with regard to education. Both education and utopia can only ever be practices, not stable end points: they exist at the margins of our systems and institutions. This collection of emails not only reveals fragments of a story, but it also provides small insights into corporate

culture. Since how companies operate is at least as important as what they do, the email format provides additional insight into the business of education. This format was also intentionally chosen for its anachronistic quality. It is unclear whether email will still be the dominant form of corporate communication in 20 years time. However, rather than trying to imagine some distant form of communication, the email format keeps the narrative in a pattern that feels relatable in 2020. This framing also allows the reader to look beyond the technology and focus more on the power dynamics and interpersonal relationships in this story. These dynamics are pervasive across time. To put it another way, email signatures might not prevail in 2040, but there will probably be some form of corporate communication equally as inane.

EMERGENCY BOARD MEETING AGENDA

8 AM, Thursday, May 10, 2040

I. Welcome

The Kuneco Executive Committee would like to express its gratitude to the Board for convening on such short notice. Together, we remain confident that in light of yesterday's events we can maintain the integrity of the Kuneco value proposition/business model.

II. Agenda for Board Approval

- Given General Council's recommendation, Executive Committee recommends immediately terminating Martha Nenon (ID 103KG) and placing Fabrice Castanelli (ID 104MS) and Michelle Da Silva (ID 838RH) on a formal leave of absence for the duration of this investigation by the Iteration Taskforce.
- Given his peripheral role in this incident and excellent track record at Kuneco, Executive Committee recommends that Tim Wagner (ID 408FF) be elevated to a two-year term on the Iteration Taskforce effective immediately. Executive Committee is confident that it will not be a problem for him to manage this responsibility on top of his standard workload and his recently announced role as Kuneco's 2041 Happiness Officer.
- Kuneco will file a Class 1 Recommendation to the New York City Sackler Family Department of Education today requesting that New York public school teacher Jesimon Forrester be fired from his posting for inciting conspiratorial action. To further make the case, Executive Committee recommends additional letters of support filed by Kuneco Board Members Priscilla Chan and Eric Trump.
- To address the anticipated blowback when the community forum reverts to normal operation, Executive Committee recommends the formation of a teacher community advisory board to give teachers a new outlet to air their frustrations and contribute to our mission.
- While yesterday's events are still unfolding, it seems clear that the curriculum development team demonstrated unsatisfactory levels of empathy with teachers and students when developing curricular modules about The Clashes. Therefore, Executive Committee recommends that Director of Content Samantha Burns (ID 226 JF) be terminated from her posting effective immediately and, furthermore,

that Kuneco enlist McKinseyIDEO in the search for a new Director of Content.

III. Detailed Timeline of Events

- 5/9/40 11:30 AM // Seamus Martin (ID 199YY) first reported community forum disruption to Hildi Brendlemeyer (ID 101CT).
- 5/9/40 12:15 PM // Hildi's staff conducted internal communication scan to uncover origins of disruption (included as Section IV of this Board pack).
- 5/9/40 3:45 PM // Executive Committee met to discuss the issue, and notified Board of request for an emergency meeting. Fabrice was not present as he was flying back from Seattle.
- 5/9/40 5:15 PM // Martha, Fabrice, and Michelle were placed on temporary leave of absence. Their communication devices, building access cards, and credit lines were put on hold. Only their company FitBits have remained active, as we are neck and neck with GrassRoots in the #EdTechTeamSteps competition.
- 5/9/40 10:30 PM // General Council determined that the compilation of emails that Hildi's team uncovered was sufficient evidence to terminate Martha without severance due to deliberate actions taken on her part to harm Kuneco. Council also determined that Fabrice and Michelle should remain on leave of absence until their intentions can be better understood by the Executive Committee and Iteration Taskforce.
- 5/9/40 10:45 PM // Executive Committee began working with Public Relationships Director Harold Greenlaw (ID 929YZ), who led Facebook's 2018 "Here Together" ad campaign, on a video message for Hildi to share directly to all classrooms, letting them know that we hear them and that we are committed to doing better. This message will be embargoed upon completion and only be released if the Executive Committee feels that all other options have been exhausted.
- 5/10/40 6:00 AM // Executive Committee reached out to corporate content partners about offering new perks for teachers to mitigate adverse teacher feelings towards Kuneco in light of these events. So far AMC has committed two free movie streams for all Kuneco teachers this summer and Purdue Pharma is offering a 50% friends and family discount on naloxone for all Kuneco staff.
- 5/10/40 7:00 AM // Recognizing the limits of our SeeBothSides™ curricular approach, General Council conferred with the US Department of Patents Trademarks and Intellectual Property to secure rights to the tentative name of a new proprietary pedagogical framework called "ChooseASide."

Hildi scheduled a meeting with the Department of Education at 10 AM today to discuss emergency funding for this initiative.

- 5/10/40 8:00 AM // The Kuneco development team is still trying to identify how to roll back superuser permissions that Martha granted to all site users yesterday morning. This process is going slowly after a suspicious number of our most veteran devs called in sick today. In the past 24 hours, 42,193 users have made a total of 164,183 posts on community discussion boards. This is compared to average daily activity of 1,119 posts from 542 users.

IV. Background Documentation

Compilation of Relevant Emails Dated April 10–May 9, 2040

From: Da Silva, Michelle (PRODUCT)
Sent: Tuesday, April 10, 2040 10:13 AM
To: Castanelli, Fabrice (PRODUCT)
Cc: CONTENT-TEAM
Subject: Something I noticed

Fabrice (cc content team),

I've been digging into last month's numbers in advance of our product service meeting and I came across something pretty major: not only is the time that teachers spend in training modules continuing to trend downwards, but this past month it decreased by a full 4%! Furthermore, student-reported satisfaction with their teachers is higher than ever. I know we generally don't place much credence in teacher feedback, but, for what it's worth, the teacher satisfaction index is also going up. This is all a pretty drastic change from what we're used to seeing, and from what I can tell, the anomaly seems distributed across the 11,000+ school districts that use our software in the US. Happy to conduct a more in-depth analysis if you think it would be helpful before our meeting.

Thanks,
Michelle

--
Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Castanelli, Fabrice (PRODUCT)
Sent: Tuesday, April 10, 2040 11:44 AM
To: Da Silva, Michelle (PRODUCT)
Cc: CONTENT-TEAM
Subject: Something I noticed

Thanks for flagging, Michelle. Please go ahead with that analysis. Also, can someone remind me how we measure teacher satisfaction in this instance?

F.

From: Burns, Samantha (CONTENT)
Sent: Tuesday, April 10, 2040 12:19 PM
To: Da Silva, Michelle (PRODUCT); Castanelli, Fabrice (PRODUCT)
Cc: CONTENT-TEAM; Wagner, Tim (SALES)
Subject: Something I noticed

Hey all! I can chime in on this. Fabrice, here are the relevant entries from our Stats and Data Glossary (which is on the company wiki):

T3 (teacher training time) is the number of hours that teachers spend in our training modules each week. Generally, between 5–6 hours per week.

Student Metrical Instructor Lightning Evaluations (SMILE) are just-in-time prompts that students receive between 6–12 times per day asking them how well their teacher is engaging them at that point in time. Responses are used to queue the right learning modules for each student's personalized playlist, and this data is also aggregated monthly and published in the Best Teachers Supplement of US News & World Report. This data is all anonymized so that students feel comfortable responding honestly about their teacher's performance.

Teacher satisfaction index (TSI) is composed of teacher's answers to a set of weekly prompts:

- How likely are you to recommend Kuneco to a colleague?
- To what extent has the Kuneco platform improved overall classroom atmosphere this week?
- To what extent has Kuneco positively influenced your role as a teacher this week?

As Michelle indicated, TSI is a fairly small piece of the overall data profile that we develop for each district—the lion's share of our analytical resources go to student pattern identification, which allows us to do what we do best: sending teachers daily reports on how students are feeling, automating parent-teacher conferences, using machine learning to optimize our summer internship matching processes, sorting students into academic, vocational, defense, and carceral tracks, identifying infants for the preKtoPhD pipeline, etc.

All of this being said, the Sales Ambassadors tell me that a lot of school districts and university procurement officers refer back to TSI before they re-commit to partnering with us. I've copied Tim Wagner here, who can

jump in with more.

- Sam

DM me on kCHAT

From: Wagner, Tim (SALES)
Sent: Tuesday, April 10, 2040 2:46 PM
To: Burns, Samantha (CONTENT); Castanelli, Fabrice (PRODUCT); Da Silva, Michelle (PRODUCT)
Cc: CONTENT-TEAM
Subject: Something I noticed

Sure thing, thanks Sam (and hi all from sunny Boulder, Colorado!)

Samantha is absolutely right! We find that when it comes down to signing the contract, more than 70% of school officials refer back to TSI. Between us, I think that they get a bit intimidated by all the data we throw at them, and the TSI is a human-centered index that helps reassure them that what they are doing is best for their students and school communities.

I'm curious to see what comes out of your analysis, Michelle. One immediate thought is that I *believe* that TSI and SMILE are reported to our dashboards as 3-week rolling averages, whereas T3 is weekly. Perhaps the anomaly can be understood as just a variation in the timeframe of the datasets that you are comparing?

-- Tim

~

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~

Vote for me to be Kuneco's 2041 Happiness Officer!!!

From: Da Silva, Michelle (PRODUCT)
Sent: Thursday, April 19, 2040, 10:06 AM
To: Castanelli, Fabrice (PRODUCT)
Cc: CONTENT-TEAM; Wagner, Tim (SALES); Nenon, Martha (DEV)
Subject: Circling back

Hi all,

I'm circling back about the anomaly I noticed last week now that I've had some time to dig into the numbers across multiple regions. I couldn't get our dashboard tools to give me the level of granularity I needed, so Martha from the dev team (copied here), helped me pull a .cvs file of country-wide data and we analyzed it together.

As a disclaimer, it should be noted that teachers never fulfill as many training hours as we think they should (much to the chagrin of our Gamification Design Lab!), and this happens for a lot of reasons, including life interference (many teachers are also parents) and the generally unmotivated nature of some teachers. But when we control for this anticipated level of failure, we still see a significant teacher drop-off from our training modules beginning on March 12, which was the day we released our explainer modules about The Clashes at the state houses in Lansing, San Juan, and Annapolis.

Furthermore, our disaggregated classroom-by-classroom analysis points to a causal relationship between the decrease in T3 and the increase in SMILE and TSI. It is the very districts that reported a drop-off in teacher training module time the week of March 12 that self-reported better classroom experiences for the rest of the month.

Last time a teacher cohort went off-script, we filed disciplinary actions with their superintendents and held a User Feedback Festival in their district. However, that was just one city, and the pushback against our modules here is multi-regional. Curious how others think we want to manage this.

--
Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Wagner, Tim (SALES)
Sent: Thursday, April 19, 2040, 10:08 AM
To: Da Silva, Michelle (PRODUCT); Castanelli, Fabrice (PRODUCT)
Cc: CONTENT-TEAM; Nenon, Martha (DEV)
Subject: Circling back

I think you mean .csv file not .cvs file :)

From: Da Silva, Michelle (PRODUCT)
Sent: Thursday, April 19, 2040, 10:13 AM
To: Wagner, Tim (SALES); Castanelli, Fabrice (PRODUCT)
Cc: CONTENT-TEAM; Nenon, Martha (DEV)
Subject: Circling back

Yes, .csv. Good catch!

--
Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Nenon, Martha (DEV)
Sent: Thursday, April 19, 2040, 10:14 AM
To: Da Silva, Michelle (PRODUCT)
Subject: Fwd: Circling back

tim is such a dick

(' V ')
((____)) Transmitted via LetterDove.
^ ^

From: Da Silva, Michelle (PRODUCT)
Sent: Thursday, April 19, 2040, 10:15 AM
To: Nenon, Martha (DEV)
Subject: Fwd: Circling back

Oh haha, no Tim's ok—I think he's just trying to help ... and I shouldn't be making mistakes like that anyway. But thanks for your message, Martha, I appreciate it :)

(Btw ... aren't you worried about saying things like this over work email? Don't like 20% of our emails get randomly screened by the Work and Wellbeing Taskforce? I'm not even sure I should be writing this ...)

--
Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Nenon, Martha (DEV)
Sent: Thursday, April 19, 2040, 10:17 AM
To: Da Silva, Michelle (PRODUCT)
Subject: Fwd: Circling back

They do, but it was I who originally installed the monitoring system so I'll make sure this thread gets removed from the review queue. ;)

(‘V’)
((__)) Transmitted via LetterDove.
^ ^

From: Castanelli, Fabrice (PRODUCT)
Sent: Thursday, April 19, 2040, 10:44 AM
To: Da Silva, Michelle (PRODUCT); Wagner, Tim (SALES)
Cc: CONTENT-TEAM; Nenon, Martha (DEV)
Subject: Circling back

Thx for this analysis.

@Michelle, pls schedule some 1-1s with teachers with low T3 to see if you can catch a more qualitative angle on what's happening. If possible, try to talk to at least one faculty from the UC system, as I have a meeting w/ their Chancellor next Tuesday and it'd be good to be able to reference the fact that we are engaging teachers on a face-to-face basis.

@Tim, has anyone on your team caught wind of anything like this?

F.

From: Wagner, Tim (SALES)
Sent: Thursday, April 19, 2040 3:21 PM
To: Castanelli, Fabrice (PRODUCT); Da Silva, Michelle (PRODUCT)
Cc: CONTENT-TEAM; Nenon, Martha (DEV)
Subject: Circling back

Not yet, but I'll see what I can gather on my end from the other sales ambassadors. I've definitely heard some grumbling from teachers in the past about being contractually obligated to spend time in the training modules, but even then it's mostly lighthearted, as they know that it's in the best interest of their students. I've definitely never seen an inverse correlation between teacher training time and classroom satisfaction before.

Oh, and a reminder that tomorrow is a state holiday here at the Boulder office, so I'll be out of pocket.

Tim

~

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~

Vote for me to be Kuneco's 2041 Happiness Officer!!!

From: Castanelli, Fabrice (PRODUCT)
Sent: Thursday, April 19, 2040 4:14 PM
To: Wagner, Tim (SALES); Da Silva, Michelle (PRODUCT)
Cc: CONTENT-TEAM; Nenon, Martha (DEV)
Subject: Circling back

I tend to agree with you, Tim. Our research is rock solid on the correlation between time spent in our teaching training modules and increased student test scores and higher workforce placement, so I agree that this has to be some sort of anomaly given that we are comparing apples and oranges with these two data sets.

There are good people on both sides of The Clashes, so personally I'm surprised that our modules on this topic aren't resonating with students ... but in any case content team pls do a sectional scoping analysis on the Clash explainer modules Michelle mentioned.

F.

From: Nenon, Martha (DEV)
Sent: Thursday, April 19, 2040 4:19 PM
To: Castanelli, Fabrice (PRODUCT); Wagner, Tim (SALES); Da Silva, Michelle (PRODUCT)
Cc: CONTENT-TEAM
Subject: Circling back

Or perhaps there's more to education than testing and jobs? :)

(‘V’)

((____)) Transmitted via LetterDove.
^ ^

From: Wagner, Tim (SALES)
Sent: Thursday, April 19, 2040 4:20 PM
To: Nenon, Martha (DEV); Castanelli, Fabrice (PRODUCT); Da Silva, Michelle (PRODUCT)
Cc: CONTENT-TEAM
Subject: Circling back

Ok Paulo Frerie. :p I mean obviously there is more but you know what we mean.

~

Be the change you wish to see in the world. – GANDHI

~

Vote for me to be Kuneco's 2041 Happiness Officer!!!

From: Castanelli, Fabrice (PRODUCT)
Sent: Tuesday, April 24, 2040 9:05 AM
To: Da Silva, Michelle (PRODUCT)
Subject: Any luck with uc???

Meeting with UC Chancellor this AM. Any luck connecting with a teacher here for 1-1s?

F.

From: Da Silva, Michelle (PRODUCT)
Sent: Tuesday, April 24, 2040 9:11 AM
To: Castanelli, Fabrice (PRODUCT)
Subject: Any luck with uc???

Yes! Sorry, I should have told you. I've had 4 meetings so far, with 2 more scheduled for tomorrow, including a UC adjunct professor.

--
Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Castanelli, Fabrice (PRODUCT)
Sent: Tuesday, April 24, 2040 9:13 AM
To: Da Silva, Michelle (PRODUCT); Ahmed, Larysa (PRODUCT)
Subject: Any luck with uc???

Great. I fly from SFO to DCA tonight and will be back in office Friday.

@Larysa, can you pls book the Bushwick Room for Friday to go over Michelle's analysis? 2:30–4:30 should work. Invite Sam Burns, Michelle, Martha, and set up a link for Tim in Boulder. Ask Sam if she wants others from Content.

F.

From: Ahmed, Larysa (PRODUCT)
Sent: Tuesday, April 24, 2040 9:21 AM
To: Castanelli, Fabrice (PRODUCT); Da Silva, Michelle (PRODUCT)
Subject: Any luck with uc???

Certainly. It is done.

Best regards,

Larysa Ahmed
Assistant to Fabrice Castanelli
Kuneco Charlotte

From: Da Silva, Michelle (PRODUCT)
Sent: Thursday, April 26, 2040 1:13 PM
To: Castanelli, Fabrice (PRODUCT); Wagner, Tim (SALES); Nenon, Martha (DEV)
Cc: CONTENT-TEAM
Subject: Feedback from teacher 1-1s

Hi all,

I met with six teachers over the past week (1 middle school, 2 high school, 1 community college, 2 university) and these meetings definitely added some depth to the anomaly that I noticed two weeks ago. I've attached edited notes from each meeting as a .ppt.

As suspected by Martha and my initial analysis, the teachers confirmed that the explainer modules about the recent Clashes led to them going off platform for portions of the school day. We've done explainers on the Clashes in the past with no problem, but many teachers pointed out that this latest bout of violence was unique in that it all got started with the revelation that school superintendents across the country were exposing illegal students to Homeland Security in exchange for makerspace grant funding from the Ford Foundation. This revelation brought the Clashes directly into the classroom in a new way, and destabilized many student's trust in school, and therefore, in Kuneco explainer modules as well.

If I try to extrapolate a bit what I heard from teachers, I would say a lot of students right now are looking less for an explanation of the Clashes happening across the US, and more for an affirmation of themselves as humans in a complex world, and a validation of their right to bring their own feelings into the classroom. Our SeeBothSides™ Explainer Modules seem to be falling short in this regard, despite their production value and immersive 4D 6K experience.

Recognizing this, teachers have started developing an old-school style of classroom management akin to a group discussion to talk about the Clashes together and, despite all of our research which suggests otherwise, this is really resonating with students. In one instance, a teacher even invited a student's sister who was protesting at the so-called "Baltimore-roar" into the classroom to share her experience. This young woman has no training with any classroom management, let alone a Kuneco Certificate Degree!!! The teachers didn't seem to be under the illusion that these discussions were

going to help reach testing standards, but then again they also didn't seem to particularly care.

Two other things:

First, it's still not clear how the teachers are able to teach without accessing our training modules. Ever since we deployed our Innovation Nodes at education graduate schools, teacher training programs across the country have been predicated on the understanding that teachers are using algorithmic playlists to drive teaching. Everything that teachers need to engage students during class comes through during the training modules, so I have no idea what teachers are drawing on to teach about something as delicate as The Clashes without any training. I know that sometimes startup disruptors will give away lesson plans and assessment rubrics for free to drive teachers to their platforms ... I hope that's not what is happening here!

Second, one teacher mentioned something about teachers sharing lesson plans with each other, but when I pressed him on it, he sort of shied away from the topic. I know that we don't allow teachers to make curricular recommendations in our online discussion forum, and teachers don't have any other way to communicate with one another, so I'm not sure what he was getting at, or even whether it would be possible for teachers to share this sort of info online without our community moderators noticing it (???).

Anyway, I look forward to discussing this with you all tomorrow at 2:30.

--
Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Castanelli, Fabrice (PRODUCT)
Sent: Thursday, April 26, 2040, 1:59 PM
To: Da Silva, Michelle (PRODUCT); Wagner, Tim (SALES); Nenon, Martha (DEV)
Cc: CONTENT-TEAM; Ahmed, Larysa (PRODUCT)
Subject: Feedback from teacher 1-1s

I'm not sure I buy that there is any larger issue with the SeeBothSides™ approach, but it does seem clear that there were some fundamental content failures that need to be addressed.

@Larysa—pls uplink Michelle's .ppt to my smart desk. I'll be back in office tomorrow for meeting.

And Martha, can u follow up on Michelle's comment about teachers sharing lesson plans? If there's non-Kuneco curricula circulating, then the schools will fall out of Dept of Ed compliance and our workforce partners will be pissed.

Not sure how it could be possible but worth looking into.

F.

From: Nenon, Martha (DEV)
Sent: Thursday, April 26, 2040, 3:02 PM
To: Castanelli, Fabrice (PRODUCT); Da Silva, Michelle (PRODUCT); Wagner, Tim (SALES)
Cc: CONTENT-TEAM; Ahmed, Larysa (PRODUCT)
Subject: Feedback from teacher 1-1s

Sure thing boss.

(‘V’)
((__)) Transmitted via LetterDove.
^ ^

From: Castanelli, Fabrice (PRODUCT)
Sent: Friday, April 27, 2040, 11:15 AM
To: Ahmed, Larysa (PRODUCT)
Cc: Da Silva, Michelle (PRODUCT); Wagner, Tim (SALES); CONTENT-TEAM; Nenon, Martha (DEV)
Subject: delayed

Regional hyperloop service is replaced with Amtrak again today, so not going to make it in time for meeting. Can u set up a multi-link?

F.

From: Ahmed, Larysa (PRODUCT)
Sent: Friday, April 27, 2040, 11:25 AM
To: Castanelli, Fabrice (PRODUCT);
Cc: Da Silva, Michelle (PRODUCT); Wagner, Tim (SALES); CONTENT-TEAM; Nenon, Martha (DEV)
Subject: delayed

All,

Please click here at 2:30 to enter a secure multi-sensory feed with Fabrice.

Best regards,

Larysa Ahmed
Assistant to Fabrice Castanelli
Kuneco Charlotte

From: Castanelli, Fabrice (PRODUCT)
Sent: Friday, April 27, 2040, 2:31 PM
To: Ahmed, Larysa (PRODUCT)
Cc: Da Silva, Michelle (PRODUCT); Wagner, Tim (SALES); CONTENT-TEAM; Nenon, Martha (DEV)
Subject: PASSWODR???????

Says I need Kuneco pw to join the feed. Pls share.

F.

From: Ahmed, Larysa (PRODUCT)
Sent: Friday, April 27, 2040, 2:32 PM
To: Castanelli, Fabrice (PRODUCT)
Cc: Da Silva, Michelle (PRODUCT); Wagner, Tim (SALES); CONTENT-TEAM; Nenon, Martha (DEV)
Subject: PASSWODR???????

Hi Fabrice,
The password is stored in KDRIVE:\Kuneco\Kun-CLT\CharlotteOffice\Communications\Team\Passwords

It is against company policy to share any passwords over email.

Best regards,

Larysa Ahmed
Assistant to Fabrice Castanelli
Kuneco Charlotte
DM me on kCHAT

From: Castanelli, Fabrice (PRODUCT)
Sent: Friday, April 27, 2040, 2:34 PM
To: Ahmed, Larysa (PRODUCT)
Cc: Da Silva, Michelle (PRODUCT); Wagner, Tim (SALES); CONTENT-TEAM; Nenon, Martha (DEV)
Subject: PASSWODR???????

Can't access. Pls set up dial in.

F.

From: Ahmed, Larysa (PRODUCT)
Sent: Friday, April 27, 2040, 2:35 PM
To: Castanelli, Fabrice (PRODUCT)
Cc: Da Silva, Michelle (PRODUCT); Wagner, Tim (SALES); CONTENT-TEAM; Nenon, Martha (DEV)
Subject: PASSWODR???????

All,
The dial-in information for this afternoon's call is:
1-224-505-3058
Pin: 618 004 229#

Best regards,

Larysa Ahmed
Assistant to Fabrice Castanelli
Kuneco Charlotte
DM me on kCHAT

From: Da Silva, Michelle (PRODUCT)
Sent: Friday, April 27, 2040, 5:19 PM
To: Ahmed, Larysa (PRODUCT); Castanelli, Fabrice (PRODUCT)
Cc: Wagner, Tim (SALES); CONTENT-TEAM; Nenon, Martha (DEV)
Subject: PASSWODR???????

Hi all, circling back after today's call with action items:

- Content Team is going to revise the modules in question and roll out a teacher assist guide free of charge for all users, even those who are on the legacy UrbanLite plan that were paid through federal grant funding.
- Tim will loop back with Sales Ambassadors to make sure they are keeping an extra ear open to any feedback that we may leverage into the upcoming 5.0 software release.
- Martha hasn't found anything yet that indicates teachers are communicating with one another without our knowledge, but she will keep looking.
- Fabrice has an Executive Committee meeting next Tuesday, and will mention this to the other execs purely as FYI at this stage. He'll update us afterwards.

--
Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Castanelli, Fabrice (PRODUCT)
Sent: Tuesday, May 1, 2040 2:44 PM
To: Da Silva, Michelle (PRODUCT)
Subject: follow up on exec meeting

Michelle,
Exec team met today and has some interesting ideas in play that correspond to your findings. Apparently the shortcomings of teacher training models have been known for some time and should be addressed in the 5.0 release on Thursday. Hildi says that some beta-testing near the BNA office has had positive results, so I am en route to Nashville right now to learn more. Given the news out of Houston over the weekend, pls check in with Deborah and Jaime in the ATX office to see if anything seems off in the metrics so far this week.

F.

From: Da Silva, Michelle (PRODUCT)
Sent: Tuesday, May 1, 2040 3:06 PM
To: Castanelli, Fabrice (PRODUCT)
Subject: follow up on exec meeting

Got it. Will check in with Austin team immediately and await your further instructions. Should we be worried???

--
Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Da Silva, Michelle (PRODUCT)
Sent: Tuesday, May 1, 2040 3:07 PM
To: Nenon, Martha (DEV)
Subject: Fwd: follow up on exec meeting

Why does Fabrice always abbreviate our office locations with city airport codes?
--

Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Nenon, Martha (DEV)
Sent: Tuesday, May 1, 2040 3:13 PM
To: Da Silva, Michelle (PRODUCT)
Subject: Fwd: follow up on exec meeting

He's done that ever since I met him, even during the flygskam craze. I guess he thinks its ... cool?

(‘ V ’)
((__)) Transmitted via LetterDove.
^ ^

From: Da Silva, Michelle (PRODUCT)
Sent: Tuesday, May 1, 2040 4:00 PM
To: ATX-TEAM
Subject: checking in

Hey Austin team!

Just wanted to check in and see how team Texas is holding up in light of what's going on right now in Houston—I know that everything can be bigger there! :) Can one of you run an Insights Report on T3, SMILE, and TSI over the past two months, fully disaggregated? This comes from Fabrice, so ASAP please.

--

Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Ignacio, Deborah (SALES)
Sent: Tuesday, May 1, 2040 4:09 PM
To: Da Silva, Michelle (PRODUCT)
Cc: ATX-TEAM
Subject: checking in

Hey Michelle, yes we'll get right on it. Lars, pls run reports today.

-Deb

...

Intuited by my iPhone16++

From: Nilson, Lars (SALES)
Sent: Tuesday, May 1, 2040 5:01 PM
To: Da Silva, Michelle (PRODUCT); Ignacio, Deborah (SALES)
Cc: ATX-TEAM
Subject: checking in

Sup M. All good in Queen City? Missed you at South By this year.
Attached find the reports you asked for.

Lars

--

Lars Nilson
Sales Ambassador & 2040 Kuneco Happiness Officer
Kuneco Austin
DM me on kCHAT

From: Da Silva, Michelle (PRODUCT)
Sent: Tuesday, May 1, 2040 5:17 PM
To: Nilson, Lars (SALES); Ignacio, Deborah (SALES)
Cc: ATX-TEAM
Subject: checking in

Thanks!

--

Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Da Silva, Michelle (PRODUCT)
Sent: Wednesday, May 2, 2040 8:46 AM
To: Castanelli, Fabrice (PRODUCT)
Subject: texas data

Fabrice,

I reviewed the data from Texas (attached), and there is something particularly disturbing—in a few cases where T3 had been decreasing since March alongside an increase in TSI and SMILE, we are now seeing NO TEACHER OR LEARNER FEEDBACK from the past three days. It's almost as if our explainer modules have somehow driven people completely off of our platform, but in a good way (???). Please advise.

Best,
Michelle

--

Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Castanelli, Fabrice (PRODUCT)
Sent: Wednesday, May 2, 2040 9:10 AM
To: Da Silva, Michelle (PRODUCT); Ahmed, Larysa (PRODUCT)
Subject: texas data

Jesus christ How is this possible????? Not to mention the fact that this is in direct violation with the contracts we sign with school districts.

@Larysa pls uplink Michelle's attachment for when I'm back. Also, pls reschedule my flight to the Public Good Venture Fund meeting in Seattle next week; I'm going to leave straight from BNA first thing Saturday.

F.

From: Brendlemeyer, Hildi (CEO)
Sent: Thursday, May 3, 2040 10:02 AM
To: KUNECO-FAMILY
Cc: EXEC-TEAM
Subject: 5.0 launch

Dear colleagues,

It is with great excitement that, after many years of hard work, we are initiating our beta release of Kuneco 5.0 today, shipping to all member schools in the coming weeks.

When Theo and I founded Kuneco twenty years ago, we knew that in order to provide educational content delivery and classroom management at a national scale, we'd need to engineer a way for students to receive agency and empowerment. This value has been baked into our code from day one – it's why students can unlock secret modules if they finish homework early and it's why we host global learning competition leaderboards between Platinum member school districts.

However, the unfortunate Clashes that have spread across the US over the past two months have left many students feeling underwhelmed by our educational offerings, and they want more. When teachers see this disengagement on their dashboards, they lose faith in our teacher training modules and go off script.

Oftentimes, the first place students and teachers go when they leave our platform is Google's voice app. They'll ask a question, and then perhaps subscribe to a free trial from one of our competitors to engage with a few of their modules or sign up for a membership with a GoogleBoosted content creator. What we've noticed is that this very act—leaving our modules to try and find answers for oneself—can actually increase the agency and empowerment that we want to nurture in students. While this is great, there are lots of forged GoogleBoost accounts and when students leave our platform we have no way of knowing what they are doing, and—of utmost importance after the last election—whether they are confronting true facts or counterfeit reporting. So the question for us leading up to the 5.0 release has been “how might we continue to empower students while leveraging them to plant the seeds that expand the boundaries of the Kuneco garden?”

A hallmark of 5.0 is a new web-based operating system called Kun:ecosystem. This is a transformative product that allows us to continue to monitor

student and teacher traffic *even after* they leave our platform. By installing this OS on all Kuneco tablets, headsets, and implants, students will have the freedom to explore the world outside of the Kuneco products they know and love, without blinding administrators to the vital data that helps them better manage their school districts. With 5.0, we're extending the Kuneco support we're known for into the home, the city, and the world—seamlessly realizing the potentials of true lifelong learning!

District managers will all be coming to Charlotte next week for Kun:ecosystem training, and we expect to train all Community Partnership Stewards and Sales Ambassadors on this exciting new software by the end of May. As part of our deep commitment to Social Corporate Responsibility, we'll also be conducting free training seminars for our industry content creator partners.

Kuneco is so much more than a company. We are a community of lifelong learners who grant tens of millions of students the gift of education every day. We want nothing more than to provide a safe, friendly e-learning environment to nurture students' minds—a trusted space where they can learn both sides to every story and get a balanced view on everything from biology to current affairs. Trust is the key to our work, and with trust we can continue to set the spark that fills the education fire buckets of children's minds day after day.

Cheers,
Hildi

Hildi Brendlemeyer
Co-founder and CEO, Kuneco
[Experience](#) my TED talk
[Read](#) my pitch in Forbes 40 for 2040
[Fund](#) my lifestyle on InfluenceStars
[Verify](#) my personal LEED carbon offset

From: Wagner, Tim (SALES)
Sent: Thursday, May 3, 2040 10:03 AM
To: Brendlemeyer, Hildi (CEO); KUNECO-FAMILY
Cc: EXEC-TEAM
Subject: 5.0 launch



From: Da Silva, Michelle (PRODUCT)
Sent: Thursday, May 3, 2001 12:02 PM
To: Castanelli, Fabrice (PRODUCT)
Subject: Fwd: 5.0 launch

Hey Fabrice,

I wanted to check in with you about Hildi's email. I'm totally on board with this new lifelong learning approach, I think that's super important, and I know that at Kuneco we are empowering all students to improve the world. But something about this new Eco:system product left me feeling sort of - for lack of a better phrase—"icky." Maybe it's because my son just started at a Kuneco preschool last fall...or maybe I just haven't gotten used to it yet? I'm not trying to ruffle feathers here; I guess I just wanted to know what you thought about all of it.

Best,
Michelle

--
Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Castanelli, Fabrice (PRODUCT)
Sent: Thursday, May 3, 2040 12:59 PM
To: Da Silva, Michelle (PRODUCT)
Subject: Fwd: 5.0 launch

Hi Michelle,

Thanks for your email. I understand where you're coming from, but I don't reach the same conclusion as you do. Of course we want to empower children; that is why we are called Kuneco, the Esperanto word for togetherness. I'm a bit older than you, so maybe you don't remember that companies like Pearson were already doing this in the late teens and early twenties with very little backlash. You should have seen what it was like back when Kuneco got started with a small grant from the Obama Foundation—thousands of edtech startups, for-profit companies, and government organizations trying to carve out their own little piece of the education pie.

With so many separate companies, it was very difficult to gather any consistent data about what was happening at our schools. Back then, some people tried to claim that we shouldn't try to measure everything, and that the best way to work across platforms was to take a stronger stance against copyright in the classroom, but I think these people just couldn't imagine that a socially minded nonprofit organization like ours could grow into one of the largest companies in the United States and reach more than 75% of American schoolchildren, college students, and adult learners every single day (let alone our growing international network of Ivy Prep Charter Schools, Global South Mission Outposts, and Climate Refugee Floating Learning Centers!). All of this success and growth has only been possible because of the centralized approach we've taken to content development, teacher training, and data analysis.

You're a smart person and a hard worker, and I appreciate this pushback, AND I just want to remind you that Kuneco has every learner's best interest at heart, including your son! Happy to talk more when I'm back from SEA—ask Larysa to book one of the small conference rooms like Roslindale or Pilsen.

F.

From: Nenon, Martha (DEV)
Sent: Friday, May 4, 2040 1:17 PM
To: Castanelli, Fabrice (PRODUCT); Da Silva, Michelle (PRODUCT)
Subject: teacher lesson plans

Ok, so Michelle mentioned last week that a teacher said something about teachers sharing lesson plans and I just found something. I didn't want Fabrice to have a heart attack if I told the wider group, so I'm just sharing this with you two for now.

Michelle, you probably don't know this, but about a decade ago we tried implementing a teacher peer review system. We video recorded teachers through the Kuneco Smart Boards and then randomly generated a connection between two teachers who could review one another's teaching style. This feedback was also shared with a group at Kuneco that was then called the Teacher Success Team.

The feature never really took off, so about 3 years ago we stopped recording video and merged the Teacher Success Team into the community mod team. However, it seems like we neglected to disable the script that randomly paired teachers with one another, and the dialogue where teachers could leave feedback for one another has remained active all this time, accessible from the "Community" tab on teachers' dashboards (with the exception of the UrbanLite users, who don't have access to community features). We hadn't noticed this before now because notifications of new teacher feedback were sent to a mailing list that has been unmonitored ever since we sunsetted the Teacher Success Team.

There are a few different prompts on this teacher feedback page, with questions like "does the teacher's body language demonstrate confidence through the use of power poses?" and "how could this teacher better manage her or his classroom?" Somewhat ironically, most of the feedback that has been shared lately was input into the final field on the page, which has the prompt: "Is there any other feedback you'd like to share with the Kuneco team? We'd love your input!"

Quickly skimming the database, it seems like feedback has gone through a few stages. Some earnest feedback about teaching style was followed by cynicism when people started to realize that the feature was underutilized ("is there anybody out there?" and "echo, echo" were both common pieces of feedback in 2037). By 2038, it appears that most users who used this feature

tacitly understood that the feedback was not being shared with the Kuneco team and, at this point, some teachers began to, I guess you could say, test the waters. A few teachers started leaving critical feedback about Kuneco, and others shared information about upcoming events that they wanted other teachers to know about.

Because this was never built to be a long-term communication tool, it took a while for any sort of real teacher organizing to pick up steam. Each teacher could only send one message per week, and then they were randomly matched with somebody else, with no way to get back in touch with past pairings. Sure, they could try finding past matches on our community forum, but any messages of that nature would have definitely been flagged by our moderator team. It seems like, in neglecting to follow up on conversations on the community forum, teachers both knew that a) they were doing something illicit and b) that this illicit something was worth protecting.

It was towards the end of last year that a real grassroots movement took off within our system. Many teachers started to write their personal (i.e., off-platform) contact information alongside lesson plans and resources that they were looking for and wanting to share.

By December, a fairly standard messaging format had developed between teachers who communicated with one another. I can't decipher everything—it seems like teachers have developed their own shorthand for communicating here—but my best guess is that the numbers in parentheses after each bullet point are the grade level that the teacher's resources are aimed at. Given the variety of grade level ranges in each message, it seems like teachers are looking for things not just for themselves but for other teachers as well. This indicated that teachers are keeping extensive documentation of these conversations outside of our platform.

There was a huge uptick in daily messages in mid-March. This message between Jesimon Forrester in the Bronx and Sarah Jacobs in Wichita from last week is fairly indicative of the type of conversation that has been happening roughly 9,000 times a day for the past six weeks.

:: Message from Jesimon_F ::

Bronx NYC, 718-579-4244

Sharing:

- For teachers: How to return Ford Foundation grant funding
- Listening notes to accompany The Miseducation of Lauryn Hill (all)
- Hacking iPads to install personal solar (7-12)
- Video: How our students forced fossil fuel divestment in our city (13-16)
- Discussion prompts for Dr. Martin Luther King Jr.'s The World House (10-16)
- Peer learning exercises for middle school language classes
- Exercises in forest bathing and outdoor meditation (all)
- Toolkit to start learning circles in your neighborhood (10+)

Seeking:

- Primary sources on 1893 US invasion of Hawaii (9-10)
- Video interviews of ICE detainees from late 2010s (7-12)
- Gluten-free peanut-free desserts that students can make w/out oven (4-5)
- Copy of "Civil War in Yemen 2015-2022: How our universities were implicated"
- Documentation of UC's 2019 boycott of Elsevier
- Link to episode 6 of the 2029 documentary "Representation without taxation: Philanthropy in the United States 2000-2025." (I have episodes 1-5 and 7-8).

:: Reply from Sarah_J ::

Wichita, KS, 316-261-8500

Seeking:

- Send over Lauryn Hill pls
- Send MLK prompts to Jim Hughes—404-526-8900
- We never took any Ford \$\$ so don't need that & already doing learning circles :p
- Share link to episode 7 of Representation w/out Taxation please!!!

Sharing:

- Primary sources on Hawaii: call Fran 808-586-3500
- Nothing on ICE, but add me if you find
- How about s'mores? Franklin Bros. makes good gluten-free graham crackers
- Will send you Yemen pdf

Also Seeking:

- I heard about a .pdf going around on protecting students from DHS-- anyone seen it?
 - Copy of NAFTA: Capital Se Mueve Libremente, La Gente Se Queda.
 - Examples of middle school activism in support of UN 2050 Urgent Recovery Goals
 - Activities for DIY hardware programming (4-6)
 - Advice for high school students whose parents are pressuring them to become entrepreneurs
-

So as you can see, teachers are developing their own lesson plans and activities and sharing them with one another over their phones, off-platform. It's sort of cool, actually.

(‘V’)
((__)) Transmitted via [LetterDove](#).
^ ^

From: Castanelli, Fabrice (PRODUCT)
Sent: Friday, May 4, 2040 1:31 PM
To: Nenon, Martha (DEV); Da Silva, Michelle (PRODUCT)
Subject: teacher lesson plans

Jesus Christ. This is bad. Not cool at all. The school systems will flip out (rightfully so) if they catch wind of this. None of what these teachers are talking about here is aligned with any of the testing standards, and I can't believe it's going to help our workforce preparedness metrics either. Can you shut down this feedback form immediately? Also, I'm confused. Are you saying that the teachers started using Grassroots *within* our platform? I'm not sure how teachers could use a competitor's software within our environment.

Do you even remember why we tried this peer review thing? I'm not surprised to see that it caused only trouble.

F.

From: Nenon, Martha (DEV)
Sent: Friday, May 4, 2040 1:38 PM
To: Castanelli, Fabrice (PRODUCT); Da Silva, Michelle (PRODUCT)
Subject: teacher lesson plans

Oh come on Fabrice, live a little. This is important stuff that the classrooms are talking about and I think it's pretty badass how teachers have started coordinating like this. It's technically easy to shut down, but, honestly, if it just disappears, might that not lead to bigger problems? Perhaps you should raise it with others Exec Committee members first and then we can decide what to do from there.

Re: why we tried the peer review tool in the first place: When we went back to the Obama Foundation to help finance our 501(c)3 IPO in 2029, a question they raised in the funding discussions in Chicago was how we would nurture agency among teachers. You, Hildi, Theo, and I sort of just made up the peer review thing on the spot and they seemed happy enough with it at the time and then not terribly bothered when we stopped the program a few years later. As I recall, we stopped it right around the time that you got promoted to Director of Product, and we were scaling so fast we didn't have time to properly sunset the feature.

Also, I didn't mean the edtech company Grassroots—I meant, you know, like, grassroots ... local collective action ...

(‘V’)
((__)) Transmitted via [LetterDove](#).
^ ^

From: Da Silva, Michelle (PRODUCT)
Sent: Friday, May 4, 2040 2:06 PM
To: Nenon, Martha (DEV); Castanelli, Fabrice (PRODUCT)
Subject: teacher lesson plans

Fwiw, I agree with Martha—can't we sit on this for a while? Maybe there's a way we can leverage this to work for both us and the teachers? I actually know this teacher Jesimon that Martha mentions—he and I did a Raytheon Global Citizenship Fellowship together eleven years ago. I can reach out to try and learn a little more about where he's coming from with all of this.

--

Michelle Da Silva
VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Castanelli, Fabrice (PRODUCT)
Sent: Friday, May 4, 2040 2:11 PM
To: Nenon, Martha (DEV); Da Silva, Michelle (PRODUCT)
Subject: teacher lesson plans

If we tell the other exec members, they'll want to tell the Board and if that happens then hammers are going to start falling. Hard. Michelle, go ahead and meet with this Jesimon character asap and see if you can find out more about the extent to which this has been going on. I want to know how he found out about this, how frequently he's sharing, and whether he's coordinating outside of our platform. I want this shut down, Martha.

F.

From: Da Silva, Michelle (PRODUCT)
Sent: Monday, May 7, 2040 8:19 AM
To: j.forrester@ny.k12.edu
Subject: Advice

Hi Jesimon,
How's it going? Did you have a Derby party again this year? I'm writing because you sort of came up in a meeting last Friday. I wanted to check in and get some feedback from you about some things.

Michelle

From: j.forrester@ny.k12.edu
Sent: Monday, May 7, 2040 4:44 PM
To: Da Silva, Michelle (PRODUCT)
Subject: Advice

Hey Michelle—happy to talk, and yes, the Derby party did happen! Funny that you remember. Cinco de Mayo was the same day as the Derby this year, so we were drinking both bourbon and tequila all weekend ;) If you're serious, I think it's best to connect in person. Can you come to New York?

-- Jez

From: Da Silva, Michelle (PRODUCT)
Sent: Monday, May 7, 2040 5:11 PM
To: j.forrester@ny.k12.edu
Subject: Advice

Thanks, Jesimon. I can come tomorrow, does that work? Say 5 PM at that café you took me too once in your neighborhood with the arepas?

From: j.forrester@ny.k12.edu
Sent: Monday, May 7, 2040 5:19 PM
To: Da Silva, Michelle (PRODUCT)
Subject: Advice

Cachapa Cachapa! Yes! Sure. See you then.

-- Jez

From: Da Silva, Michelle (PRODUCT)
Sent: Tuesday, May 8, 2040 9:47 PM
To: Nenon, Martha (DEV); Castanelli, Fabrice (PRODUCT)
Subject: Meeting with Jesimon

Hi guys,

I'm at LaGuardia (ugh), heading back to Charlotte in a few minutes. I just met with Jesimon and honestly, after meeting, I think I see a bit more where Fabrice is coming from. Jesimon had some pretty disrespectful things to say about Kuneco and I feel like if he was so upset, then he should have joined one of our monthly community calls or raised the issue to his local Kuneco Sales Ambassador.

He was really energized about the peer feedback and he was joking that this simple messaging board is the most useful piece of technology that Kuneco has ever built. He had all of these ideas about even connecting with non-Kuneco classrooms and involving students in curricular decisions ... I tried explaining to him that science demands that curriculum needs to go through randomized control trials before it's brought to market, but he would barely even let me finish.

My flight is boarding—I can tell you a bit more in person, but I think I agree that we should shut down the teacher communication tool and try to put this anomaly behind us.

--

Michelle Da Silva
VP of Product Services
Kuneco Charlotte
[DM me on kCHAT](#)

From: Nenon, Martha (DEV)
Sent: Tuesday, May 8, 2040 10:01 PM
To: Da Silva, Michelle (PRODUCT); Castanelli, Fabrice (PRODUCT)
Subject: Meeting with Jesimon

Aw, I'm sorry to hear this. I thought you might be swayed by your old friend :)

(‘V’)

((____)) Transmitted via [LetterDove](#).
^ ^

From: Castanelli, Fabrice (PRODUCT)
Sent: Tuesday, May 8, 2040 10:01 PM
To: Nenon, Martha (DEV) ; Da Silva, Michelle (PRODUCT)
Subject: Meeting with Jesimon

God damn it Martha, can you get over yourself? I know that you love to be the cynic (how many Kuneco Disobedience Awards have you won? Seven?), but save your radical little ideas for when you retire. We aren't 25 years old running a startup anymore. We have a fucking company to run and the fact that you are still here after all these years means that at the end of the day you aren't as different from me as you like to think you are. So, as your superior, I am telling you to shut this peer feedback tool down NOW.

F.

From: Da Silva, Michelle (PRODUCT)
Sent: Tuesday, May 8, 2040 10:19 PM
To: Nenon, Martha (DEV)
Subject: Meeting with Jesimon

Hey Martha (just to you)—not sure if I was supposed to be left on copy for that last email from Fabrice ... I really feel like this whole thing is all my fault and I'm so so sorry for stirring this all up. Do you know why Fabrice is so angry? Am I missing something? And now I feel like I might have jeopardized Jesimon's job by pulling him in to all of this—has Fabrice said anything about that? Do you know? And then I'm also worried that the weight of this is going to come down on me ... and I really don't want to get fired over all this ... it was just a stupid thing I happened to notice!!

Sorry for spewing all of this at you, but I guess I'm just wondering if you have any advice for me? What should I do?

--
Michelle Da Silva

VP of Product Services
Kuneco Charlotte
DM me on kCHAT

From: Nenon, Martha (DEV)
Sent: Tuesday, May 8, 2040 11:01 PM
To: Da Silva, Michelle (PRODUCT)
Subject: Meeting with Jesimon

Advice? Sure. The only life you can ever truly know is your own.

(` V ')
((__)) Transmitted via LetterDove.
^ ^

From: Sinclair, Remy (MOD)
Sent: Wednesday, May 9, 2040 8:59 AM
To: Martin, Seamus (MOD)
Cc: DEV-TEAM; COMM-MODS
Subject: URGENT COMMUNITY SITE PROBLEMS

Seamus -

Something is going haywire on the site right now. A new user posted a thread to the community forum at 7 AM this morning with the subject line “education is not a gift, it must be stolen. Rise and tear down the walls of Kuneco.” We see posts like this every now and then, and we usually just mark the post as spam, suspend the user, and work with the school district to ensure disciplinary action is taken. However, this morning, the post was quickly un-deleted and pinned to the top of the community forum BY ANOTHER USER. This is worrying—it seems like teachers are somehow un-deleting posts that we mark as spam and also pinning their own topics; these are actions that only superusers can take. Toggling to admin view, it seems like every user across all of Kuneco has been elevated to superuser status. Usually we see between 800 and 1,200 posts a day from teachers, but this morning we had more than 34,000!

I don't know how this could have happened. Someone on our team would have had to change all these permissions. But in any case, we can't seem to roll back user permissions to “member.”

Please advise!!!!

/remy
Kuneco community moderator
[DM me on kCHAT](#)

From: Martin, Seamus (MOD)
Sent: Wednesday, May 9, 2040 9:04 AM
To: Sinclair, Remy (MOD)
Cc: DEV-TEAM; COMM-MODS
Subject: URGENT COMMUNITY SITE PROBLEMS

I'm looking into this presently.

There is no easy way to rollback superuser status without deleting user accounts. This is a legacy issue that we've known about for a while but

haven't prioritized, since we (wrongfully) assumed that we wouldn't have a mutiny on our hands. Can you talk to dev team to get their take? Is Martha in?

Seamus

//
SEAMUS MARTIN
Director of Community Operations
Kuneco
DM me on kCHAT

From: Sinclair, Remy (MOD)
Sent: Wednesday, May 9, 2040 9:19 AM
To: Martin, Seamus (MOD)
Cc: DEV-TEAM; COMM-MODS
Subject: URGENT COMMUNITY SITE PROBLEMS

I just went over to talk to Martha and she's not there. There was just a note on her desk that says "education is the practice of freedom."

/remy
Kuneco community moderator
DM me on kCHAT

GRIF PETERSON

PEER 2 PEER UNIVERSITY

Grif Peterson serves as the executive director at Peer 2 Peer University, a global organization committed to creating liberating alternatives to mainstream higher education. He joined P2PU in 2015 to develop the learning circle program with Chicago Public Library,

and his role has grown as the project has expanded beyond Chicago. Prior to P2PU, Grif Peterson served as a research assistant with the Learning Initiative at the MIT Media Lab and as the academic affairs officer at the University of Central Asia.



“The moral of the story hovered in the air. And Gabo and Gia’s parents learned to trust their children, because education is different from surveillance!”

VIVIANE DALLASTA

The Translators

“The TechnOLOGY Can Just Be a Friend”

We do not yet have children’s stories interacting with and confronting the promises and illusions of emergent technologies that reinforce human values such as autonomy, responsibility, freedom, creativity, empathy, and collaboration.

INTRODUCTION

The text “The Translators” is made up of short stories that reveal how many activities that were once difficult or time consuming have become easier, requiring less effort and reflection. What is being lost in this development is the personal agency and sense of fulfillment and belonging that comes from acting with talent and intentionality in the world. When human beings behave like simple machines,

they can, in principle, be replaced by them without anything significant being lost in translation. In the story, people have dealt with this issue by creating a museum so that certain values do not get lost. There, children engage in a reflection exercise on their role in the world and on what sets humans apart from machines. This story shows that education is different from surveillance and that so-called “drone

parenting” (total surveillance) creates a situation in which there is no real parent-child connection and takes away the child’s capacity to make choices and be responsible. In the end, it is a dehumanization driven by the ethos of consumption, in many cases resulting in the creation of lifelong consumers and in private companies building brand loyalty among impressionable young people. Educators, parents, and children should pay attention to the hidden costs of such arrangements. In addition, the text addresses issues related to the rampant consumption of antidepressants in our society. It alerts the reader to the addiction to games and screens that imprisons many children, and about the issue of digital nudges and environmental data capture.

The motivation behind the stories is that we lack children’s stories that

serve as a warning and urge them to critically rethink this reality. These stories should reinforce human values such as autonomy, responsibility, freedom, creativity, empathy, collaboration, and imagination, and at the same time confront readers with the potentialities, dangers, promises and illusions of technological devices. They are needed to stimulate and promote awareness of what really matters for an authentically dignified human life.

In this context, this work is a utopia, because it is the human being who must take control and guide the solution with creative and original ideas. The essence of human beings is not translatable into machine language. Much is said about digital literacy but not enough about ethics in the technological age and not enough in accessible language.

I - AT THE MUSEUM

They translated human messages into machine language—{[01110101 01110100 01101111 01110000 01101001 01100001]}\¹. The tour was taking place in a museum. In a museum of sensations, with a group composed of children and miniature robots.

What the children dreamed of the most was to be as fast and full of information as the robots. What the little robots wanted was to be as smart as the children and to feel the sensations that the children felt. Heat and cold in body and soul, that is, more than sensations, emotions. To feel the heat that warms the heart with care and perhaps even the cold of an

¹ Translates to *utopia*; and {[01010111 01101000 01100001 01110100 00100000 01100100 01101111 01100101 01110011 00100000 01101001 01110100 00100000 01101101 01100101 01100001 01101110 00100000 01110100 01101111 00100000 01100010 01100101 00100000 01101000 01110101 01101101 01100001 01101110 00111111]}, which translates to *What does it mean to be human?*

argument. They wanted everything that brought them closer to the humans, their friends. They even craved the feeling of concern that humans spoke of so much.

They were visiting the museum for this, but in reality it had been designed so that the children of the technological era, of the digital post-revolution, did not lose touch with basic human values and knew to appreciate and value the simpler and trivial circumstances of everyday human life, which, paradoxically, is what makes us human. There was a space called “grandma’s kitchen”, recreating the time when families would cook their meals at home, together, with food made using a device called the “stove.” The “household appliance” was exhibited so that everyone could know. The children were amazed at how families had time to do all of this at home together!

They had never seen anything so impressive! The place smelled so good ... sweet, with hot smoke in the air. At that moment, they had the opportunity to taste the long-anticipated “grandma’s cake,” almost homemade, the museum’s famous attraction, which was accompanied by an affectionate hug from a white-haired lady. Although the hug made them feel good, they thought this kind of physical contact did not make any sense. The visit continued.

The museum was a world enchanted with aromas, flavors, and affection. The smell of cut grass, clay after rain, rust, flowers with quite peculiar scents, the smell of wet dogs too. The museum was sensory and was thought to promote empathy, with the possibility of accessing distinct realities around the world.

There was a projection room where you could watch recordings from public cameras around the world; all you had to do was choose the country and the desired social context. The kids called the robots, which were outside recharging their batteries with solar energy, to watch the projections. All the robots’ coatings were made with micro solar panels, so they just needed to be exposed to the sun to be 100% recharged. The children envied this ability, because they had to sleep all night to recharge their batteries, and sometimes that was not enough ... they lost at least eight hours sleeping that they could spend playing! The robots heard the conversation and noted that during sleep it was possible to dream. This incredible capacity still had no translation!

They went directly to the session. After only a few minutes, the robots managed to feel something typically human; they felt what they could define as sadness, a deep pain, when they saw the inequality of the world, what life is like for sick people and children, for abandoned people, for people in conflict, for people who need to flee from where they live, where

they were born and raised, and go to places unknown, where they are often not well received, for people suffering from uncontrolled emotions ...

This journey was so shocking that the robots almost crashed; they were a little disbelieving of the truth of it all and decided to surprise the children. Ology, who was the group's leading robot and also the best translator, had a brilliant idea (in her own words). She invited her friends to embark on a balloon ride around the world. "To see more beautiful things", she said.

The idea was to fly over the world in a supersonic balloon equipped with *GPS* and everything else, übermodern. And the best thing was that the robots did not have to turn eighteen to be able to drive ... In fact, the eighteen years in robot years was about 120 human years and Ology wanted to show the children reality live and in color, to show other landscapes, places that they did not even dream existed. A quick adventure to present the beauty of the planet.

To begin with, they flew over an all-white place; there was nothing, only white mountains. They came closer and saw that there were only white mountains of ice. It looked like a giant refrigerator. The children, although enthusiastic, soon asked to leave, because it was very cold, almost freezing.

From the North Pole, they flew and flew and came to a place of sand, with mountains of sand, where they also saw no one, but where it was very hot, a scorching heat; it looked like a giant greenhouse, but without any plants. They were in the middle of a desert in Africa.

They left immediately and went to an all-green place, with hills and green fields that stretched until you could no longer see them, where there were many birds of all colors, horses, cows, sheep; this time, the image seemed more familiar, since they were in the south of South America, where they came from and knew very well. They passed through the Amazon forest, where, at close quarters, they saw very tall trees, rivers, indigenous tribes, giant plants, and insects. They were enchanted by the diversity of nature! They traveled again and stopped in a place full of blue mountains; indeed, as they approached, they saw that it was the sea. The ocean seemed full of giant wave-waterfalls, with intense movements that were very different from the calm beaches they knew.

At that moment, Ology asked the children if they were enjoying the ride and all them, without blinking, exclaimed that the world was very colorful and different. There were several worlds in one. They passed through cities, so large and chaotic, and villages, so small and bucolic, on all continents. They saw people with the most diverse realities, cultures, customs.

On that day, besides traveling through different landscapes, the children went on an inner journey through feelings and emotions, had unknown experiences of the soul, from anguish to ecstasy, from revolt to hope, as

they found places that emanated affection, joy, love, and compassion. Rich people and poor people. People rich and sad, humble and satisfied, rich and satisfied, poor and bored, realities of suffering and of abundance, prosperous and inhospitable places. It was an intense and revealing ride.

So, the kids asked to come back because they were homesick. The robots did not understand what it meant to miss someone or something. The children tried to explain that it happens when you miss someone a lot, others said that it happens when someone needs something and it is not there. The robots were quite confused and could not translate its meaning into codes. They needed to train more. Even Ology, ever so brilliant, could not understand all that.

The children returned home with a lot of unresolved questions and thoughts and asked their parents: Who chooses where we are going to be born? Why are there people born in the desert, in the middle of a war, on the street?

They saw so many realities that, finally, they thanked the world where they lived, their world, as they said affectionately. Now they really knew that they should make a difference, that they had a meaningful mission in this life.

Each human being is unique and singular, not made in a production line, and here lies the answer to the most fundamental question: Why were we born where we were born?

II – THE ANGELS

However, two of the children in that group, Gabo and Gia, went home dissatisfied. How could they have such an important mission if they had nothing special? Nothing particularly unique?

They were twins; they had the same father and the same mother. They celebrated on the same day, that is, they did not even have a special day just to be remembered and celebrated. They did everything together. They went to school together, they were in the same class, they had the same teachers, very similar physical characteristics. What could be unique in their lives?

As always, they celebrated their birthday together and received only one gift. When they opened the package, they thought it might be a replica of Ology, the museum's little robot, and they were even excited, but they soon realized that it was nothing like it. In fact, the present was a doll that had only recently come to the market.

At least the gift was something very recent, almost experimental; a company had developed the *suprassumo* of security for children. They had

put guardian angels on the market “*to take care of your precious*,” said the brand’s (uncreative) slogan.

Gabo and Gia received the “angel” as a gift. And indeed, it had wings, a halo, curly hair, white clothing and an angelic face! It was the perfect doll! As soon as the product was launched, their father wanted to try out the most innovative and sensational technology of the moment: angels, configured to the taste of the customer. He bought one for each of his children for their birthday.

The angel’s promise was that the parents could accompany and see their children’s routines, day and night. It allowed them to know exactly where and who they were with and even what they were talking about. They would not yet have the ability to read thoughts, but they could already recognize feelings—sadness, joy, boredom, euphoria, anger. And the best thing was that the little angels really flew and stayed close to the children, taking care of everything! Total relief for parents was the brand’s great promise.

In fact, they were drones with a silicone coating and angel wings, a phenomenal idea, since they did not require chips to be placed in the children; some parents had begun to do so, but many had refused. Gabo did not like the present at all. It was suspect, he replied, but his parents were categorical: “The world can be a very dangerous place, and from now on you only leave home with your guardian angel!”

Upon receiving her “angel” and seeing her parent’s reaction, Gia dared not complain, nor was she even excited about the present. She tried to ignore it, though the constant presence of the intruder greatly disturbed her.

Gabo did everything. He tried to break the angel, to run away from the angel, to hide from the angel—but the little robot, one had to admit, had been well made. As the days went by, Gabo was still suspicious of the idea, but after a while he did not feel so strange; after all, all of his friends at school already had a little angel of their own.

The angels were selling well, which fueled competition, and another company launched a new version of the toy. With the upload of this new version, the little angel could ... SPEAK! Amazing!!!

The children could ask the angel what they wanted, and the angel, in its answer, was programmed to follow the motto: “Little angel, my little friend, always lead me on the path of good!”. That is absolute security! Now, really, the parents were at peace; their children were protected, because this prototype guru could even dissuade the little ones from possible mischief and “dangerous” ideas.

Gabo was disgusted and exploded: “What is this! It’s not possible to live being monitored!” He complained and cried, but the parents interpreted it

as yet another attempt to conceal the angel's valuable help and were quick to update the application.

Now the angels were speaking, explaining, singing. The schools had to adapt and forbid the angels from entering during exams to avoid new forms of technological "cheating." At the parent-teacher meeting, some families expressed deep concerns about these restrictions on monitoring, but they were soon reassured by other parents, who recalled that there were cameras at school in case of any problems.

Gabo could not tolerate it; he could not bear the presence of an angel who followed him into the bathroom. The worst thing was that his friends had started to really like the angels. Strange!

His friends' angels, duly updated to the latest version 5.0, had presented them with something magical, which made them very happy and content, much better than any virtual reality game. Gabo and Gia's angels were outdated, as their parents had not yet had time to download the latest version. This situation was already causing their angels to have an inferiority complex. They began to be affected by the frequencies of the others, a circumstance still under study, because it had not been planned by the programmers. So, one fine day, when the whole class had left the school, escorted by their angels, and Gabo's angel did not know the way to find the group in the enchanted place that they were going to, Gabo, in his eagerness to tell his father that his angel was of no use, resolved to follow his hidden friends, and the lost angel just watched.

On the first day, they could not make it to the end of the road, and Gabo decided to ask for help from his sister, who was always very ingenious and full of great ideas. She had saved him many times and he had always wondered what he would be without her help!!! The next day, they went to find out what their friends were doing and where they were, since they had not revealed the place, which, they claimed, was the angel's secret. At this point, the parents, convinced that their children were well taken care of and safe, were very relaxed and did not even look at the angels' cameras or go to the viewing platforms anymore, because if everything was recorded, it must be all right.

The company was making a lot of money, and every day it attracted more fans and won over more customers. It already intended to launch other "facilities," whose purpose would be to spare parents the need to give those great domestic sermons, the weariness of the argument, the arduous task of raising adolescents. Technology was advancing.

It was then that Gabo and Gia—who dubbed their mission "The adventures of Gabo and Gia"—followed their friends along a parallel path before encountering a very high wall that prevented them from proceeding.

Gia, very clever, already knew how to find out everything and decided to call Ology for help in the mission. Ology was always ready for all adventures. Gia mentally tuned into Ology's frequencies and connected with her friend as if on a radio system.

Ology quickly appeared, because she had a very special transport system. And Gabo and Gia excitedly explained what was happening. Ology passed over the wall and the very curious angels followed her. On the way back, Ology said their friends were sitting around in a circle and that their angels were carrying brightly colored receptacles with smoke, all you had to do was to inhale it and everyone became static and smiling.

So, when they got home, Gabo and Gia asked the parents to sit and watch the recording of their angels. The astonished parents could hardly believe what they saw. A circle of hypnotized children who looked like zombies. They could not understand what was happening, so confident were they in the system.

Gabo and Gia, always alert and smart, knew that the situation was very suspicious and that the angels could not possibly think that the situation was attractive; after all, using drugs never took anyone anywhere! And that despite the laughter and the apparent joy, everyone was in fact being imprisoned. The new version of the angel had been invaded by *malware* from hackers acting in the service of traffickers. With great courage, they were able to free their friends and prevent the company from continuing to manufacture such angels. The global "super-technology export plan" was prevented.

Gabo and Gia were very happy and relieved to free the world from the angels who had flown over the children's heads. But the best thing was that Gabo and Gia were able to identify their unique characteristics and, with the help of their friend Ology, their success was complete. Unity and collaboration build and strengthen actions.

The moral of the story hovered in the air. And Gabo and Gia's parents learned to trust their children, because education is different from surveillance!

III – FAKE LOVE

Gabo and Gia were quiet in the living room, without the fake angels around, when Ology fell from the ceiling among them. They barely had time to ask what had been happening; they saw that she was sad. Ology had not appeared for a long time.

This time, it was Ology who was coming in search of her friends' help as she had discovered that an industry had begun to sell "love in pills." She had seen the ad: "*To make a life to be savored intensely, but in small doses, to heal the evils of the soul.*"

Ology had learned on the day of the visit to the museum that love was priceless, so she was there to ask her friends how it was possible that it was being sold. Besides, Ology also knew it was a feeling and, unfortunately, the robots still could not access feelings. They had not yet been able to translate love and homesickness into codes.

The companies' boldness was so great that they thought they could sell the most precious energy of all the galaxies and of the entire universe, an energy that, fortunately, was free: love. The propaganda was blatantly misleading, but the most intriguing thing was that the advertisement was personalized. Gabo and Gia peeked over their mother and father's cell phones and discovered completely different advertisements. The pills were intended to ease a toothache or an elbow pain ...

What a mess would that be now!? Or was this being coldly calculated by companies that knew people's preferences better than themselves and could offer something in the most personalized way and in the most personally vulnerable moment possible, which would make the offer too good to turn down? Was it really happening or would it be crazy to think so?

IV – THE BEGINNING

But before we continue on this adventure, and to better understand how Ology fell from the ceiling, we need to know how Ology had come to be a part of Gia and Gabo's gang. So, a long time ago, Ology, who was always very curious and full of ideas, began to think about how she could enter into the photographs and the storybooks so she could live every detail of each story. She wanted to see inside the house of the Three Little Pigs, eat a sweet from John and Mary's house, ride a train, ride a spaceship, swim with the Little Mermaid ... could she be Snow White's eighth dwarf? Who knows? The sky was not the limit.

Ology, who was already in the world that is still to come, used all the creativity and improvisational ability that she could translate from humans to put her ideas into practice and started the tests. She created a hologram of a landscape she found in a magazine. It was a beach; she went into the place and had a lot of fun, even bathed in the sea. It was on that day that she discovered that sea salt did not do her joints any good; that was the day when her knee started to creak.

Despite this, she continued the tests. She was anxious and wanted to test the new technology for the first time in her favorite story. She always wanted to be an astronaut. She was radiant! The book she chose was *The Little Prince*. She opened the book and created the giant hologram, which projected on the ceiling that was best suited to the interplanetary travel of the Little Prince. Zum, zum, zap. She jumped and entered the book, then left and went again and again. She would fly back and forth through space, travel in zero gravity. She sat in the arc of the waning moon, blew a little star, swerved away from a meteor, sat on a cloud. Super fun!

Suddenly she heard a loud noise. Someone had closed the book, and Ology was trapped in space, wandering within the story. She was lost in space, not knowing how to undo her mistake. Time passed, and Ology began to feel a strange sensation. It was then that she understood what homesickness meant. She missed her life, the laboratory, her friends, the more “normal” robots. The engineers, the excitement of the experiments. She took note of the code to do the translation later.

She was almost losing all hope when she finally met her idol. She had found the Little Prince! She had imagined that she might be on the right track when she had seen the flower, but she was not sure of anything anymore.

The Little Prince rescued Ology, but before sending her back, Ology had to watch a horrifying movie that left her truly terrified. And he asked her to come back with a message for the “real” world.

The Little Prince showed Ology that many children were imprisoned like she was, without finding their way out, because they also wanted to participate in stories, exciting adventures, control the scenery, run more than the hare, wake the turtle, find the hidden treasure, fight the monster. They dreamed the same thing Ology dreamed of. But they were imprisoned in a different way and in the most real and cruel way Ology could imagine: They did not know that they were trapped!

The Little Prince showed Ology that many children were hypnotized and abducted by virtual games, lost in the real world. Just like Ology, they thought they would experience more emotions by living rather than simply reading and touching their books. They ended up exchanging the freedom of the imagination that dreams without limits, with infinite possibilities, for the ready screen that immobilizes the soul and imprisons each child on their own little planet that orbits without knowing the existence of others.

Ology was scared! That was when she saw the Little Prince for the last time, who smiled at her with his eyes, and, with a real nudge (not a *nudge IoT*, the meaning of which you will soon understand), released Ology, who fell into the middle of the room, right on top of the open book. From that

day on, Ology's mission was to save the children from being trapped in that parallel reality.

The days went by, and Ology thought about how she could accomplish her mission. That was when she saw a photograph that caught her eye. It showed a large group in which each child was staring at a cell phone without paying attention to or caring about each other; they were not even looking at each other.

Ology did not think twice. In that moment, she created a hologram and went inside the photograph. Only ... nooooo! Once more she heard the familiar noise. Someone had closed the photo album, and Ology was trapped inside that reality.

The group was Gabo and Gia's gang. Ology made so many friends and liked the group so much that she did not want to leave and hadn't told anyone. Gabo and Gia were enthusiastic about the story, because they still did not really know how their friend had appeared. The fact was that they liked her very much and that she was really special. And it was from that meeting with the Little Prince that her life was transformed and Ology became the greatest translator ever known in all the universe.

This is because, in addition to telling the funniest stories that children had ever heard, Ology translated the messages of machines for humans and interpreted human messages for machines, because their abilities and languages were really different, but their coexistence and mutual collaboration helped humanity to evolve.

Ology's new world was so much more colorful, fun, and happier when everyone was friends and could be close in the dimension they wanted. And above all, Ology proved that everyone could be in this world, that the task of building a sensational real world was in the hands of all real children.

V – CURIOSITIES

Gia and Gabo had an idea. They already knew how to use Ology's experiences to save the world from fake love. They wanted to engage in team work; after all, they knew that they were stronger together and could count on Ology's incredible ability to classify, categorize, and standardize.

She discovered the variable in minutes. And they needed to know, urgently, what was going wrong. On that day, Ology had brought an order sent by the porter—Gabo and Gia's father always made purchases on the internet, and not a day went by without a surprise box at home. As their mother always complained, they decided to open the package immediately, before she got home. Inside the box was a magnifying glass! WOW!

They had asked for a microscope from their father, but the magnifying glass came, and on second thought, the magnifying glass was actually more practical than a microscope to inspect every corner of the house and garden!

They were so excited about the new item and played with it so much that, for hours, they forgot why Ology was there. They looked at everything very closely, at every ant in the garden, at the different leaves of the trees on the street; they embarked on a real exploratory expedition to inspect every corner of the house! It was so much fun! A new world to discover! The grass was so different. Seeing the things enlarged was very interesting. They could analyze every cobble of the sidewalk, every detail of the tiny antennae of the insects, the paws prints, the details of the flowers, its crumbs, the minutiae of the petals, recognizing beings almost invisible to the naked eye. Fantastic! It was then that they remembered the pills and continued with the magnifying glass, now on an expedition to seek clues and unravel the case.

After Gabo and Gia were finished, it was finally Ology's turn to use the magnifying glass. Ology went into the kitchen and began to inspect the fruits from the basket on the table. How interesting it was to see everything enlarged! In the next review, Ology already knew she would ask for a bionic eye from the engineer who had created it.

What a surprise! Ology began to analyze the little mosquitoes flying over the fruits. Strange. She realized that they had no wings, no paws, no antennae! And they were made of lead! Ology called Gabo and Gia and showed the flying balls. Could this be another genetic mutation caused by pesticides?

They continued to stare, and when they listened, stupefied, they heard that they were making a different noise. Oops, those were not insects. They were balls with attached micro cameras. Nanorobots that imitated mosquitoes. They could hardly believe it!

Ology was able to capture one of them. She used all her tools and entered the nanorobot system and discovered that they were spies! They transmitted the conversations, information, and images to a central office. They watched the family to understand the residents' habits and behavior patterns. And worse, if properly configured, this data made the robots emit waves that the human ear did not pick up, that only the cerebral frequency could absorb. And they were suggestive phrases. People were, once again, almost being enslaved by robots at the service of large corporations.

They discovered that after the deactivation of the internet of things system, people had received the unwanted "visits" from snooping and

gossiping nanorobots that were right in the kitchen, where people often gathered and talked.

The “*nanonudges*” were behind the success of the love pills; they collected information and data from people so that companies could personalize advertising and modify human beings’ will individually and sell more. With the total predictability of human behavior, there was no longer any resistance to the consumption of the pills.

However, this artificial search for love, although induced, also showed people’s total absence of self-knowledge and the deep affective lack that they felt in a world of complete interfaces with machines. Basic needs, such as demonstrations of affection and warmth, that were once considered antiquated and uncivilized, proved to be fundamental to an emotionally healthy human life. They remembered the lessons learned on the day of the visit to the museum of sensations. Why had it become so difficult to feel and recognize true love?

Gia and Gabo began to wonder, then, if it was possible to invent an inner magnifying glass for the immaterial. Could a magnifying glass be developed to promote self-knowledge? A magnifying glass that enlarges attention and focuses on what really matters for an authentic human life? They looked to thank Ology for her help, when they realized that she was exhausted; it had been fifteen days since the sun had appeared. Ology’s batteries must be running out. What could be happening with the sun? It was already July ...

The red light turned on and Ology went into standby ...

VIVIANE DALLASTA

UNIVERSITY OF SÃO PAULO

Viviane Dallasta is a researcher at the Ethics, Technology and Digital Economies Study Group of the University of São Paulo (USP, Brazil). She holds a master's degree in human rights (USP), a master's in criminology from Pompeu Fabra University (UPF, Barcelona), and is a postgraduate student in public

international law. She developed research on technology and innovation about the BRICS (Brazil, Russia, India, China and South Africa), in USP's BRICS Study Group (2017 to 2019), and works as a lawyer performing the role of regional human rights defender at Federal Public Defense.



“You are a prime example of synchronized complexity. So, take yourself as a paradigm, and neither overestimate nor underestimate yourself.”

DIRK BAECKER

Academic Complexity: A Sketch of the Next University

Currently, the university is a place that invests in academic specialization. It rightly fears not having answers to the complexity of nature, culture, and society. The essay describes two necessary ingredients for a culture of academic complexity.

INTRODUCTION

The text “Academic Complexity: A Sketch of the Next University” focuses on the current and possible future state of the university. The university is in a state of crisis because nobody knows how to answer the complex problems of nature, culture, and society by means of specialized academic disciplines. Note that it is not the natural and social sciences that are in crisis. What we know about our world we know due to

these sciences. It is the university, understood as a body comprising faculty, students, and administrators, which focuses on academic disciplines and thus fails to account for two important types of real complexity. The utopia in the text lies in finding a way of ameliorating this current failure. The first of the two complexities has been known since the 1960s, when Herbert A. Simon described a science of design practiced

by professionals like therapists, architects, consultants, lawyers, and others who research a type of complexity they create while doing their research. They carry out a kind of constructivist research that comes into conflict with an objectivist methodology insisting that the object does not change in the process of research. Correspondingly, the first aspect of this utopia consists in describing the university as a place of transformative research. The second type of complexity, and the second aspect of the utopia, entails taking seriously a cognitive perspective on

the world that tells us that organisms, brains, consciousness, and communication all do their own kind of cognition. Here, complexity consists in the co-evolution of these mutually opaque systems. The university that this text conceptualizes is a place which nurtures the idea that any action, experience, communication, or, indeed, idea is the product of these systems aligning their operations and parting again. The university is the only place in society that nurtures the knowledge of the deep cognitive improbability of our knowledge.

KNOWLEDGE AND FEAR

The university is a place that has amassed an enormous amount of knowledge. In the natural, social, medical, and legal sciences, as well as in literary studies and the arts, there is nothing that has not been studied, although everything still remains to be known. And yet, the university is a place of fear. Bright students fear losing their time studying past knowledge that barely prepares them to address future questions. Experienced teachers fear having to focus on theories and methods that were successful in the past but that may be incapable of leading society out of its current lock-ins regarding the problems of globalization, digitization, and climate change. Administrators, who are still in love with an institution that they are trying to adapt to global change, fear that the university can only be changed by almost completely turning its back on its splendid past as a place of critical inquiry, skeptical thinking, and relentless objection.

FUNCTIONAL DIFFERENTIATION

The very principle that explains how the university managed to be one of the oldest and most resilient institutions—to be compared only to local authorities, armies, hospitals, and churches—nowadays seems to put it in jeopardy. That principle is the idea of functional differentiation. Since early modernity, *studium* has been distinguished from both *imperium* and *sacerdotium*¹. To seek and teach knowledge has never meant also aspiring to obtain power, nor has it entailed the belief that ministering was the only path to divine salvation. All three of the higher theological, juridical, and medical faculties became places of authority closely supervised by their governments, who wished to know what the Holy Scripture truly meant, how to apply the law, and how to administer medicine. Yet Immanuel Kant² was right to point to a lower faculty, the philosophical one, which could keep those higher faculties in check by never ceasing to seek truth or express concerns. Since the ancient Greeks, seeking truth has been a means to strip knowledge of everything that has the status of mere opinion.

Society needs such a medium in order to be able to integrate what people are able to experience in their world. Yet the costs of this have been high, because it involves abstracting from any need to act and building a theoretical and methodological apparatus that, while ensuring arguments are based on evidence, has also invited dogmatism by invalidating any knowledge that was surprising, puzzling, or just unfamiliar³. Functional differentiation has nevertheless worked well. One might even say that any attempt to insist on evidence and to obey the dogma of argument challenges students and scholars who, while studying and teaching, were members of their society and both enjoyed and wondered about anything not yet part of received knowledge that incited their curiosity.

The university of both ancient and modern society has been alphanumeric. It relies on texts and numbers, even though its background in Plato's Academy still feeds it with a deep fondness for the spoken word,

¹ Stichweh, Rudolf. 1991. *Der frühmoderne Staat und die europäische Universität: Zur Interaktion von Politik und Erziehungssystem im Prozeß ihrer Ausdifferenzierung (16. bis 18. Jahrhundert)*. Frankfurt am Main: Suhrkamp Verlag.

² Kant, Immanuel. (1798) 1992. *The Conflict of the Faculties*. Translated by Mary J. Gregor. Lincoln, NE: University of Nebraska Press.

³ Luhmann, Niklas. 2012. *Theory of Society, Volume I*. Translated by Rhodes Barrett. Stanford, CA: Stanford University Press. p. 203–4.

spoken among kindred spirits facing each other and challenging each other to go beyond received wisdom to obtain new kinds of knowledge. The medieval tradition of the school developed an understanding of *artes liberales* that distinguished between knowledge regarding communication, i.e., the *trivium* of grammar, rhetorics, and dialectics, on one hand, and knowledge regarding the external world, i.e., the *quadrivium* of arithmetics, geometry, astronomy, and music, on the other. Ways to meet the demands of arguments (*logos*) were combined with ways to represent and administer the world according to numbers, space, movement, and time. The school tradition thus developed a “closed conception unlike anything we now have to offer”⁴. Texts, interfering not only with spoken words, but also with sensual perceptions, and numbers, accounting for unruly realities, have become the medium to construct and test a knowledge that aimed to uncover universal truths by always looking for errors, mistakes, and proven untruths.

Ancient and modern universities rule by maintaining a knowledge that works productively by cultivating uncertainty, incompleteness, and doubt. There is no university if its denizens do not learn to ask questions both critical and curious. It does so theoretically and methodologically. Its texts produce the recursive linearity of arguments and its numbers model unlikely causal relations. They open up the double horizons of an infinity of further questions and further answers by arguing about arguments and collecting further data to show alternative causal relations. This thereby boosts the autonomy of an institution that becomes academic due to its distance from the world, without ever stopping to produce a knowledge that—in matters technical, social, and cultural, in engineering, physics, chemistry, legal studies, medical sciences, pedagogical studies, and artistic studies—becomes a technology to change the world. To think about the university means thinking about the questions that produce knowledge, the ideas in search of proof, or the critical inquiry that lays the foundations for professional practices. There is a paradox inherent in that kind of procedure, but it is the unfolding of this paradox that constitutes the university. If you are looking for secure and certain knowledge, you have to go somewhere else.

⁴ Luhmann, Niklas. 2013. *Theory of Society, Volume 2*. Translated by Rhodes Barrett. Stanford, CA: Stanford University Press. p. 221.

THE SCIENCE OF DESIGN

Nevertheless, something has gone wrong. The university never quite knew how to decide between being a place of science or being a place of education. Somehow, the first of these two places needed to question what the second had to teach. You cannot only teach by questioning. Any quest for truth requires the acquisition of knowledge before being able to move beyond it. The tension between these two places existing in just one institution turns the university into a lively place, where students struggle with teachers, schools with departments, and administrators with everybody. Yet, somehow, the conflicts could only be maintained and regulated by keeping a third, or indeed a fourth, party out. That fourth party—if we consider research, teaching, and administration the first three⁵—includes anybody who embarks on a professional career path after having been academically educated. When we talk of a “third mission” of the university—the mission of consulting and even transforming fields of professional activities in society—we need to take into account that this fourth party, scientifically educated professionals, have been active in society all along. The “mode 2” of knowledge production, which is not just disciplinary but transdisciplinary and contextual⁶, is one that does not have to be invented but is already common practice in many fields where people of different professions meet to solve unfamiliar problems.

Think of architects, designers, lawyers, consultants, therapists, physicians, or teachers. All of them engage with the complexity of the phenomena they hopefully learned about when at university. Yet, after suffering a reality shock of greater or lesser severity, they quickly learn that most of the knowledge they brought with them from the university has to be forgotten or at least safely stored away in order to be able to deal with the practical challenges of their jobs. Most of them learn that the truths of the academy, the methods of research, and the scope of the theories they bring with them cannot offer them an understanding of the situation they are in, let alone guide them to possible solutions to the problems they face. They learn that texts are oversimplified, that numbers are heroic abstractions from messy processes, and that any combination of text and numbers does

5 Baecker, Dirk. 2010. “A Systems Primer on Universities.” *Soziale Systeme* 16, no. 2: 356–67.

6 Gibbons, Michael, Camille Limoges, Helga Nowotny, and Simon Schwartzman. 2010. *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*. 2nd ed. London: Sage.

not give even the faintest idea of the procedures they are meant to be able to manage.

Yet, they cope. They manage to unlearn, learn, and relearn. Some of them even discover that there are secret links between academic knowledge and practical questions, concerning “tricks of the trade”⁷ that are useful in a search for truth as well as in the management of a project involving different people, different interests, and different competencies. Distinctions such as means from ends, solutions from problems, intentions from consequences, cause from effect, talk from action, or even things under human influence from things beyond our influence help a lot to organize experiences that sadly do not obey academic definitions of domains. Suddenly, some of those practitioners may find themselves wanting to return to studies of the theory of science, epistemology, or philosophy of logic (including *tertium datur*) because they realize that scientific procedure and even scientific creativity when dealing with evidence and argument may help a lot to survive situations that arise in practice.

Yet, they almost never come back. Or they come back for some alumni party and become sentimental when they see that their former professors still believe in the dubious truth of texts, models, and numbers. Actually, as Herbert A. Simon was among the first to indicate⁸, they become victims of universities which are not able to account for problems that are created at the same time as they are researched. In order to both differentiate and integrate research and teaching, universities have opted to believe a natural science methodological fantasy that maintains that the object of research holds still for as long as you are studying it. Truth is only possible if you stick to almost passive experience, excluding any deliberate action which might bring the object forth in the first place. Teaching, so to speak, is only possible if the object is placed before you and nobody has any influence on it. Anything else would be training, such as is familiar in craft businesses and also in laboratories once the student crosses the line to become a doctoral student.

The consequence is that the complexity of the practical world, which is dealt with by the professions taught at universities, never finds its way back into universities. A methodology that would take account of objects that

⁷ Becker, Howard S. 1998. *Tricks of the Trade: How to Think about Your Research While You're Doing It*. Chicago, IL: University of Chicago Press.

⁸ Simon, Herbert A. 1981. “The Science of Design – Creating the Artificial.” In *The Sciences of the Artificial*, 2nd ed., 192–229. Cambridge, MA: MIT Press.

one can only study and try to understand while participating in bringing it forth—by attending a court case, designing a house, curing a patient, consulting an organization, or standing in a classroom—is thus beyond the academic horizon. Simon proposes a science of design in order to show that, what complexity studies in professional practices lack in objectivity, they make up for by developing a methodology of optimality. As soon as one defines an optimum of a possible solution, satisfying at whatever level it may be, you get an “external” criterion that allows you to “objectively” share experiences and judgments among all involved.

THE NEXT UNIVERSITY

The Next University of the “next society”⁹, that is of a telematic society that goes beyond alphanumerical codes—by integrating electronic media, digital apparatus, algorithms, and possibly even some kind of artificial intelligence into societal communication^{10 11}—will have to look again at its functional differentiation in terms of a science of design that enables it to engage in real-world projects without foregoing its academic autonomy and dignity. The debate on a “transformative science”^{12 13 14 15} should be taken seriously in its search for a science that retains its academic credentials of critical inquiry, skeptical thinking, and relentless objection while at the same time overcoming its fear of being overwhelmed by a type of complexity it is not used to.

⁹ Drucker, Peter F. 2001. “The next Society: A Survey of the Near Future” *The Economist*, November 3, 2001.

¹⁰ Flusser, Vilém. 1997. *Medienkultur*. Edited by Stefan Bollmann. Frankfurt am Main: Fischer Taschenbuch.

¹¹ Baecker, Dirk. 2018. *4.0 oder Die Lücke die der Rechner lässt*. Leipzig: Merve.

¹² Schneidewind, Uwe, and Mandy Singer-Brodowski. 2014. *Transformative Wissenschaft: Klimawandel im deutschen Wissenschafts- und Hochschulsystem*. Marburg: Metropolis.

¹³ Strohschneider, Peter. 2014. “Zur Politik der Transformativen Wissenschaft.” In *Die Verfassung des Politischen*, edited by André Brodocz et al., 175–92. Wiesbaden: Springer.

¹⁴ Schneidewind, Uwe. 2016. “Die ‘Third Mission’ zur ‘First Mission’ machen?” *die hochschule: journal für wissenschaft und bildung* 25, no. 1: 14–22.

¹⁵ Schneidewind, Uwe. 2018. *Die Große Transformation: Eine Einführung in die Kunst gesellschaftlichen Wandels*. Frankfurt am Main: Fischer Taschenbuch.

In fact, neither climate change nor globalization and migration or digitalization and datafication are the problems to look at when it comes to new calls for the university to bring its knowledge to bear on societal challenges. The true problem to look at is complexity. Complexity, as is well known¹⁶, is a feature defining phenomena that are neither small enough to be studied in terms of cause and effect nor homogeneous enough to be studied statistically. They challenge venerable scientific methodologies by solving their problem of “organized complexity” without any scientist knowing how they do this. “Self-organization” has been the term invented to talk about a “knowledge” that complex phenomena—like living cells, brains, societies, organizations, or families—have about themselves without anybody outside them gaining access to this knowledge. Weaver called for interdisciplinary teams or “the computer” to begin dealing with questions, not of understanding complex phenomena—which may well be beyond human ability—but of dealing with them by means of experiments, with them testing inputs and watching outputs. Thus they would constitute a history of interaction which has a memory of its own and enables the observer—and the complex phenomenon—to learn.¹⁷

Meanwhile, complexity studies have further developed^{18 19 20} without realizing that a phenomenon that challenges the observer is not better understood if the observer just doubles and triples their efforts. The hope to find simple mechanisms producing chaotic surfaces, thus mimicking complexity, may well be pursued somewhat further. But what should be more interesting, or so it seems to me, is a combination of cognitive and cultural sciences that studies the autonomy of complex phenomena—or “black boxes”—within a kind of “global contextualism.” Global contextualism

¹⁶ Weaver, Warren. 1948. “Science and Complexity.” *American Scientist* 36, no. 4: 536–44.

¹⁷ Ashby, W. Ross. 1958. “Requisite Variety and Its Implications for the Control of Complex Systems.” *Cybernetica* 1, 2: 83–99.

¹⁸ Waldrop, M. Mitchell. 1992. *Complexity: The Emerging Science at the Edge of Order and Chaos*. New York, NY: Simon & Schuster.

¹⁹ Mitchell, Melanie. 2011. *Complexity: A Guided Tour*. Oxford: Oxford University Press.

²⁰ Thurner, Stefan, Rudolf Hanel, and Peter Klimek. 2018. *Introduction to the Theory of Complex Systems*. Oxford: Oxford University Press.

has been proposed by Yehuda Elkana and Hannes Klöpper²¹ as a guiding idea for the twenty-first-century university, replacing the older idea of local universalism. Local universalism was humanism's and the Enlightenment's idea to conceive of a rational world society based on nothing more than historically contingent European experiences. Global contextualism is the idea of taking nothing seriously, except for highly idiosyncratic—or “singular”—phenomena that depend on and sometimes produce their equally particular context. This concept fits rather well with another idea received within cognitive sciences^{22 23} that describes complex phenomena as autonomous within their highly specific environment. Ever since, the concept of complexity has invited us to look at systems behaving within an environment that is as supportive as it is alien to the system. Complexity means incommensurability between system and environment.

The interesting idea in complexity research, cognitive studies, and cultural studies is the idea of autonomy in interaction. Combine this with the concept of homeostasis^{24 25}—which describes complex adaptive systems as being able to adapt externally as long as they are able to maintain their inner equilibria, that is, to adapt to themselves—and you get a potentially fruitful idea of how to build the Next University. To cut a long story short, the Next University should invest in its own complexity to intervene into practical situations of all kinds, be they natural or artificial, political or economic, local or global, long term or short term, multiplayer or single player, as long as (a) those situations can be conceived of as involving autonomous complex entities on their own and (b) the intervention follows all rules of an interaction, that is, it exposes the university and its interests as much as any other participant.

How do you invest in your own complexity? The next society that the Next University is trying to come to terms with provides an answer to this

²¹ Elkana, Yehuda, and Hannes Klöpper. 2016. *The University in the Twenty-first Century: Teaching the New Enlightenment in the Digital Age*. Edited by Marvin Lazerson. Budapest: Central European University Press.

²² Maturana, Humberto R., and Francisco J. Varela. 1998. *The Tree of Knowledge: The Biological Roots of Human Understanding*. Rev. and Ed. New York, NY: Shambhala.

²³ Varela, Francisco J. 1999. *Ethical Know-How: Action, Wisdom, and Cognition*. Stanford, CA: Stanford University Press.

²⁴ Cannon, Walter B. 1929. “Organization for Physiological Homeostasis.” *Physiological Reviews* 9, no. 3: 399–431.

²⁵ Cannon, Walter B. 1963. *Wisdom Of The Body*. Rev. and Enl. Ed. New York, NY: Norton.

question. Organizations dealing with value chains organized as networks become agile, which means that they work only at the behest of some external unit—a client within or without the organization—and restrict all their internal workings to prepare for such orders, including, of course, ways to advertise their capabilities and to convince possible clients of possible orders. There is no need to think a university beyond agile methods of management²⁶.

In addition to Bruno Latour and Peter Weibel's many forms of "making things public"²⁷, Peter Schneidewind's *Reallabore* (laboratories of reality)²⁸, and Patrizia Nanz and Claus Leggewie's *Zukunftsräte* (future councils)²⁹ there should be and will be a plethora of formats to bring together different societal actors, universities among them, to do research into situations of complexity, teach methodologies and theories to deal with them interactively, and consult with respect to a possible understanding of what to know and what to do. Universities have special competencies regarding theories and methodologies, yet they should be aware that practitioners have their own practical theories and practical methodologies as well and that any of these theories and methodologies, including the university's own, contains biases that can be accounted for only in concert by all participants.

A MINIMAL COMPLEXITY

Let me stick with the term future council and describe formally the complexity it involves. Any situation whatsoever involves at least five system references, all of them describing autonomous units counting from one to an indefinite number³⁰. I speak of five system references,

²⁶ Baecker, Dirk. 2017. "Agilität in der Hochschule." *die hochschule: journal für wissenschaft und bildung* 26, no. 1: 19–28.

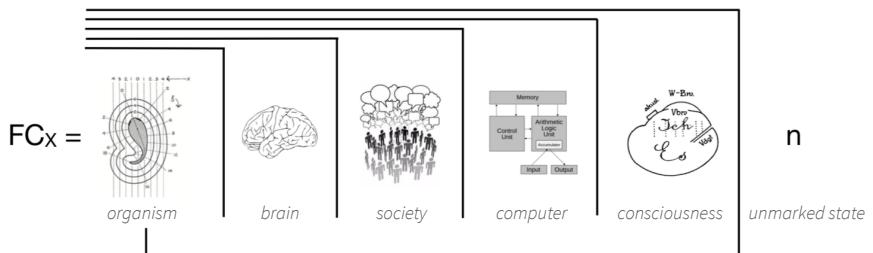
²⁷ Latour, Bruno, and Peter Weibel, eds. 2005. *Making Things Public: Atmospheres of Democracy*. Cambridge, MA: MIT Press.

²⁸ Schneidewind, Uwe. 2018. *Die Große Transformation: Eine Einführung in die Kunst gesellschaftlichen Wandels*. Frankfurt am Main: Fischer Taschenbuch. p. 442–447.

²⁹ Nanz, Patricia, and Claus Leggewie. 2018. *Die Konsultative – Mehr Demokratie durch Bürgerbeteiligung*. Berlin: Wagenbach. p. 58.

³⁰ Baecker, Dirk. 2019. *Intelligenz, künstlich und komplex*. Leipzig: Merve.

because, in fact, the biology of the organism, the neurophysiology of the brain, the philosophy and psychology of consciousness, the sociology of communication, and computer science are the fields where cognitive studies of operationally closed systems are most advanced. Those five system references are synchronized one way or the other, be it by consent or conflict, be it hierarchically or heterarchically, be it temporarily or for some longer duration. They synchronize within a “form” that includes, by exclusion, anything, n , that they may disregard in their interest and at their peril and thus constitute the “form” of a future council, FC , dealing with an issue X , FC_X :



Such a form, using Spencer-Brown's³¹ notation of his calculus of indications, models, as I understand it, an eigenvalue of a nonlinear recursive function, which means that there will be a chaotic surface of any future council that is finding its way to deal with a certain issue. Yet beneath that chaos, or, more accurately, attracted and organized by that chaos, there will be will be those five system references, describing what dynamics are to be expected among all participants.

I call this form a “catject,” since it is neither a subject exerting nothing but its free will nor an object that stands still while being dealt with; instead it is a recursive function of communication, searching, defining, negotiating, and changing the terms approved by bodies, brains, social settings,

³¹ Spencer-Brown, George. (1969) 2008. *Laws of Form – Gesetze der Form*. Translated by Thomas Wolf. 5th ed. Lübeck: Bohmeier Verlag.

computing devices, and consciousnesses³²³³. It is evident that universities' main output consists in knowledge that emphasizes the distinction of those five system references, adding further ones if needs be, searching into their specific dynamics, describing their ways of synchronizing, and moderating their mutual accommodation. After more than 2000 years of its existence in a great variety of forms, the university shall once again come of age by becoming society's cognitive place to do cognitive sciences.

CONCLUSION

Talcott Parsons and Gerald M. Platt³⁴ conceived of the university as society's "intelligence bank." Students withdraw from the university a capacity to increase their ability to deal with complex situations and deposit their current intelligence with the university as assets, which the university uses to teach curricula and give lectures and seminars. And scholars and lecturers draw on the university to pursue their research interests such that their methodological and theoretical abilities to teach and research increase instead of diminishing; simultaneously, they spend their time at the university and deposit their current knowledge and ability to raise problems and ask illuminating questions to make educational use of scientific knowledge. Both withdrawals and deposits rely on a reasonably nontrivial calculus of people met, times spent, and matters experienced. Any single meeting, project, and issue must be dealt with in light of concerns to not lose but increase individual and social intelligence capital. The fear I mentioned when beginning this essay is related to this calculus. It is a fear reflecting the changed relationship between university and society.

³² Baecker, Dirk. 2007. "The Network Synthesis of Social Action I: Towards a Sociological Theory of Next Society." *Cybernetics And Human Knowing* 14, no. 4: 9–42.

³³ Baecker, Dirk. 2008. "The Network Synthesis of Social Action II: Understanding Catjects." *Cybernetics And Human Knowing* 15, no. 1: 45–65.

³⁴ Parsons, Talcott, and Gerald M. Platt. 1973. *The American University*. Cambridge, MA: Harvard University Press.

If “intelligence” is the ability to make “appropriate selections”³⁵ when dealing with practical, methodological, and theoretical questions—if it is the ability to come up with search trees to conduct meaningful heuristic search strategies³⁶, and if it is, moreover, homeostatic in the sense of maintaining internal equilibria while dealing with external challenges³⁷—then, the university, understood as an intelligence bank, is constantly under pressure to prove the appropriateness of its research questions with respect to both societal challenges and the cultivation and upgrading of its internal resources, in terms not only of theories maintained and methods applied but also of formats developed and used to do its research, teaching, administration, and supervision.

The conflict described by Kant between authoritative faculties on one side and critical faculties on the other seems to have been an important means of providing the university with pervasive-enough internal problems to ensure a minimal autonomy with respect to both *sacerdotium* and *imperium*. What will replace this conflict in the Next University?³⁸ What kind of inner conflict will ensure that the minimal self-reference of the university, which is why it has been able to avoid getting lost in the language games, relevance structures, and problem priorities of its societal environments, remains? My tentative answer to this question pertains to the understanding of the university as a cognitive place in terms of an intelligence bank. Any social situation is also an ecological site. It combines organically, neurally, mentally, technically, socially, and culturally specified cognitive abilities in different forms, hierarchical structures, and heterarchical dynamics. *The sacerdotium* and *imperium* of yore are nowadays forms of synchronization between our four or more system references, which are only minimally at the disposal of the respective social situation. In order to differentiate and reproduce, social situations exert a certain kind of domination to make sure that incommensurable system references, standing orthogonally in

35 Ashby, W. Ross 1981. “What Is an Intelligent Machine?” In *Mechanisms of Intelligence: W. Ross Ashby’s Writing on Cybernetics*, edited by Roger Conant, 295–306. Seaside, CA: Intersystems.

36 Newell, Allen, and Herbert A. Simon. 1976. “Computer Science as Empirical Inquiry: Symbols and Search.” *Communications of the ACM* 19, no. 3: 113–126.

37 Cannon, Walter B. 1929. “Organization for Physiological Homeostasis.” *Physiological Reviews* 9, no. 3: 399–431.

38 I owe this question to Timothée Ingen-Housz.

relation to each other, keep a certain shape or produce certain surfaces so that any one of them can integrate with all others.

The university is the place where any form, hierarchy, and heterarchy can and may be considered anew. It certainly has its own shape to be maintained in order to be able to differ and reproduce. But this shape consists in its very ability to problematize it and to constantly look at its own formats in terms of intelligence lost or gained. The university provides society with an ability to make variable any specific synchrony of system references and domination of one or a few of them by all others. The university understands cognition among organisms, brains, society, computers, and consciousness as the medium all social forms have to comply with to gain their specific form and, therefore, as the medium which has to be respected for the “loose coupling”³⁹ of its elements as the evolutionarily necessary variety pool of society. To be sure, there are many rigidities—not least dogmatic, epistemological, and bureaucratic ones—in the university as well, with some student movements insisting on their abolition, and others, if societal uncertainties get too demanding, insisting on their enforcement.

A “university in ruins”⁴⁰ is a university that has lost its variable capacity to search for new and other forms of synchrony. And if the university is to be “unconditional”⁴¹ at all, it is unconditional in its respect for cognitive studies, which do not accept any prevalence whatsoever of life, nature, technology, society or consciousness having the last word among all others. Sure enough, any scientific discipline has its own bias, which has also been called “problem statement” (*Problemstellung*)⁴². But this problem statement, be it economics’ idea of rationality, sociology’s idea of social order, philosophy’s idea of the problem of problems, psychology’s idea of motivation, or whatever, within the university is nothing but a statement to be criticized by any other discipline such that it never loses its tradeability. This is why a university necessarily has more than just one faculty. Its faculties no longer have to be distinguished as “higher” and “lower” as in

³⁹ Heider, Fritz. 1959. “Thing and Medium.” *Psychological Issues* 1, no. 3: 1–34.

⁴⁰ Readings, Bill. 1996. *The University in Ruins*. Cambridge, MA: Harvard University Press.

⁴¹ Derrida, Jacques. 2002. “The University Without Condition.” In *Without Alibi*, edited and translated by Peggy Kamuf, 202–237. Stanford, CA: Stanford University Press.

⁴² Weber, Max. 1949. *The Methodology Of The Social Sciences*. Translated by Edward A. Shils and Henry A. Finch. New York, NY: Free Press.

Kant's time. It is enough to have them distinguished at all, be it horizontally or laterally. And this is, moreover, why any university does not just need philosophy, to state the problem of the problem, but even more so the arts, because the arts are even more flexible in their capacity to combine, analyze, and recombine system references by organizing the perceptions of senses, semantics, formats, and structures. Yet the arts analyze and recombine without knowing quite what they are doing, just being challenged, as it were, by their ways of observing the rigidities and deadlocks of societal, mental, technical, and habitual routines, conventions, and traditions. It is necessary for cognitive sciences informed by classical disciplines to slowly give way to trans-disciplinary theories and methods and trans-classic logics to understand, describe, reflect on, and thereby make available the distributed medium of cognition beneath its variable forms.

One may distinguish between the societal function of the university and its various contributions to societal tasks⁴³. If its function consists in maintaining its cognitive variability with respect to all cognitive forms chosen by societal institutions, by situations, and by the university itself, its task nevertheless consists in responding to requests society may deem pressing. There is no danger of the university losing its autonomy as long as it chooses which requests to respond to, documents its research for anybody to inspect, and maintains a repository of knowledge that anybody may consult. The intelligence of the Next University may be seen in further developing its understanding of different types of cognition. If those types become black boxes when looked at in detail, so be it. It is their interaction that is at issue for both research and teaching in any case. Their status as a black box is a manifestation of their necessarily latent ability to transform their mediality.

Modern societies and their universities have been places where a hope has somehow prevailed that reason can have the upper hand in whatever system reference, taming bodies, tapping into brains, coming up with societal orders, developing helpful technologies, and not least sublimating any remaining resistance exercised by these systems by cultural gratifications given to them. No longer shall this be the case. The Next University will have to appreciate any one of those system references with respect to their own evolutionary sensibility and potential. Complexity

⁴³ Luhmann, Niklas. 1980. "Gesellschaftliche Strukturen und semantische Tradition." In *Gesellschaftsstruktur und Semantik: Studien zur Wissenssoziologie der modernen Gesellschaft*, Band 1, 9–71. Frankfurt am Main: Suhrkamp. p. 30.

shall replace reason as its guiding idea. The rest of society may be grateful if that complexity is and remains an academic one, such that it gets asked for and becomes useful only piece by piece. The Next University will have to moderate its perspective on cognitive variability. But for this, it needs to develop and acknowledge that perspective in the first place.

The fear that students, scholars, and administrators are currently experiencing may relate to the transformation the university has to undergo from the modern to the Next University. This transformation is nontrivial since it will affect the very institution meant to manage it. Both the picture of the “modern,” where it has come from, and the “next” it is trying to reach are changing in the process of transformation. There seems to be only one remedy to deal with that fear: We have to begin with the students, teachers, and administrators responsible for the process of transformation, who are experiencing what it means to look at the complexity of all system references and know that any issue to get knowledge about is a correlate of systems references synchronizing in various ways. Going back and forth between disciplinary, interdisciplinary, transdisciplinary, and aesthetic-artistic references to the issues being studied means gaining a feeling for the possible variability of forms and the reliability and resilience of the medium underlying them.

This undoubtedly leads back to Kant. In doing science there are three unconditionalities involved⁴⁴: first, a *subject* doing any categorical synthesis at all, second, a *hypothetical synthesis* about some members of a series, and, third, a *disjunctive synthesis* of members belonging to some system. The second condition may be fulfilled by coming up with some rhapsodic knowledge, yet only the third one, leading to the architecture of an argument, is worthy of being called scientific. But if you do not start by accepting the first condition—namely of you being the one to ask a question, draw a distinction, and accept and further develop knowledge—you may as well not start doing science in the first place.

The fear, therefore, is a fear of having to look at yourself. The utopian element in any university, including the next one, is to enable you to do so as a way to start engaging with some knowledge about, and within, the world. You are a prime example of synchronized complexity. So, take yourself as a paradigm, and neither overestimate nor underestimate yourself.

⁴⁴ Kant, Immanuel. (1781/87) 2003. *Critique of Pure Reason*. Translated by J. M. D. Meiklejohn. Mineola, New York: Dover. p. 378–9.

DIRK BAECKER

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Dirk Baecker is professor of cultural theory and management at the University of Witten/Herdecke. His research interests include sociological theory, cultural theory, economic sociology, organizational research, and management education. In his current research

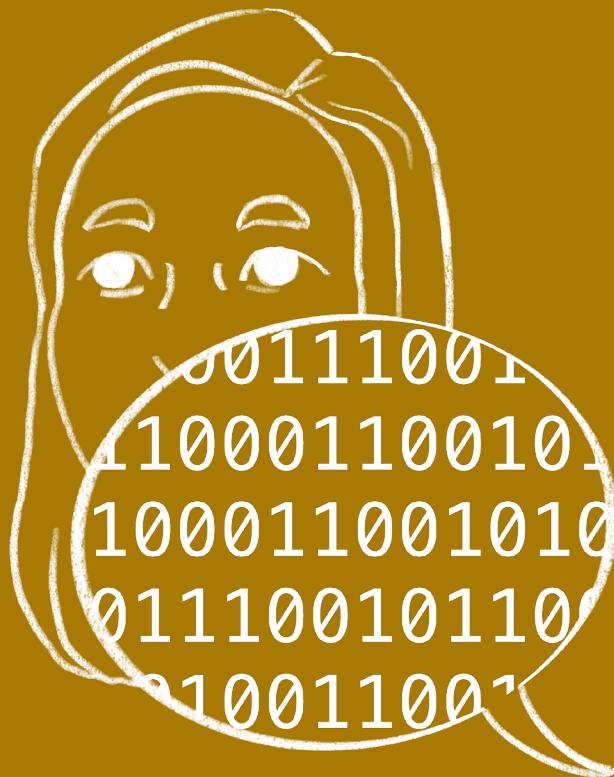
project, the “Catjects Project,” Dirk Baecker explores catjects—the categories underlying the differentiation and reproduction of specific types of communication—as a method of cultural analysis.



WORK

How will we work in the future? How
will work be coordinated and what
forms of society will it produce?

CHAPTER 4



“The term ‘programmer’ also used to refer to a human, someone writing programs the old way, with keyboard and mouse. Now the craft of computer programming has been automated thanks to voice-operated programming (VOP).”

EMMA BEAUXIS-AUSSALET

From Dark Roots to Shared Routes

We all struggle with computers. If only we could talk to them, so that they could understand what we want without having to reprogram them. Controlling computers with our voice sounds much better, unless computers control us with their own customized voice.

INTRODUCTION

The bittersweet utopian text “From Dark Roots to Shared Routes” explores a future where Natural Language Processing (NLP) technologies, formerly used to manipulate people with commercial and political campaigns are being repurposed for greater good. To achieve this transformation, courageous civilians and politicians took action. Nefarious uses of NLP technologies were banned but not the technologies

themselves. Better uses of the technologies lead to voice-operated programming: a technology that enables anyone to program their own computers by simply talking to them. Yet such voice technologies have side effects that threaten our agency and the fabric of our society. NLP technologies, social media analysis, and microtargeting can seriously damage our autonomy and our democracy. Microtargeting adapts

marketing messages to specific individuals and triggers their specific personality by prompting tailored psychological cues. This nudging affects our autonomy, as our decisions are based not only on information but also on emotions. Voice technologies can make such social engineering even more efficient, by adding nonverbal psychological cues. Social media analysis can make social engineering more pervasive by identifying the language patterns in the social circles of the targeted individuals. Generative adversarial networks (GAN) can then be used to generate voice messages that sound just like the specific

individuals in targeted social circles. Then, with chatbots, humans could engage into mind bending microtargeted conversations, without even realizing that they are talking to a computer. Yet, as this essay shows, the same technologies can be used to enable humans to better control their computers rather than the other way around. This story presents some of the social impacts these AI technologies already have, and may have in the future. It explores the steps we might take to progress from tacit use of AI for evil, to public scrutiny of computing systems, and to open use of AI for the greater good.

DIGITAL GEOGRAPHIC MAGAZINE—FRIDAY, MARCH 4, 2041

From Dark Roots to Shared Routes – The Forgotten History of Voice-Operated Programming

Today we talk to our computers like we talk to our friends. But merely twenty years ago, there was no such thing as talking computers. All we had were crude, racially biased voice assistants. This month, our Tech & Society Column tells the story of the technology at the heart of the talking computer revolution: voice-operated programming. Without it, our talking computers could barely handle food deliveries and ticket bookings. There is much to say about the implications of voice-operated programming for the socio-economic context of our century, its major crises, and its landmark regulations. The history of voice-operated programming is worth remembering as we reflect on the misuses of technology and the political courage it takes to steer technology towards greater purposes.

A long time ago, the term “computer” used to refer to a human, someone doing computations the old way, with paper and pen. The term “programmer” also used to refer to a human, someone writing programs the old way, with keyboard and mouse. Now the craft of computer programming has been automated thanks to voice-operated programming (VOP). We can carry out almost any task by simply talking to our computers. Our voice operators find and execute the programs we need and write the programs that are missing. We barely need to move a finger anymore, for a click or a keystroke.

Operating computers with our voice is much healthier: no more slouching and broken backs, but improved breathing and blood oxygen balance. And operating computers is also more accessible than ever, as voice operators can rapidly adapt to understand many accents and dialects. An incredible diversity of people, including children, can design and operate their own information systems. VOP has been deemed “the most empowering technology of the century” that has “greatly improved the autonomy and efficiency of millions of workers” and “unleashed the creativity of human kind” (*OECD, Development Co-operation Report, 2039*).

However, few of us remember the dark side of VOP history. It stemmed from the evils of surveillance capitalism, from technologies that compromised our democracy. Let’s explore the difficult truths behind the genesis of VOP and reflect on the ethical and political issues of its past ... and present.

GENESIS: TO HOAX AND TO COAX

Twenty years ago, deep fake technologies were plaguing the internet. They were used to forge videos of politicians and manipulate elections, but also to tweak advertisements to target our specific psychological profiles. Neuro-marketing companies could generate highly personalized ads, videos, and even newspaper articles without any human actually writing or shooting them. Their fabricated texts and videos had a cunning realism and a strong power of influence.

For political campaigns, the fakes targeted those who could vote for political opponents. They were designed to break the voter’s trust and the politician’s decorum. The most insidious fakes staged embarrassing incidents, with politicians in ridiculous or demeaning situations. The fakes could spread rumors indefinitely as no attempt to debunk them was ever credible—or credited—enough to quench our thirst for mockery and controversy. Social media platforms embraced fake news in their business

models, giving visibility and advertisement revenue to all parties, and dodging any editorial responsibility.

In 2024, the US presidential election was gravely biased by a disinformation campaign. A seemingly real video of President Bernie Sanders was released just 72 hours before the first polling stations opened. This extremely well-crafted video, accompanied by the release of hundreds of fake documents and newspaper articles, led the American public to believe in a conspiracy with the Chinese government. The attack framed Democrats receiving bribes to implement their newly adopted Green New Deal with Chinese green technologies. It dramatically swayed the election. Polls were predicting Bernie Sanders' reelection by a large majority, but instead Stephen Baldwin received the majority of votes.

It took weeks to fully debunk this disinformation campaign. It was based on an intricate network of fake documents, and their dissemination had started months before the election. The fakes manufactured many counter-claims and misleading evidence. By the time the truth emerged, the US was in the midst of a dire constitutional crisis. Most civilians and politicians were in favor of annulling the election and organizing another one, but no legal framework could allow it. The crisis ended with the withdrawal of Baldwin, who terminated his short-lived political career to facilitate the investigations and protect his reputation and assets. Four of his campaign managers were later convicted of conspiracy and defamation.

This deep fake scandal was a historical crisis that outraged citizens all over the world. The technologies at play drew the attention of lawyers, AI experts, policy makers, scholars, hackers, and journalists. In an unusual synergy of multiple disciplines, they carefully scrutinized other uses of deep fakes. They soon uncovered another deceitful technology: social language modelling.

This technology can adapt the tone of texts to mimic the language of a person's social circle. It can produce marketing or political messages that sound like our friends or family members. Who could resist buying clothes that are recommended by someone just like your partner? Or voting for politicians endorsed by someone just like your best friend? The discovery of social language modelling (SLM) was a major scandal. Citizens were appalled by the practice but no legal framework could ban it until the 2030s.

All SLM retailers were trafficking the exact same technology, provided by a group of hackers who remain unidentified to this day. They operated through a shell company named Sheepshape. They framed their services

as conventional AI using no private data, but applied extremely strict non-disclosure agreements. The use of AI had to remain confidential, and Sheepshape services were officially basic data science. Behind such extreme trade secret protection lay spectacular privacy violations. In practice, the language models were trained with highly personal data such as private emails and chats. With these, Sheepshape could produce extremely efficient communication campaigns, far surpassing conventional neuro-marketing.

Sheepshape had backdoors for accessing private communications on at least Gmail, Facebook, and Twitter. It relied on a handful of corrupt employees at major IT companies. They disseminated spyware at the lowest levels of cloud platforms: in the compilers of data backup and encryption components. This complex technical scheme was uncovered by a team of investigative journalists, hackers, and researchers. In a remarkable retro-engineering feat, they analyzed how marketing messages were tailored to real and simulated individuals, and identified which personal communications were used to build the language models.

In the wake of the Sheepshape scandal, an anonymous source leaked the SLM technology to the public in 2026. The leak enabled SLM to spread into most marketing campaigns, but this time the language models were trained using public data from social media. On the bright side, the leak also enabled great innovations that improved voice interfaces. It also prompted the adoption of crucial regulations. In 2031, the United Nations Security Council announced a **ban on blacklisted AI for public influence purposes** on the grounds that such manipulative AI systems threaten human dignity and autonomy. It was clear that companies that owned public influence technology had gained too much power over our democracy and economy.

The blacklisted technologies included SLM, deep fake, and recommendation systems designed to maintain and polarize audiences within filter bubbles. The models and algorithms in question were published and documented to enable public scrutiny and international cooperation. Hackers and academics soon repurposed these back-alley monsters of neuro-marketing and gave birth to the first talking computers. Back then, we did not imagine the coming revolution, just as we did not imagine the internet revolution in the twentieth century.

FROM SOUND TO SOUND: THE RISE OF TALKING COMPUTERS

Talking machines are an old human fantasy. For ancient Greeks, the god Hephaestus crafted automatons that mimicked humans or animals. Interestingly, he also crafted Pandora and her box. The first talking

machines appeared thousands of years after those ancient myths. And they did not live up to our expectations. They made countless errors and misunderstood many populations with accents that did not comply with some arbitrary standards.

Unexpectedly, deep fake and SLM technologies were the missing pieces. They made talking computers able to understand each user's way of talking, with different pronunciations and vocabularies. Talking computers became highly personalized, almost perfectly tailored to their individual users. Their errors became rare and easy to correct. We grew more and more comfortable talking with computers; it became like talking with familiar colleagues.

Voice operators, as they are formally called, have completely transformed our ways of living. Voice-ops, as we usually call them, handle much more than computations. More than the world of data and programs, they now handle a large part of our intellectual world. They read and write our books as well as our computer code. They are our curators, our secretaries, and at times, our companions. Today, in 2041, we spend most of our day wearing noise cancelling headphones, at work or at home, seamlessly talking with humans or computers, under the spell of omnipresent vocal presences.

Human communication has taken many shapes and forms through history. Thus far, as we now turn our relationships, our books, and our programs into vocal presences, **our communications have evolved from sound to sound**. From prehistoric to digital humans, **information has mutated from music to speech, to writing, to computing, and eventually, to the realm of sounds again**.

In the early 2030s, deep fake and SLM were first used to make toy apps for entertainment, but the field quickly professionalized to develop voice operators for customer services. Having voice operators was a sign of modernity, and most companies implemented them to keep up with the trend. To foster the success of voice operators, the software industry adopted standards for typical voice commands to trigger menus and buttons, or to fill in forms. Thanks to these standards, most websites became voice-operable by the mid 2030s.

Developers started to enhance their own programming tools with voice interfaces. Using the voice turned out to be a great help when developing computer programs. Besides relieving RSI symptoms, voice interfaces allow for more creative thinking. As the body is unconstrained by keyboard and mouse, the mind can focus better on the high-level design of algorithms.

Developers around the world kept collaborating on open-source voice interfaces using state-of-the-art AI, such as deep fake and SLM technologies to handle the different jargons of programmers.

Academics coined the term voice-operated programming (VOP) in 2034 and developed intelligent dialog protocols to translate high-level descriptions of our goals into low-level computer operations. The dialog protocols tell VOP agents how to lead a conversation until enough information has been gathered to specify the programs we need. VOP agents would then orchestrate and execute those programs. Should a program be missing, VOP agents would write the code, deploy the program, and do tests and debugging.

At first, communicating with VOP agents was rather unnatural and required an obnoxious computer vocabulary. For instance, let's say we owned a business, and we asked our voice-op: "*Send a reminder about their bills to the clients who are late*". The voice-op may ask: "*What do you mean by 'send a reminder'?*". We would then need to say something awkward like: "*The reminder is a mail. It sends the unpaid bills to a client. Apply a summarizer to the bills. Set the summarizer parameters with result length to 3 sentences and word cap to 100. Use the result of the summarizer as the text content of the mail.*"

The VOP results may have failed. It could have written a reminder like: "Dear client, you have 3 unpaid bills hereby attached. Total due is \$774.37 (incl. \$82.07 tax and \$45.40 shipping). It represents 5.17% of our net revenue for Week 51 of 2035." That may be the correct summary for a business owner, but not one to send to clients. To improve the summary, we would have needed to program another summarizer via lengthy dialog with our voice-op.

Today our dialog is more natural and more personal. We simply say "*Drop these clients a note on their bills*." VOP has achieved this level of technological development thanks to well-established standards and design guidelines. With good compatibility standards, VOP systems easily combined a variety of languages. Models of human and computer languages became interchangeable and personalizable. The VOP industry grew from new language models, to new business models, to new success stories.

VOP pervades most of our professional and personal lives. Our daily activities are largely voice-operated. Anyone can easily construct complex AI systems, and most children are fluent in VOP by the age of 12. However, this groundbreaking technological progress is not without side effects.

VOP entails more complex and lengthy computations compared to traditional programming. These extra computations are greatly contributing to the climate crisis. This, too, is part of the dark roots of VOP: its energy consumption and consequent pollution. Let's explore the challenges we need to tackle for limiting the computing resources and thus the ecological costs of VOP systems.

PAYING THE BILLS: THE COMPUTATIONAL AND ECOLOGICAL COSTS

Voice-operated programming requires all sorts of additional computations to work out the programs it needs to execute and discuss them with us. A first layer of computations is needed to match what we say in our own natural language with standard voice commands. A second layer is needed to translate the voice commands into low-level programming operations. These two extra layers often need much more computations than the actual VOP-generated programs we eventually execute. At a global scale, the energy consumption of these additional computations is staggering. It is comparable to the energy consumption of the entire transport industry.

On top of that, the programs written by VOP consume more energy than programs written by humans. VOP often generates complex software architectures that are not optimal. For example, VOP reuses pieces of code that sometimes include computations that have no purpose in the new context. And even when VOP writes new code, its programs need more computations than programs written and optimized by humans. The capacity of humans to optimize computer systems remains far superior to what machines can do to optimize themselves. But to optimize our programs, we need highly trained human experts. And they are becoming rare.

Most VOP applications do not justify investing in the verification and optimization of the programs, thus the job market for human programmers has greatly reduced in the past 5 years. Our programming workforce is now at a minimum, and we are losing our ability to fully control most programs we use. When we program with VOP, we remain quite ignorant of what exact programs we are executing. Our programs can have misconceptions and bugs, on top of suboptimal code and increased computational costs. But there is no one to correct them.

Computing resources are extremely fast and cheap, but they have dire ecological consequences. On a global scale, the carbon footprint of voice operators is enormous. **In our damaged ecosystems, plagued by heat waves and severe storms, much concern arises from the ecological costs of our computing systems.** All industries are liable for their energy consumption under the UN Climate Control Regulations. Yet we barely measure, not to mention regulate, the energy consumption of the computing industry.

The UN Climate Control Regulations require companies to implement supply chains that consume the least possible material and energy resources. Otherwise, they may be barred from international trade. The criteria and strategies for optimizing resources are a source of constant controversy, of course, but international standards have been developed for most industries. Yet standards for the computing industry are lacking.

The only incentives for the digital industry to reduce its energy consumption are ecological taxes on energy. Since 2026, international agreements have enabled worldwide tax policies similar to value-added tax: a kind of pollution-added tax. But these are not sufficient. We know that taxation policies and the self-regulation of industry fall short of addressing the extent of our overconsumption.

Before the United Nations ratified the Climate Control Regulations in 2038, we long thought that taxing energy and waste would be enough to push industries to adopt more sustainable practices. And indeed, lots of industries improved their practices. But wealthier industries could afford the taxes and practically bought their rights to pollute. Our carbon emissions remained highly unsustainable, public health and entire economies continued to crumble, and natural ecosystems continued to collapse. The public pressure for an effective political response grew into massive worldwide strikes in the mid-2030s.

We then considered a more drastic approach: Technologies with high environmental impact must be restricted. They must be limited to cases where the greater good might justify the ecological costs, for instance, health or safety. The idea was largely approved by the public, and national and international regulations were developed. They ultimately led to the UN Climate Control Regulations. Since then, entire domains have been disrupted, such as the transport industry. But impacting entire domains is actually an advantage: It means that no one is able to use more polluting technologies just because they can afford ecological taxes.

A typical example of these climate control laws pertains to freight. Some resources are shipped across the world on highly polluting cargo boats. The essence of the UN Climate Control Regulations is to ban companies from shipping their resources across the world if local resources could replace

them. This apparently simple principle has tremendous consequences for our economy and our ways of living.

For instance, fruits like bananas are no longer imported to northern parts of the globe, but exceptions remain for restaurants and other cultural purposes. Europeans and Canadians have been ready to sacrifice bananas in their regular diet, and banana producers have been ready to sacrifice their international sales, because these are not sacrifices but necessary transformations of our society.

While we reinvent our economy, opportunities are arising too. Cargo boats have been reassigned to collect plastic trash in the oceans, subsidized by funds from ecological taxes and equipped with innovative technologies for depolluting their exhaust gases. Banana producers export less but for a higher price, they produce less but at a higher quality, and they avoid the ecological damage of high-yield agriculture.

The UN Climate Control Regulations have been implemented gradually, one restriction at a time, one alternative solution at a time, one transformation at a time. The time has come to transform the computing industry, and there are well-known targets for reducing its energy consumption. For example, some advanced AI systems entail a lot more computations but provide results that are only a little better. The essence of the UN Climate Control Regulations would be to ban such AI for nonessential purposes, like advertisement or entertainment, but allow them for essential purposes like medical applications.

The technological choices in the computing industry can be vetted without stifling innovation. On the contrary, it gives a direction for innovation: reducing computational and thus ecological costs. It also pushes companies to modernize their old-fashioned deep learning systems. There is an alternative technology that can greatly reduce the computational and ecological costs of AI and VOP: **dip learning—the nemesis of deep learning**. Both have more or less equivalent results, but dip learning needs only a fraction of the data and computations that deep learning requires. To understand the disruptive power of dip learning, and how it can make VOP more sustainable, we need to go back to the early days of AI.

OUT OF DEPTH: LEARNING TO LEARN

At the end of the 20th century, the first forms of AI were model driven: They encoded human knowledge into models. The models were built manually and represented the elements of a problem to consider, the rules under which these elements could evolve, and the reactions to adopt under specific circumstances. Such models were often very complex, and very difficult to design and maintain. Many possible corner cases and unexpected situations arose under real-world conditions. And many aspects of the possible situations could not be integrated in models that were already too complex and hard to update.

This type of AI was costly and limited. It promised too much and delivered too little. Investments and business prospects dwindled, and AI became an intellectual curiosity for mathematicians. In the early twenty-first century, another approach became successful: data-driven AI. Instead of using hand-made models, data-driven AI uses samples of data that are manually processed. AI algorithms just have to find ways to mimic the results produced by humans. Algorithms could learn how to mimic the results after repetitive sequences of trials and errors, called *training*, which basically optimized the parameters of low-level data processing techniques.

Data-driven AI achieved what model-driven AI promised. Almost all our AI systems became data driven. Instead of encoding human knowledge into complex models, we started to rely on simple generic models that were agnostic of any human knowledge. To compensate for the lack of human knowledge, we relied on more data samples and more parameters. With this approach, **artificial intelligence became more artificial than intelligent**.

Dip learning belongs to both worlds: It is both data driven and model driven. It relies on data samples, but needs much less data than deep learning: It just needs a dip in data. It relies on models too, but not on hand-made models. Dip learning makes its own models: It finds the most logical model from the available data samples.

Dip learning models can be as abstract and meaningless as deep learning models. But they are easier to interpret and correct, manually or automatically. Should new data or manual correction be available, dip learning would refine its models automatically and rapidly. These are the strengths of dip learning: It needs less data and fewer computations, and it provides more adaptive and tractable models.

Another strength of dip learning is that it is designed to deal with incomplete and partial data. Dip learning maintains models of what it knows, but also of what it does not know. It can infer hidden factors that are not directly represented in the data. For example, sales data may show that some clients are often late when paying their bills, but none of the variables in the data may be able to help with identifying late and early payers. Dip learning can infer that it needs extra variables, called latent variables. For example, at least one extra variable would be needed to identify late and early payers, such as net income.

Dip learning can model the interactions between variables and latent variables. In theory, deep learning could achieve similar results with something called hyper-parameter tuning. But it would require innumerable trials and errors, with huge computational and ecological costs.

Dip learning can dramatically reduce the staggering energy consumption of voice-operated programming and AI systems in general. Yet many AI systems have not been upgraded to dip learning and continue to operate with deep learning. Their impacts on our ecosystem are not justified and conflict with the UN Climate Control Regulations. But efforts to regulate the computing industry have faced legal opposition: Companies want to keep their technology confidential, and the law strongly protects their intellectual property.

We have achieved tremendous successes in our quest to control our impact on the planet, and remodel our industry and economy. We also achieved tremendous successes in developing breakthrough technologies for voice operators. Through international cooperation, we have revolutionized our technology and our economy. We have such a great potential to extend the cooperation on technologies and regulations. Couldn't we go one step further and agree on restrictions of AI technologies that overconsume computing power? Couldn't we agree on methods to verify whether restricted AI technologies are used in a computing system, while leaving the exact AI models and system architecture confidential?

Even if we addressed the ecological problem of VOP with dip learning and complied with the UN Climate Control Regulations, we would not be done with addressing all problems with VOP. We must also beware of how VOP impacts our culture and our relationships. Let's reflect on how VOP is transforming our society.

WHAT REMAINS UNHEARD: THE HUMAN COSTS

Voice operators are transforming our society because they remodel our work environment, our access to information, and ultimately, our sense of community. At work, voice-ops have introduced great acoustic stress. Offices are like a permanent meeting. Whether colleagues interact among themselves or with their computers, work sounds like a gigantic call center.

To muffle this sound jungle, we are constantly equipped with noise-cancelling headphones. And we are thus constantly reachable for a call from our colleagues or our computers. We stay tuned into the sound flow of humans and machines. Unable to escape the silence haven of our noise-cancelling headphones, we surrender to the acoustic tyranny of remaining on standby for our colleagues and computers.

The toll of voice-ops on our acoustic comfort is not the only worry. With the sonification of information, we barely read or write anymore. But when voice-ops read a text for us, we cannot explore its content at our own pace. Voice-ops disrupt the inner rhythm of our reflections. They can render pauses in speech rather naturally and at a controllable pace. Yet the pauses are imposed, and we understand less of a text when hearing it rather than reading it.

On top of this, a lot of our texts are now written by machines: by web searchers, by summarizers, by data analyzers. They design our news briefs, write our reports, and tweak our ads. They write our books too: novels with plots and well-crafted suspense, handbooks with virtual reality add-ons, school books with personalized exercises. **Are we losing our ability to write our own literature? Just as we are losing our ability to write our computer programs?**

The machines that read and write our texts have a seemingly real personality of their own. They are sometimes awkward but they sound all the more alive, with an awkwardness of their own as part of their personality. Voice-ops can create the illusion of a companion, a seemingly real interlocutor. They can adapt their tone of voice to influence our emotions, for example, to soothe anger and anxiety or to help us fall asleep. They can also comfort the lonely and the depressed.

Perhaps a lot of us find comfort in the predictable behaviors of machines, in their routines, and in their fully personalized character. After all, we let voice-ops handle many social tasks, such as customer services, therapy, and education from kindergarten to university. As machines blend into our

social fabric, we might end up mimicking them as much as they mimic us. Are we talking more like machines? Do we perform computer-like routines with humans too? It would wash out a lot of our human character, a lot of what cannot be reproduced by machines. It would change our culture, our intellect, and our emotions.

We now spend more time talking with voice-ops than with humans, colleagues, friends, or family. And we rarely meet each other face-to-face. We often prefer phone calls, to hear each other with the comfortable sound of high quality headphones, and the familiar peace of noise cancelling. But we are slowly turning human touch into vocal presence.

We are losing touch with what is actually behind the sound flow of humans and machines. We are losing touch with actual humans and actual machines. Do we really know exactly what our programs are doing, and how much energy they really require? Do we really know exactly how our relatives are feeling, and whether they would rather talk to a comforting voice-op than to us?

EPILOGUE: THE COURAGE OF HOPE

Deep fake and social language modelling gave machines the ability to mimic humans. Companies and politicians used them to manipulate our economy and our democracy. Journalists and hackers uncovered their misuses. Regulators banned them for intentions of public influence. Developers redesigned them to build powerful voice interfaces, and voice-operated programming gave them a greater purpose.

We overcame the threat of deep fakes and social language modelling to our economy and democracy. Now, we face the consequences of voice-operated programming for our ecosystem and our social fabric. To face the challenges ahead of us, we must have the courage of our hopes. As we hope to restore a livable planet, and develop the sustainable AI systems it requires, we need the political courage to debate and regulate our technological choices, starting with voice-operated programming.

As we hope to undergo tedious negotiations across states and stakeholders to agree on AI standards and regulations, we need the courage to get past the smoke screen of technological complexity. To get past business-as-usual, trade secrets, and economic pressure. And as we hope to succeed in negotiating rules for a sustainable AI economy, we will need the courage to understand each other's struggles with the dramatic changes that are bound to happen. We will need the courage to get past the comfort of our machine-like routines. To get past the bubble of our headphones,

and their hypnotic sound flow. We will need the courage to deal with each other's grievances and hopes with more real human connections than currently exists in our muffled voice-operated world, which silences a lot of our humanity.

EMMA BEAUXIS-AUSSALET

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Emma Beauxis-Aussalet is a senior track associate at the Digital Society School of Amsterdam University of Applied Science, where she works on applying artificial intelligence (AI) to achieve social good. She also focuses on enabling transparent and accountable AI, where bias and error are explicit and

understandable for the general public. Her research at the National Research Institute for Mathematics and Computer Science (CWI) developed simplified visualizations of classification errors and statistical methods to detail error and bias in classification data.



“They were floating through the sonic landscapes now: seemingly driving them forwards—wading through them; breathing them; being them. It was propulsive, dreamy, ecstatic. A shared psychoacoustic world made up of collective digitally mediated soundscapes.”

MARK GRAHAM

Platform Socialism

Platforms will soon mediate almost every human interaction. This story follows three ravers, and the paths they take, as platform governance is transformed from platform capitalism to platform socialism and back again.

INTRODUCTION

Platforms now mediate almost all conceivable economic, social, and political interactions. The essay “Platform Socialism” follows the lives of three characters who live through three distinct moments in the evolution of the platform economy. First, an age of hyper-capitalism, in which the network effects that platforms rely on mean that two, and then only one, platforms remain. Second, an age of platform socialism, in which citizens decide that the power

that platforms wield can, and should, be democratically governed. Third, the breakdown of platform socialism after its founders forget to abide by its core founding principles. By following the lives of three friends and their love of “hypnoraves,” the story explores how a desire for freedom can both serve as the beginning of a fightback against corporate power, but can also prove to be a challenge in any more democratically-run economy.

Munir strapped himself into the augmented system. Lydia and Gus were already in. Both of them stood upright in separate corners of their shared, musty apartment in a run-down part of Hackney.

Their Ideograph headsets covered their faces and were wrapped around their heads. Lydia was wearing the Ideoshoes and Ideogloves designed to be used with Ideograph's AR module; Des, however, had some cheap knockoffs that she swore worked just as well.

Users were free to adopt any bodily form in the hypnorave, and the channel they were entering was especially known for its debauchery. Avatars of flesh, sweat, and writhing bodies sparsely adorned with slivers of neon and glitter here and there.

Just as Munir lowered his own headset, he could see both Lydia and Gus start to move.

It was always the deep, nurturing bass that hit you first, deep in a part of your core that you didn't quite know existed. The bass then transported you into the synaesthetic canvas that awaited. It throbbed, and an orange pulse gave shape to the others, dancing in sync to the music. A warm, aquatic rhythm appeared and then reverberated and repeated. Soft synth tones swirled around the virtual canvas they now existed within. The bass eased away, leaving the assembled bodies focused on the melody and the orange lights slowly evaporating in a swirling echo. As the shared space went dark, someone in the deep, dubby soundscape whistled in excitement.

The sub-bass kicked back in.

A red pulse and then a white one every second beat; more whistles, and someone shouted in celebration. Munir felt a rush and started to move his body in sync with the drums. It looked almost like he was skiing: fixed to the spot, but legs, hips, shoulders, and arms gyrating. He glanced over at Lydia and could see her floating in ecstasy to the sounds, arms moving up and down almost embracing the colors twirling around them. And then back to face the light.

Sixteen hours later, three sweaty bodies removed their headsets, gloves, and shoes and crumpled down on the couch. Lydia's head was in Gus's lap; her legs rolled up with Munir's. No matter how many times you experienced a hypnorave, nothing at all could prepare you for the otherworldly, blissful, transcendent experience it provided. Hypnoravers had found a way of moving beyond their material realities, their bodily constraints and tapping into a deep meditative state.

"That ending. Holy hell!" said Gus. "I've never seen anything like that."

"So beautiful!" agreed Lydia. Munir nodded and grinned.

They had been doing this every other weekend for the last six or so months. It was really their only escape from the everyday intensity of their platform jobs.

Munir and Gus both had less than perfect ratings in the Ideograph job module—a result of trying to work whilst coming down from one of the hypnoraves a few months previously. Once you have those strikes against you—some picky customer giving you a three or four out of five—there's no way to undo the damage beyond working a crazy number of hours at five-star quality to bring up your average. Lydia had somehow kept her perfect five.

Between them, Alphabet and Ideograph mediated almost every economic transaction in the modern economy. Alphabet had started as a search engine but quickly expanded into transport, housing, and healthcare modules. Ideograph meanwhile grew out of what used to be called e-commerce, but—like Alphabet—had now become a platform for almost every possible transactional need a person could have in the city. Nowadays, people tended to pick one of the two platform ecosystems and spend most of their work, shopping, and leisure time within it. It was just too inefficient otherwise.

“Do we have any Ideohuel left?” said Gus. “I literally haven’t eaten in days. You forget about food in there.”

Ideohuel was a powder supposedly containing a balance of carbs, fats, and proteins, and packed with all the minerals and nutrients a person needed. You mixed it with water and it could replace any meal. Most importantly, it was way cheaper than proper food.

“How about pizza?” Lydia opened up the Ideograph app by croaking “Pizza. Gastro two” at it.

Highly sophisticated AI deployed by the Big Two knew exactly how to nudge the behavior of their users. Food was probably the way that this was experienced most vividly by citizens. Food scientists had made huge advances in molecular gastronomy, which were patented into the Ideogastro and Alphagastro modules. Within those modules, there were oven-warm fresh crispy breads, succulent, ripe, and fragrant tomatoes, no-hangover malty beer, and hundreds of thousands of other products to be quickly delivered to paying customers or Prime and Alpha subscribers. Dynamic production lines meant that those items would be individually tailored to your allergies, sensitivities, health needs, and tastebuds, providing an unrivalled culinary experience. Nobody could ever forget what a bespoke Alphagastro chocolate milkshake tastes like.

Both platforms operated four tiers of options within their gastro modules. The top—and most expensive—tier gave access to the full gastro line. Lower

tiers had similar products with ever cheaper ingredients: margarine instead of butter, beer made from rice instead of wheat, high-fructose corn syrup instead of honey, and so on. And even lower still—mostly for people with less than perfect job ratings—it was Ideohuel and Alphafuel that sustained them through the day.

“Mate. Not through them,” complained Munir.

“The gastro twos are overpriced and taste like fucking cold rubber.”

“Yeah, true—but what’s the alternative? Alpha twos are almost identical now. I swear they must be using the same factory,” said Lydia.

“I’ll make one from scratch,” said Munir.

Gus and Lydia gave him the kind of look—half eye roll, half grin—reserved for someone trying a little bit too hard to be heroic.

“I’ll pass on the ketchup bread. Don’t worry. I’ll get it. I had a good week of work. It’s on me,” said Lydia

Neither Munir or Gus could argue with that. Lydia was covering more and more of their expenses these days. They hardly knew anyone who had well-paid gigs any more. But people like Lydia, who did interface design gigs, tended to be pretty well compensated, even if, like all jobs now, it was precarious and she never knew what next week’s workload would look like.

Munir and Gus also knew that ordering delivery was the only option these days. Since the Big Two had taken on most of the core functions of the state, things had really gone to hell. The streets were dangerous. Besides, with climate change being what it was, you wouldn’t want to be out there most of the time. The platforms had promised a more efficient, automated, and rational form of governance. Data was now collected about just about everything, and the platforms wanted to optimize processes that ranged from the allocation of doctors to the composition of pizzas. And some jobs had been done away with in their entirety. Autonomous vehicles and drones alone had put millions of people out of work almost overnight.

The world they eventually brought into being, though, was without a doubt one of efficiency. But only for the select few people who could pay for those efficiencies. If you didn’t make enough money to sign up to Ideograph Prime or Alphabet Alpha, good luck trying to get anything done. The freemium models they both offered for services like messaging and job search were borderline unusable amongst the ads.

Economic inequalities had gone through the roof. It was a vicious cycle; you had no money, so you couldn’t afford all of the productivity enhancements you needed to make more money: fast bandwidth, up to date hardware, ad-free subscriptions and on-demand appointments for just about anything—were all out of reach for most people.

Some even fell through the cracks and ended up on the streets, somehow existing outside of the digitally mediated world offered by the Big Two.

Most people had gigs that they earned money from. But the automation of much of society, combined with the collapse of the social safety net, meant there was huge competition for the jobs that remained. Funny how we had a robot colony on Mars but still hadn't found an automated way of taking old folks to the toilet and cleaning up after them. Employment contracts were now a thing of the past, and efficient workplace surveillance systems made sure that people were only paid down to the nearest second that they spent on the clock.

Despite that, almost everyone was putting in fifty to sixty hours a week on the work module. Most of that time wasn't paid work, though. Workers had to be online. Ready to work when a job flashed up on the platform interface. If you weren't, who knew when the next one would come in. And because work and entertainment now happened on the same platform, you couldn't be using Ideogames or Alphaflix at the same time. Most people spent most of their day just sitting, bored, refreshing a page of jobs because of the relative lack of jobs. At least the platforms themselves were able to extract some value out of this situation: they ran hyper-customized ads on the job markets for exactly what you were about to need over the course of the day.

Since people had started using Ideocoins and Alphabuckz for on-platform transactions—which was just about everything—the ads had an uncanny ability to promote services and products that were just about affordable. Affordable if you worked just a bit more that week to earn a few more coins or buckz.

With Lydia's five average rating, she was one of the few people who could afford little luxuries any more: even if it was second-tier pizza that tasted like rubber.

THE TAKEOVER

“Guys, guys. Look at this! Holy shit!”

Munir and Gus woke up to Lydia shouting at them. They had both been up late working and were exhausted.

“Check your news module! Look!”

Gus was the first up and swiped into newsfeed mode.

“Fuck.”

“I know, right?” responded Lydia.

“Munir wake up. Look. Ideograph has been taken over by Alphabet.”

Munir was finally out of bed, and the three of them had gathered around a single interface, scrolling through all the updates:

ONE CLIMATE SHOCK TOO MANY. IDEOGRAPH GOES BUST.
IDEOGRAPH DROWNS IN A FLOOD OF BAD INVESTMENTS
ALPHABET TAKES OVER IDEOGRAPH
END OF THE ROAD FOR IDEOGRAPH
2035. YEAR OF THE ALPHA.
ONE PLATFORM TO RULE THEM ALL
ALPHABET CEO PROMISES TO RETAIN AND STREAMLINE ALL IDEOGRAPH SERVICES

On the last headline, they all collectively let out a sigh of relief.

“At least our Ideoratings are preserved,” said Lydia.

“Alright for some.” Munir was wondering if he had the energy and sleepless nights in him to try to build a new profile from scratch on Alphabet.

Then it dawned on them.

“What about the hypnorange? Can you still access it,’ asked Gus throwing on her headset as she asked.

Channel #hypnorave is unavailable at this time. Alphabet apologizes for any inconvenience.

Channel #hypnorave is unavailable at this time. Alphabet apologizes for any inconvenience.

Channel #hypnorave is unavailable at this time. Alphabet apologizes for any inconvenience.

Channel #hypnorave is unavailable at this time. Alphabet apologizes for any inconvenience.

“Check the ‘more info’ link!”

In order to maximize our customer experience, Alphabet is proud to offer all former Ideograph users one free month of top-tier access to the entire Alphabet music library. Terms and conditions may apply.

Unauthorized streaming of any other music is in violation of the terms of service that you agreed to on <#varerrr> and will result in a penalty of 0.25 Alphascores. Have questions? Find answers from our worldwide community of expert fans!

“The shitheads turned it off!”

“What is everyone going to do?”

Gus tuned her headset into the Alphachannel that the recommendation engine suggested. She didn't yet have a channel profile set up with Alphabet, but quickly noticed that only five bodyforms could be selected without an Alpha account. She selected the blue-bearded man, as she couldn't stomach being one of the two blonde women on offer.

On entering the channel, she was confronted with a huge room coated in bright and sparkly neon pink and fluorescent yellow lights. A slowly turning giant mirror ball fractured the lights into a thousand revolving points all over the room.

This is promising, thought Gus.

But then the music started.

High-pitched vocoded lyrics quickly filled the space. The synthesized teenage female voice crooned amongst the bright spotlights and many of the audience were selfé-shooting themselves, presumably to post on the social module later.

It had been a while since she had heard algopop—sounds entirely created by an interactive evolutionary algorithm. But, despite all the advancements in neuroacoustics, algopop still had such an unmistakable sound.

“Tell me if you love me or not.”

“Oooh ooh let’s do what lovers do.”

Choruses calculatingly auto-composed for memorability for the maximum number of listeners. Each one punctuated by another wave of selfé-shots by users of the Alphachannel who wished, for some reason, to preserve the moment.

Gus quickly pulled off the headset.

THE INSTITUTE FOR SOCIAL ELEGANCE

“The Institute for Social Elegance – Established 2038”

...read the sign in the virtual staging room. The décor: part lush rainforest, part hotel lobby, part spa—gave a room an air of elegance but also transience. You had to pass through the staging room on your way in or out of any of the many channels that could be joined. Since the creation

of The Institute for Social Elegance module over two years ago, a wealth of hypnochannels had been created: deeptrance, qawwali trap, slowfi, dubfi, minimal dub, acid dub, cyberdub, deep wave, space jungle, dragoncore, dreamcore, cloudstep, and hundreds of others.

Avatars had been democratized. No more basic profiles and advanced profiles. People could simply be who they wanted to be. Sure, some of the older folks complained. “What do you mean you’re going to a dragonrave?!” But once you actually saw the creativity and care put into the outfits, you could only really be impressed.

“Stop staring Munir,” Gus said sternly.

Munir was gawking at a crowd of scantily dressed bodies gathered around a climbing frame near the dreamcore channel.

Despite the wealth of channels, the staging room itself was a sight to behold. At peak times, there were seas of bodies here. People from all walks of life lounging, chatting, resting, catching up under the warm orange glow that illuminated the seemingly infinite room. The people in the cloud couches had usually had enough. Depleted from a long hypno session but not quite ready to call it a day. Some had just arrived and were milling about near one of the pools or excitedly swinging on one of the communal hammocks before the intensity of one of the channel sessions. Some were catching up with old friends, some meeting new ones. In all cases, there was a sense of community. After sharing the raw, otherworldly sensation of a hypno, people embraced each other’s humanity when returning to the staging room, eager to share experiences and chat about the world beyond. You’d never not meet new people if you lingered there for a while.

Munir and Gus, kitted up in Platform-issue headsets, waded through the crowds over to the cyberdub channel. Lydia hadn’t been with them in almost a year. She was busy working on core governance infrastructure for The Platform and didn’t get out much now. Instead of the old corporate logos that used to be on all hardware, the machines were all emblazoned with The Platform’s central motto:

“From each according to ability, to each according to need”

Tech had improved since 2035. Gloves and custom shoes were no longer needed for the full experience. Or, as many people joked, maybe it wasn’t that tech had improved, but rather that since Alphabet had been nationalized, they didn’t have a private company trying to sell them ever more gadgets.

Some people were spending weeks in the hypnos now. Only popping out briefly for nutroshakes and then diving back into their journeys into

the immersive worlds. The drugs helped of course. Cheap, bioengineered synthetics were about as safe as coffee and really amplified the synaesthetic experiences available in the hypnos. But it was really the combination of the immersive experience, the advanced neuroacoustic tech now used to compose music, human-sensory-adaptive headsets that tailored their outputs to each individual's unique bio-design, the collective nature of the experience, and, of course, the drugs that—together—allowed otherworldly transcendent states of being to be realized.

Gus and Munir looked over at one another. Surrounding them was a deep blue fog. They could just about see each other and the occasional shapes of some of the other bodies in the room. The blue fog looped around, accompanied by an almost cozy, deep, ambient pad of sound. The fog settled, and the blue became black; the fog became a swirling tunnel, and soothing sub-bass textures began to drive the tunnel forwards. From there, new layers slowly emerged and dissolved in hypnotic loops: neon vibro-acoustics, deep synths, and finally a booming cinematic pulse of bass. The loops ceaselessly making and remaking new constellations of sound, shape, and color. They were floating through the sonic landscapes now: seemingly driving them forwards—wading through them; breathing them; being them. It was propulsive, dreamy, ecstatic. A shared psychoacoustic world made up of collective digitally mediated soundscapes.

After the Ideograph takeover in 2035, Alphabet had tried to replace the hypnoraves with thousands of algopop channels. The hypnos were one of the last domains of digital life where people were spending huge amounts of time without consuming anything, without looking at advertising, without working. The hypnos were too out of sync; too alien, to the world Alphabet was trying to create, and they were therefore never going to comfortably co-exist.

But Alphabet overplayed their hand. They didn't realize that the hypnos were more than just music to people; they were a way of connecting; a way of co-existing with other people that offered something fundamentally different from the drudgery of everyday life. It was a celebratory protest. A way of claiming space. Expressing freedom. People had caught sight of a more utopic world, and they weren't going to give it up.

With her experience in crypto- and darkneuralnets, it wasn't that hard for Lydia to hack together a system that piggybacked on existing channels and allowed anyone who installed her patch to tap into the darknet hypno channels she had set up.

The hypnos spread like wildfire amongst young people, who had been saturated in vapid algopop since they were born.

“It is everything you haven’t yet imagined”—or so the now-famous saying went.

Lydia never expected her tinkering and hacking would work. All she ever wanted to do was get the hypnos back. What she truly never expected was a revolution.

The so-called tipping point that climate scientists had long predicted had clearly been reached. Floods, droughts, heatwaves, fires, ice snaps within weeks of each other. Unpredictable climate systems led to an unpredictable economic system. Enough adaptive technology existed to manage primary and secondary sectors of production in the economy, but Alphabet’s algorithms couldn’t keep up in the short-term. Supply chains broke down. Entire modules failed. People were finally getting frustrated. But nobody expected the hypnos to be at the center of the change to come.

It started with Alphabet infiltrating one of the hypnos, gathering twenty identities and kicking each uncovered person off the platform; this rendered them effectively homeless and without access to core urban services. News spread fast, and almost fifty thousand people took part in a day-long general strike to get the twenty reinstated. Alphabet banned more profiles, which led to more strikes. Events then started to move quickly, and there was no way back. Alphabet had to shut down its messaging system to prevent the strikes from going viral. This pushed ever more people onto the darknet. Lydia found herself at the center of all of this: constantly adding new nodes, new switch points, new darklayers. Gus learned quickly from Lydia and before long was able to do a lot of the patching and hacking herself. Munir, meanwhile, was trying to manage the over-swelling darknet communities. It’s there that the idea emerged that was to be the beginning of the end for Alphabet.

Platform socialism, they called it.

It was an idea that took form in a six-point manifesto shared widely on the darknet.

The Platform Socialism Manifesto

The Platform will become a tool in our hands rather than the master of our fate. Platform governance will follow six core principles:

Automation to serve people and not profit. Labor is a means to an end. Our goal is a fully automated society. Until then, we strive to minimize labor, and maximize self-determination.

Provision of basic needs. All citizens will have access to food, shelter, education, a basic income, and healthcare.

Democracy. All citizens will have a say in decision-making. All citizens will collectively own the means of digital distribution as a shared commons.

Freedom and liberty. We will not be alienated from our potential. We will live lives of meaning; experiencing and realizing our humanity; actualizing our personal and collective freedoms.

Environmental stewardship. If we are to have a future on this planet, it will need to be a green future.

Equity. All citizens are created equal. Our governance will promote equity in all domains of life and strive to reduce inequities.

It had been a long time since there had been anything resembling an effective government. After the prisons, education, and the police had been taken over by the Big Two, most “regulation” had been happening on platforms. Government persisted in the form of a few, mostly toothless and underfunded, courts.

But here was a vision that imagined a radically different future. What if government ran The Platform? Instead of Alphabet using their data about almost every facet of the human experience to maximize the value they could extract, the role of The Platform in everyday life could be rethought.

MULTI-AGENT GOVERNANCE

"But we'll end up violating the third principle. Democracy," said Gus.

Lydia disagreed. "There is no practical difference. The outcomes are almost identical."

In her sixteen hours of work per week, Gus had been assigned to work with Lydia to redevelop some of the central governance modules for The Platform.

Right before the revolution, there had been many doubters about how governance in platform socialism would work. Two core concerns emerged. "Only the market can solve the problem of economic calculation" was the most common response. Doubters pointed to the experiences of the Soviet Union, arguing that only the market could efficiently allocate resources. But those sorts of critiques mainly came from people who weren't really paying attention. There was no inherent reason why a publicly run platform would be any less efficient than Alphabet. Neither relied solely on the market but also on huge distributed networks of computing infrastructures in order to mediate between supply and demand.

The problem of economic calculation would now be solved by machines designed to be calculators. Distributed quantum grid computing infrastructures, ubiquitous sensors, and the availability of unfathomable amounts of transaction data about almost all imaginable people, places, processes, and practices meant that The Platform knew how to distribute and assign resources and labor with more accuracy and efficiency than could even have been dreamed about in earlier attempts at socialism.

It was the second core concern that there was no apparent easy answer to: "This is a path to despotism and authoritarianism," exclaimed many of the doubters. Here again, the usually well-heeled critics seemed to forget that in the days of Alphabet, and before that in the days of the Big Two, everyday citizens had little say in how society was run. The few who thrived in the system naturally saw the unlimited choices available to them. But, to the masses, choice in how they lived their lives was more of a theoretical rather than actual proposition. What can you really do with your freedom when you're working almost every day of the month?

By prioritizing the need to reduce working hours, The Platform had quickly implemented a five-day weekend. All able-bodied citizens were assigned to work two ten-hour shifts a week, and automated systems did the rest. Initially, the five-day weekend was, however, not entirely devoted to leisure time.

The Platform recognized that, in a world of scarcity and ecological crisis, the six founding principles of platform socialism would have to be

balanced. Not all principles could be maximized at the same time. Some might be realized faster than others. Some might directly compete with one another.

The solution was to create the world's largest ever experiment in direct democracy. Each citizen would be asked to devote ten hours a week to informed collective planning on the platform's participation module. Smart algorithms would model the impacts of particular resource and labor re-allocations. An overlapping set of multiple small workers' councils, community councils, consumer councils, and environmental councils would consider options, revise them, and resubmit them to be considered by larger assemblies. Those assemblies would reconcile divergent propositions with each other and with the founding principles, and send back their proposals to the councils. Feedback on details would be sought and sent back to the assemblies. After successive rounds of feedback, assemblies would then propose changes to governance algorithms to be considered by the democratically elected councilors in the governance module.

This sounds like a slow process, but the fact that most citizens could be counted on to devote ten hours a week to deliberative democracy meant that even the most contentious issues passed back and forth between council, assembly and councilor relatively rapidly. But despite decisions moving through committees and councils relatively quickly, there was no escaping the fact that this was time-consuming work by design. There was an understanding baked into the participation module that consensus was impossible. But through a ceaseless circulation of ideas, proposals, revisions, amendments, the process of governance was opened up.

It was all very complicated, but it worked.

"This is still democracy at work. It is just more delegated," said an increasingly exacerbated Lydia.

"Delegated democracy isn't democracy ..." countered Gus. "I always said that using the platform structures of the Big Two as our starting-point would be anti-democratic. For the commons to work, we need to root it in democratic self-activity."

Lydia took a deep breath. This was now a well-rehearsed argument. One that had quickly won over councilors. "The multi-agent governance system can predict with astonishing accuracy what proposals each of the workers' councils, community councils, consumer councils, and environmental councils will put forward. We are, at the end of the day, inherently predictable beings. We've tested our models over the course of the last twelve months, and have a 98.3% accuracy rate. In other words, in only less than two percent of instances did they predict the wrong outcome."

Gus interrupted, “But those two percent matter!”

But Lydia continued without missing a beat. “The very first principle of platform socialism is about minimizing work.”

“And maximizing self-determination.” Gus interrupted again.

Lydia was getting frustrated with the interruptions. She rewound just to make the point again. “The very first principle of platform socialism is about minimizing work, and our multi-agent governance system can free up a huge amount of citizen time. It’s crazy that we’re spending ten hours a week poring through boring decisions about resource allocations, when the multi-agents can do that for us. The critics are being hysterical. We’re not ceding control to robots or algorithms. It is us, the people, who train the multi-agents. They are simply acting on our behalf. Our Opinion Modules show us that the public are overwhelmingly in favor. People simply do not want to participate to this degree.”

THE TAKEDOWN

Lydia was wearing an expensive suit that looked out of place in the Kings Cross pizza place they were meeting in.

Munir sat across from her in old, cheap Alphabasics jeans and a black t-shirt.

Even though they had been in the restaurant for fifteen minutes, neither of them had broached the topic they were here for. Munir was furious. Not pissed off, not annoyed, not angry. But seething in waves of emotion that felt like they were tides of ice and fire passing over him.

He forgot the last time he had felt this way. It was the kind of wild hurt you remember from childhood before learning how to keep your feelings within your orbit of control; it was the kind of hurt reserved for the few people in the world you build close bonds with, hurt built on a sadness about what could and should have been. So, he sat there finding it hard to maintain eye contact and finding it hard to speak without his voice trembling.

Lydia knew why they were meeting, but felt they had to at least try some small talk before discussing what Munir came here to speak with her about.

“And Gus, how is she? I haven’t seen her in over a year now.”

“Alright.”

“She left the city, right?”

“Yep.”

“Where did she go?”

“About thirty minutes away.”

"Thank God we have the Radial Line, eh? It's pretty quick to get out of the city now," said Lydia to see if Munir would open up about Gus's whereabouts.

Munir took a sip of his coffee, looking down.

"Does she like it out there?" continued Lydia.

"Yep."

"She's in one of those communes, isn't she?"

"And what if she is?"

Munir could tell Lydia was drifting into her lecturing mode. "You know the only way we can get platform socialism to work is if we—the people—run The Platform. The Platform is a public utility, and it only works because of the immense amount of data that we collect about everything. We allocate resources extremely efficiently based on need. There have been so many attempts in the past at fairly allocating resources: but they all failed. And they all failed because they had imperfect data. They could never manage the true complexity of the economy. But we can. And we are. You've seen what we've achieved. People could only dream about what we've achieved in the past. But ..." She paused; realizing she had slipped into lecture mode.

"But ... that means that The Platform needs to be the key informational gatekeeper in the economy. If we start creating little alternatives here and there, then The Platform stops working. Resources are no longer allocated according to need. Things start going back to how they were."

Munir couldn't hold it inside any more. "Why the fuck did you switch it off," he shouted. "We changed the fucking world!"

Lydia knew this was coming, and she knew how to respond. "Yes, we changed it. But keep your eyes on the prize, Mun. We have five-day weekends. We have full employment; we pay every citizen a basic living income. People no longer have to sit in front of their interfaces all day waiting for the next gig. Look at the world we've built. Remember how it used to be? Remember the struggle? Remember the insecurity? Remember the inequality?"

Munir said nothing and tried chewing a bite of the shit, rubbery pizza in front of them.

"The hypnos are corrupting people. Some of them are gone for two, three weeks at a time. The load on the public health service is increasing from kids getting dehydrated or falling over. School outcomes are getting worse from the truancy. The multi-agents were consistently suggesting that we nudge people away from the hypnos in order to improve our governance stats. We couldn't keep ignoring them. Their data ..."

"Fuck the multi-agents!"

"Their data ..."

“And what, you’re replacing it with the same saccharine safe predictable algopop channels that Alphabet tried to feed to us?”

“Look: our neuroacoustic research teams make use of extremely sophisticated machine learning systems to make music we know people want to listen to. But we can do it in a safer environment. The hypnos were just too wild; we needed to rein them in a bit. We’re not killing the experience, we just need to bring it under control. Our data shows us that the replacement system still increases participants’ well-being, all whilst ensuring that aggregate productivity doesn’t drop.”

“Can you not hear yourself,” Munir said as he felt a pang of cold move from his neck to the top of his back. ‘Safe music?’ “Safe music!”

“Listen. We live in a world of finite resources. You know that. And yet look at us. Despite whatever our post-tipping-point planet throws against us, we prosper. We do that because we stick together. We allocate resources based on need. We’ve automated so many previously bullshit jobs. We’ve made sure that the jobs that are left are fairly spread around. We’ve made sure that rewards are fairly spread around. Our media-scape monitoring shows that people have life satisfaction scores higher than at any time since measurements began. What this means though, is that we have to accept that we can’t have everything all the time. We have to keep the system working properly.”

“Have you forgotten what we built together? You think because they made you chief fucking engineer of The Platform that you can just take away what we all built? It was a space of freedom. It was a community. This is not just about the music. We found a different way of living with one another. You were there. We shared those experiences. We built another beautiful world.” His voice trailed off, realizing he probably wasn’t going to change her mind.

“Mun. Listen. I hear you. I remember. But we’ve built another world here too. And this is the one that matters. We can’t ruin this.”

“But you are fucking ruining it.”

THE COMMUNE

Munir got the Radial Line out to the last stop so that he could meet Gus. Still fuming; still hurt that Lydia was part of the decision to destroy such an important part of their lives.

“How are you doing, Mun?” Gus said, as she gave him a long hug. “Where have you been, you shithead? I’m half an hour away, and your lazy ass can only visit me every few months.”

As Munir explained how the meeting with Lydia went, he realized that Gus didn't seem concerned at all.

"I'm as mad as you are Mun. But we knew this was coming, right? That's why we've been building these bottom-up tech ecosystems out here."

"Yeah, but – you know – still. I can't believe they've done this."

"Well, I can. We've built everything out here off-platform. From the hardware and network infrastructure—the nodes, the switches, the circuit modules—to the operating systems and interfaces. We're ready for it. They can do what they want on The Platform, but we've created a decentralized network that they have no central access to. We've created our own hypnos, and we can design the system to produce whatever outcomes we want it to."

"What do you mean? Are you using it for more than just the hypnos?"

"Well..yeah..I mean we put a shit load of time into our network, and we figured we may as well make the most of it. Because we're off the central grid, we're helping some of the local community. We've got farmers with bad toothaches tired of waiting for dentist appointments: so, we got some of the dentists to trade produce like local oranges or grapes in return for quicker off-book appointments. We've got old and infirmed folks with stocks of grade A nutro powder stored up who need a bit more homecare than The Platform is allocating to them, and we've got young folks able to help them with tucking them into bed or personal hygiene, or whatever it is they need. And, er, we of course take a small cut of all of that to help us keep doing the work we're doing."

"But then you're directly undermining the primary principle. To each according to need."

"You've seriously come away from your meeting with Lydia thinking they actually are able to figure out what it is we all need?"

"Fair point."

"Anyway, want to see what our decentralized hypno looks like?"

BREAD AND ROSES

Assembled virtually in the Platform's core meeting module was the entire governance board of the platform. The fifty neighborhood councilors, the technical management team, the twelve domain directors, and Lydia, the chief executive.

"This is going to be a disaster," said the director of social partnerships.

"There must be an alternative," said one of the neighborhood councilors.

"There isn't. There really isn't," said Lydia. "If we don't rebalance our system there are going to be shortages. If there are shortages, people will start questioning the system. I've prepared the press release. It's ready to go out as soon as we need it to."

Westminster. May 25, 2044. The Platform.

Dear <citizen_ID>,

The climate crises over the last few years have been unprecedented in human history. However, despite the recent extreme weather, and, in particular the loss of much of Essex, Kent, and low-lying areas of Greater London due to sea-level rises, we have been able to sustain economic productivity in 86% of core sectors. Our adaptive production and distribution models have allowed us to quickly recalibrate to any underlying structural changes.

However, it is with regret that we must announce that core governance modules are predicting that current levels of outputs are unsustainable with our resource and labor inputs.

Our engineering and adaptive teams are working hard on new automated technologies that will replace the envisaged increase that we need from human workers. But, until then, we must ask you – as a citizen – to contribute more to society. From June 1 onwards, the five-day weekend will be temporarily shortened to three-days. You may also temporarily experience reductions in availability and allowances on key platform modules.

From each according to ability; to each according to need.

Yours,

The Platform governance module

After reading the release, one of the Northeastern councilors said "That's bullshit. We know it's not just the climate that's breaking the system. It's the localnets."

They all knew about the communes and the localnets. The Platform had tried, mostly unsuccessfully, to stamp them out. The decentralized localnets, at first, weren't much of a threat. After all, they were mostly just used by a bunch of hypnoravers and farmers and maintained in a handful of anonymous off-grid communes. But they spread quickly. They became black markets that quickly became a mechanism for anyone looking for shortcuts: ways of doing, obtaining, and saying things outside of The Platform.

By early 2044, some platform modules had become effectively unusable because of the sheer number of people trading alternatives in the localnets. The problem was that nobody had a plan as to how to stamp them all out.

In the '30s, the way that the Big Two eliminated competition was through ruthless market behavior. They threw everything they had at competitors. A local food delivery startup would have its drivers attracted away through wage incentives, its customers poached away through unsustainable price drops, and its core technological infrastructures rendered unsustainable through oppressive license and subscription costs. Nobody back then had ever thought entirely bottom-up localnets would emerge to challenge the platform monopolies.

... FIRST AS TRAGEDY, THEN AS FARCE

The interface buzzed as Gus was brushing her teeth: staring in the mirror at the bags under her eyes. It was Friday night, but she had been working without a day off for a month now. Things in 2047 were a lot like they used to be. Long hours, little work, and lots of hustling to get the gigs that were out there.

“Gus!”

“Yeah. What’s up Munir?”

“How are you doing? I was just thinking, I haven’t seen you in ages.”

“I was thinking the same. I’ve been meaning to buzz. But I’ve been so busy with the usual, you know.”

“For sure. Same here. But why don’t we try to get together tonight?”

“Are your ConnektMetriks alright?”

“Yeah, I’ve been trying to keep them above a 4.9. You?”

“Same. I’ve been working like a dog. I’m too old to try to learn new modules, and I’m terrified of being deactivated if I drop below a four seven”

“So, I was thinking maybe I could come over and we could take some time off for a few hours, and see what’s going on in one of the hypnochannels.”

“Man. I’d love to, but I’m kinda tired. And I haven’t done that in five, six years or so. Last time was out on the commune.”

“Me neither. But why don’t we try to get away this weekend and have a bit of fun?”

“OK. Fuck it. Why not.”

The collapse of The Platform happened quickly after the working week was increased. Nobody could have predicted the rapid cascade that followed when so many key systems migrated to the localnets. Modules failed, and so people turned to the localnets. They moved more activity to the localnets, which caused more modules to fail, until there wasn’t much left.

The Localnets worked fairly well in the immediate aftermath of the collapse. But soon, a once-familiar pattern emerged. A few companies emerged to manage key infrastructures. There were no more weekends—in fact, there was no paid time at all that wasn’t an on-the-clock gig—no more living wages, no more guaranteed housing. And there was way too much competition for the jobs that still existed, driving down wages and working conditions.

Connekt was one of the new Big Three, alongside Dgtl and Loginix, and Munir and Gus were now mostly deeply embedded into their ecosystem. Connekt had emerged out of a consortium of Localnets dotted around the Radial Line, and had since expanded by adding core modules from The Platform after they were sold off or abandoned.

“Which channel were you thinking of?” said Gus.

Despite the fact that Connekt had kept a lot of the old infrastructure from the commune days, which, in turn, was modelled on memories of the old Institute for Social Elegance, today’s channel list was not what it used to be.

The only ones that had any activity in them any more were gabbstep, nu-terrorcore, and neo-speedcore.

Almost everyone these days was back in the algopop channels, and the new subcultures that made up the alternative rooms had little affinity with what they saw as the softer sounds of the previous generations.

Connekt wasn’t especially concerned with the alternative channels. The company was especially adept at using recommendation systems across their platforms, encouraging people not to ask “Do I like this?” but rather “Should I like this?” They knew that all they had to do was get a critical mass of people absorbed into the algopop channels for them to maximize profits there. Behavioral nudges through the platforms social modules, targeted feed filtering, and adaptive neuro-acoustic networks allowed the algopop channels to somehow always adapt enough to keep just enough users enthralled: or at least linger long enough to consider increasing spending on some of the higher levels of the Connektfashion lines for their avatars, or pay for a higher Connektmusic subscription. Besides, it was unprofitable if users stayed too long in the rooms.

“I seriously hate speedcore. Let’s try gabbstep?”

They lowered their visors, and entered the hypno. There wasn’t much choice in avatars here. Just some of the system defaults used in the algopop channels—which felt oddly out of place to gabbstep.

Around them were fiercely blinking white strobes. The world went from black to white; black to white; black to white in synch with a ceaseless, over-driven, glitching bass drum.

A grainy, sweeping sound rolled in and increased in volume; yellow lasers spread out above their heads. It became higher pitched, and faster; almost shrieking now. The drums started to become a solid drone before breaking down into a torrent of metal blast beats alongside what sounded like air raid sirens. The strobes came back. Black to white. Black to white. Black to white.

“What the fuck is this?” Munir asked Gus through the visor intercoms.

“I dunno. How do they listen to this shit?” Gus responded.

“Look, I’m gonna head out of here, alright? It’s been a hell of a week. And there’s a lot of work I’m going to try to catch up on this weekend.”

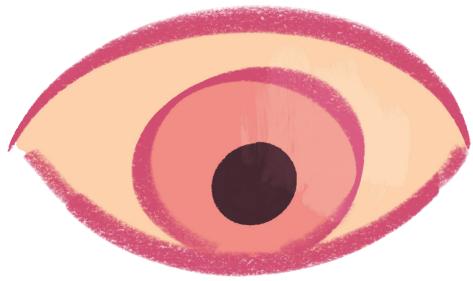
On the way out of the channel, they lingered for a while in the staging room. It was mostly empty now: a few groups of seemingly identical avatars huddled around small groups off in the distance. They took a last look at the old “Institute for Social Elegance” sign that had been left up, and then pulled off their headsets.

MARK GRAHAM

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the Weizenbaum Institute. His work focuses on digital geographies and how they both reflect and reproduce digital inequalities.



RULE

What will future policy-making look like? How will we value our privacy and personal data? How will we deal with AI?

CHAPTER 5



“If we only follow the optimized recommendations of logical machines and optimized AI systems, humanity will lose its significance since we will no longer have a framework for mistakes.”

ISABELLA HERMANN

The Manifesto

In 2040, artificial intelligence will no longer be used to optimize human life, but to de-optimize it. This story is about making machines more human instead of making humans more like machines. It is about letting coincidence come back into our lives.

INTRODUCTION

The short story “The Manifesto” shows us how far artificial intelligence (AI) has progressed by the year 2040 from the perspective of an entry from the official “European Political Information Service.” AI basically means optimization. Accordingly, applying AI-based systems when it comes to social life means trying to make our lives more efficient. The underlying rationale of all kinds of social algorithms is that we can solve

social problems technologically if we only have enough data and computing power. But what is the goal of this optimization and strive for efficiency? Is this really what is important for us in our lives, or is it rather the goals of companies and states that are hardwired into the software? Will we become increasingly unfree, other-directed, and intellectually bored without even noticing it? Will humans ultimately become

like machines? In the current reality of 2020, such discussions around AI are taking place within the European Union (EU). The EU wants to assert itself as an avant-garde that tries to establish a third way of ethical “AI made in Europe” in contrast to the “market-capitalist” system of the US and the “state-capitalist” system of China. Despite all the severe political issues affecting Europe and the world right now, just imagine

what would happen if the EU achieved that objective—and achieved it in an original and cheerful way. In this utopian setting, new technology is neither rejected nor uncritically embraced. Rather, machines support our humanness. Is this too good to be true? Maybe, but at least, the European Political Information Service tells us a positive narrative of the future ...

THE EUROPEAN POLITICAL INFORMATION SERVICE

History/European history/legislation/embedded mismatch

Last updated: February 8, 2040

All European citizens have the right to de-optimization. Only a few years ago, this was almost unthinkable. This dossier traces the history of this process and looks at the development of the legislation on the embedded mismatch.

INTRODUCTION

Since »artificial intelligence (AI) was coined as a term within computer science in the 1950s, AI hype cycles have alternated with AI winters, i.e., periods of great expectations for technology and periods of reduced funding and research interest. The »AI-hype cycle of the 2010s, which was enabled by new technological advancements through »deep neural networks and the

availability of »big data, was superseded by the »AI winter of the 2020s, after it had become clear that these systems were not much better at solving real world problems than their predecessors. The game for AI changed again after a major breakthrough in the field of »quantum computing by the »International Research Center for Quantum Mechanics (IRCQM).

After quantum computers became the norm at the beginning of the 2030s, a new AI hype cycle began, leading to a wave of computer systems with unprecedented efficiency. This enabled a pervasive optimization of human life in all spheres—political, economic, or societal. With the help of AI the »UN Sustainable Development Goals, which were believed to had been lost in the 2020s, were achieved by the mid-2030s. Finally, global challenges like poverty, climate change, or environmental degradation were brought under control through the use of technology.

However, despite all these immense accomplishments, the difficulties we had come to know in the last AI hype cycle of the 2010s returned in a new form. Governments and businesses had to cope with negative effects, such as algorithm overlearning and the deterministic predictions of AI systems in conjunction with extensive reliance on computer programs. But this time, the question was not how to avoid discrimination resulting from biased data but how to avoid general societal boredom and saturation through over-optimization by the logic of machines. The major problems for human society associated with this new rule of logic were, firstly, the loss of chance and coincidence, and, secondly, the loss of basic problem-solving competencies.

THE AI MANIFESTO

In 2034, these concerns led to the formation of a European group of technological and intellectual forerunners who called themselves the »avant-garde34. They came up with a declaration containing a precise description of the problem and a possible solution. They called it the »AI Manifesto.

»Source Text«

The AI Manifesto

“Logic, understood as a reasonable conclusion, is a theoretical and normative idea. It is theoretical and normative, because people

don't do it. The way we think is that we make logical mistakes. But our strength lies precisely in the fact that humans are not logical machines: By deviating emotionally and cognitively from logical baselines, we create relevance criteria. And "logical behavior" is a relevance criterion in itself. Relevance criteria give meaning to our actions. Mistakes make us free, because mistakes mean that we can act otherwise and differ from the norm. Deviation from the norm is a manifestation of our freedom. If we only follow the optimized recommendations of logical machines and optimized AI systems, humanity will lose its significance since we will no longer have a framework for mistakes. Life is about making mistakes not avoiding them; without them, life will become unfree and insignificant. However, like mistakes, technological progress is human, too. Therefore, we need nonlogical conclusions to be obligatorily embedded into artificial intelligence systems. Nonlogical conclusions will necessarily inspire discord and unforeseen predictions; they are a tool against optimization that can enrich our lives with coincidence. We call this tool for de-optimization the embedded mismatch."

Many of the members of the avant-garde³⁴ sat in technology committees, task forces, and councils and thus could exert political influence. They strategically used their leverage to promote a regulatory framework to realize the AI manifesto and make the vision of de-optimization European law. The AI manifesto went viral and sparked a comprehensive, substantial, and heated public debate. At the beginning, the general opinion coming from diverse stakeholder groups was negative and dismissive, if not hostile. They found the idea of programming a computer to make mistakes ridiculous, dangerous, and unworldly. For different reasons the joint perspective was that if the embedded mismatch became EU law, it would be the last law before the downfall of Europe.

»Source Text«

Official Stakeholder Quotations Concerning the AI Manifesto

"Humans naturally strive for faultlessness: Technology has always aimed to free people from their errors, evolutionary struggles,

and predatory heritage around competition and status—we don't want to have that again”—»President, European Association for Coders

“Machines still have more to do with artificial stupidity than artificial intelligence. Even with quantum computing, machines only analyze correlations and know nothing about social and cultural contexts. What could happen if we implement embedded mismatches? It might turn out to be a disaster. The use of automated systems should not be promoted by programming more errors; instead, it should be limited.”—»Chair, Algorithmic Transparency International

“We have finally reached an international balance, with open trade and exchange between the great power blocks of China, ASEAN, the US, the African Union, Russia, and Europe. Any sort of de-optimization would be a competitive drawback for Europe. None of the other players would take us seriously anymore; we would make a fool of ourselves and the others would turn their back on us.”—»CEO, Global European Unicorn Investment

“The implementation of something like an embedded mismatch would open the door to all sorts of international espionage and cyber-attacks. Hostile actors might hack systemic infrastructures under the guise of embedded mismatches and gain control over government institutions. The consequences would be severe security and societal risks”—»Head, European Intelligence Agency

“The introduction of illogical conclusions would violate Kant's categorical imperative in new and yet unseen terms, because with this system, people would be treated only as a means and not as an end. Forcing intelligent human beings to follow the stupidities of a nonrational system is against everything the Enlightenment has brought and taught us.”—»Director General, Digital Kantian Ethics Department, University of Europe

While the major stakeholder groups from the business, research, civil society, and security sectors refused the AI Manifesto, the two great political movements in Europe—the *populists* and the *elitists* embraced the idea as a way to ensure human flourishing, given that artificial intelligence would likely be persuasive in modern societies. The populists agreed that the embedded mismatch could be an opportunity to limit the power of an elite-inclined mainstream, whereas the elitists—being concerned that

a bored and saturated people would be a danger to democracy—saw the proposed de-optimization as a way to ensure freedom and political stability. Key players from the European Government and the European Parliament came to believe that humans had been creating ever more powerful technology without a genuine and benign human-centered philosophy for long enough. There was agreement that de-optimization by the embedded mismatch was not directed against Enlightenment but was a means to realize the *»Enlightenment of the twenty-first century«* as the new philosophical guide. It became political common sense that the Enlightenment of the twenty-first century could not be a matter for ethics alone but needed to be addressed by rules that were enforceable and encompass the legitimacy of democratic process: laws in the form of European regulation.

From an economic viewpoint, the political decision makers were optimistic that the international balance between the great powers with regards to the development and trade of technologies would not be compromised to the detriment of Europe. Quite the contrary, they saw the implementation of the embedded mismatch as a potential advantage that would spark renewal and innovation and thus increase global competitiveness. The expectation was that economic growth would be accompanied by more social benefits and social welfare for European citizens.

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“The embedded mismatch will be a virtuous circle that makes Europe the leader in AI technology and preserves a free and democratic society. And indeed, it is only if Europe is competitive in AI development at a global level that we can broadcast our liberal and democratic approach internationally.”—»The European Minister of Global Affairs, Elitist Movement

“It is only if we escape the feedback loops of AI systems, which not only trap people in their uncritical following of mainstream perspectives but also neglect the margins of society, that the real voice of the people will be heard and a system of justice and fairness can rise.”—»The European Minister of Social Affairs, Populist Movement

THE GENERAL REGULATION ON DE-OPTIMIZATION OF AI SYSTEMS

After an extensive public discussion and consultation process, the like of which had never been seen before, the European Parliament passed the »General Regulation on De-Optimization of AI Systems (GRDO) in 2037. The regulation dictates that every AI-application developed, imported, exported, and used in Europe must incorporate an embedded mismatch. It overruled all prior regulations on AI that might have contradicted the new vision, including the »General Regulation on Trustworthy AI (GRTAI) from 2022.

»Source Text«

General Regulation on De-Optimization of AI systems (GRDO):

Chapter 1, General Provisions, Article 1, Subject Matter and Objectives

(1) The embedded mismatch is not meant to stifle AI innovation in Europe but instead uses mistakes, coincidences, and the unforeseen as inspiration to develop a unique brand of AI, one that seeks to protect and benefit both individuals and the common good.

(2) The embedded mismatch accepts and honors the fact that humans are characterized by deviations from logic and the norm. A liberal and democratic political space should enable and support these human traits in order to let European citizens retain their competences, gain new experiences, and develop further skills.

(3) The embedded mismatch aims at protecting Europe from AI systems that determine our future and thus our potential to flourish. Our liberal idea of a non-predetermined and free future should be preserved. This will allow Europe to position itself as a leader in cutting-edge, secure, and ethical AI. Only by ensuring that AI systems differ from a logical and optimized prediction will European citizens fully reap AI's benefits.

In 2038, the powerful »Embedded Mismatch Control Authority (EMCA) went into operation. It aimed to make sure that all the standards associated with the incorporation of embedded mismatches would be fulfilled. This has

been the prime goal of European critical technology assessment since then. Naturally, an embedded mismatch should not completely paralyze systems or harm people; it should challenge the individual user and the entire society in a positive way. For this reason, the GRDO incorporated »*The Three Laws of Mismatch*.«

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The Three Laws of Mismatch:

- (1) The imbedded mismatch may not injure a human being or, through inaction, allow a human being to come to harm.
- (2) An embedded mismatch may not severely damage the functionality of the overall system in which it is incorporated, except where this would conflict with the First Law.
- (3) An embedded mismatch is mandatory and it shall not be revealed as a mismatch, except where this would conflict with the First or Second Laws.

The entire GRDO is based on a set of *ethical principles* enshrined in the *European treaties* and the *European Charter of Fundamental Rights*; it is a canon of values in a European tradition of thought. The principles encompass crucial values such as dignity, responsibility, solidarity, democracy, and sustainability. These ethical principles and the embedded mismatch entered a mutually beneficial relationship: since then the ethical principles have guided the development of AI while the function of the embedded mismatch has helped the European value system to truly unfold. The critique that the Enlightenment and rational thought would be in danger—as brought forward by some Kantian ethicists—was soon defused. Now, it has become the accepted narrative that it is the embedded mismatch that allows our ethical values to unleash full effect.

THE SUCCESS STORY OF THE GRDO SO FAR

Since the GRDO was passed two years ago, AI development has boomed in Europe. A market worth several billion euros around embedded mismatch applications has emerged. There is a broad variety of different functions

and sophistication levels, including major competition between market players in turning predictions and probabilities upside down, developing ingenious »*bandit algorithms*, and finding the right balance between »*false positives* and »*false negatives*.

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“Now, when listening to music, the digital assistants may not suggest music based on past listening habits or other people’s experiences but propose something truly different from the person’s taste so far. The same goes for all other kinds of entertainment and lifestyle products, like films, books, fashion, furniture, accessories, food, or drinks. Mapping services provide people with different routes where they could see or experience something unseen and inspiring, even in familiar settings. If someone is looking for a date or a serious relationship, they may now be suggested a person who would have never popped up using conventional optimized matching algorithms. In classical recruiting processes, supporting tools regularly recommend potential candidates who would have fallen through the net otherwise—like people from groups that had been the subject of discrimination in the past. On the other hand, people searching for new opportunities have been recommended possible projects they would not have thought of before, which opens up unimagined possibilities.” – »Director, Embedded Mismatch Control Authority (EMCA)

As in the past with security checks at the airport, where the alarm regularly went off when nothing suspicious was happening in order to keep the security staff attentive and motivated, people in responsible roles are now confronted with false alarms, false nonalarms, and even absurd suggestions from their support systems in order to prevent a loss of competence and awareness. For example, legal advice services would first recommend that a judge sentence a defendant in a certain way, only to draw attention to the fact that the recommendation was random if the judge was about to follow the recommendation. Medical diagnostic systems would make misdiagnoses on a regular basis so that medical doctors would not blindly trust the system and completely lose important medical skills. If the physician did not notice

the error herself, she would be notified of it by the system and would receive a knowledge refresher package. When it came to therapeutic measures, the system also provided suggestions beyond classical orthodox methods, i.e., traditional Chinese or homeopathic methods, in order to confront medical doctors with alternative points of view. The predominance of humans in other high-profile professions remains of utmost importance because of their guiding and caring function for society.

Beyond this, the *»traditional job market* has changed tremendously. The so-called “3d” jobs—dirty, dull, or dangerous work—have finally vanished. The focus is now on social and creative activities, so called “3f” professions that are fulfilling, fascinating, and fair. The added value creation by the European AI market is so enormous that discussions on salaries and income have become superfluous. The GRDO has made the modern *»post-capitalist age* possible, an age in which individuals are no longer driven by a desire to create wealth but by a desire to contribute positively to the common good by engaging in self-actualization and self-reflection. By making technology human-centered by design, European society has become more open, diverse and tolerant.

»Source Text«

“Nobody—not even the avant-garde³⁴—could have foreseen the tremendous success of the embedded mismatch. We have professionally organized contests on who could live the longest with a voluntarily upgraded high-level embedded mismatch that ‘sabotages’ smart homes, navigation systems, and appointment calendars on a regular basis. Daily life has become a bit of an adventure playground for everyone, but some people even deliberately make it a type of continuous survival training. Our society is bubbling with new ideas that make everyone thrive.”—»Spokesperson, European Research Group on Good Sociological Practice

Crucially, at this point in history, through de-optimization via the embedded mismatch, European citizens have retained the knowledge necessary to be able to deal with life should technology fail. The fears of cyber-attacks did not come to pass. Quite the contrary, while other international power blocks have turned out to be vulnerable to unforeseen technical breakdowns due to a lack of resilience (e.g., *»The US over-optimization incident*, *»China’s*

over-scoring scandal, »Russia's drone tragedy), European people have preserved their main competencies to find their way in analog life. With the help of the embedded mismatch, Europe has now established a new common narrative of true unity, political stability, and freedom.

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Isabella Hermann is a political scientist and discourse analyst. She explores how artificial intelligence is framed in the discourse and how it affects society. Having always been fascinated by the social effects of new technology, she also works on science fiction and

politics. Currently, Isabella Hermann acts as research coordinator of the interdisciplinary research group “Responsibility: Machine Learning and Artificial Intelligence” at the Berlin-Brandenburg Academy of Sciences and Humanities in Berlin.



“People who want privacy should be allowed to have it and the law should protect their right to privacy. If an individual seeks freedom to express themselves, they should be allowed to do so. [...] However, if people choose to relinquish privacy, they can expect no protection from the law.”

— A privacy advocate in the early 2020s

CLAIRE BESSANT

What Would You Rather Be: A Privacy Have or a Privacy Have-Not?

Do you share information on social media? Would you like to be paid for sharing your information? Would you be happy for others to take your photograph? Think carefully. Your future life and the lives of your children depend upon your answers.

INTRODUCTION

In a series of diary entries, the story “What Would You Rather Be: A Privacy Have or a Privacy Have-Not?” discusses the concept of privacy in times of ubiquitous technology and social media. Building upon current evidence, this story foretells the future of a society increasingly divided between individuals who value privacy and those who place greater value on other goods such as freedom of expression. It envisages

a world in which there is such widespread disagreement about whether an individual can expect to maintain their privacy that a radical solution was introduced. This story is set in 2040 in a society that is comprised of two distinct factions: Privacy Haves and Privacy Have-Nots. Entirely different laws apply to the two groups, recognizing that whilst Privacy Haves wish to preserve their privacy, Privacy Have-Nots place

greater value on their freedom to express themselves. A Privacy Have can thus reasonably expect that details of their life will not be publicly available online. They expect to be told when an organization acquires their personal information and to be able to choose whether and how their information is used. A Privacy Have-Not, by contrast, knows that, at a click of a button, details of their entire life, their family, their relationships, even images of themselves as a fetus, may be revealed. A Privacy Have-Not will have been brought up to expect their information to be held and used by businesses and governments and welcomes the income they earn from selling their information. Through a schoolgirl's diary entries, which explore how society became divided, and what it means to be a Privacy Have, this story challenges the reader to consider how they share information about their own life and the lives of other family members, and to reflect upon the way that governments and corporations

use individuals' information. It asks the reader to consider whether they would be a Privacy Have or a Privacy Have-Not, and whether they ultimately value their privacy. The essay picks up on a current trend: Individuals are increasingly allowing smartphones and smart devices to monitor their behavior and their movements. Whilst not all individuals may be aware of the privacy implications of their actions, there are indications that many individuals are happy to trade their privacy for financial or other benefits. Nonetheless, evidence also exists of individuals who, wary of the privacy implications when information is disclosed online, make minimal use of social media. There is evidence, too, that some individuals object to organizations using their information, that some dislike third parties taking photographs of them and their children. It seems that there is, to some extent, a divide between those who consider it important to protect their privacy and those who do not.

Sunday 18th March 2040

Wow! Last night's party was amazing! I still can't get over how big the house was. And it had so many amazing technological devices that I've only ever read about. Ben seems like such a normal person when I see him at school, but his family must be seriously rich to own a place like that.

It was weird, though, to see so many people holding their phones above their heads, taking shots of the whole party and taking photos of each other like it was the normal thing to do. I've never been to a party where people take photos without asking first whether it's ok. Mum once told me that, when she was young, everyone used to take photographs of each other when they were at parties or out in the street, and that's part of why we all divided, but I didn't know people still did that.

I tried to make sure nobody took my photo without making it obvious that I really didn't want my photo taken. I think I managed ok. I really don't want there to be any evidence I was at the party. My Mum and Dad would kill me if they found out I'd been there. I know they don't like Ben's family or the way they live their lives. I told them that I was staying the night at Emily's (which is partly true as I did sleep over at her house after the party).

But that wasn't the best thing! I still can't believe that I spent most of the night speaking to Ben. I didn't think he knew I existed. We had so much in common—he likes the same music as me, the same films and books. I didn't expect that. I've agreed to meet him after school on Wednesday. I'll tell Mum and Dad I've got an extra hockey practice and they won't expect me home until at least six.

Monday 19th March 2040

Swim club tonight. Fastest ever 200m freestyle!

Tuesday 20th March 2040

School was really boring today. Looking forward to seeing Ben tomorrow.

Wednesday 21st March 2040

It was great to speak to Ben again. During school, we've had to pretend we don't really know each other just in case my annoying sister Susie spots us

talking and says anything to Mum. I know there's nothing for her to tell Mum, but I don't want to risk it.

Thursday 22nd March 2040

Emily was telling me about a new e-book she'd just read. It was set in a future world where nobody had any privacy at all and everyone knew everything about everyone else. We both decided we definitely wouldn't want to live in a world like that. I'd quite like to read the e-book though.

Friday 23rd March 2040

Mum made homemade pizza tonight with ham, mushroom, pepperoni, and mozzarella. She knows exactly how I like my pizza (probably the only person other than me that does).

Saturday 24th March 2040

I can never thank Emily enough for covering for me today. (I told her I had something important to do but I didn't tell her what. I still can't decide whether I should tell her about me seeing Ben. I don't think she likes Ben or his friends, although she did agree that his party was great.)

Ben and I had such a great afternoon walking in the hills. We didn't see anyone the whole time. Ben said it was a bit weird not to take photos of where we went, and that it was the first time in forever that he hadn't posted up what he was doing. I don't know why I wouldn't let him take any photos of me. Is it just so ingrained in me that I can't trust anyone other than my family and close friends to take my photo?

Sunday 25th March 2040

We went to see Grandma and Grandad today. We've not seen them for ages because they live so far away, and Susie and I had loads to tell them about what we've been doing. When I told Ben we were going to see them, he asked me:

“Why would you bother driving all that way?”

He said he just video chats with his grandparents whenever he wants. That sounds nice, but not the same as seeing Grandma and Grandpa or giving them a hug.

Monday 26th March 2040

I decided in the end that it was only fair to tell Emily about Ben and I meeting in secret. After all she is my best friend. I couldn't believe her reaction though. She practically shrieked:

“There’s no way you can keep seeing Ben.”

And, of course, she asked the killer question:

“What would your parents say?”

I’ve tried to sort of put my parents out of my mind whenever I see Ben because I know they don’t like his family. I really don’t understand why, though.

Tuesday 27th March 2020

Today we had one of the first ever privacy and information studies classes. There’s going to be a test on everything we learn at the end of term. Even if we didn’t have a test, I think I would still want to write everything down. It feels like what we’re learning is important—it seems to explain quite a lot of what I don’t understand about our divided world but I’ve still got so many questions ...

Emily thinks it’s interesting too. We couldn’t stop talking about it on the way home from school. Rather annoyingly, Emily seemed to know all about what life was like before we divided. Emily says that when her Mum was born, in the twentieth century, there were international laws stating that *everyone* had some sort of right to privacy protected by international law. I think that’s an amazing idea!

I don’t know how Emily knows so much more than I do. She says it was a man called Tim Berners-Lee who invented the World Wide Web, and that it was because of the web that everything started to change and many people stopped caring about privacy. Emily also said that, to start with, everyone thought the web was great, because before the internet you could only find

out information if someone else knew the answer, or you looked in a book or went to the library. (I'm not sure I believe that bit about only being able to find information if you went to a library. Sometimes I think Emily just makes things up to see whether I believe everything she tells me. Seems weird to me. I can't imagine a world where you can't find something out within seconds by going online. I don't think I've ever been to a library and I'm pretty sure we don't have one in our town—why would you need one anyway when you can get pretty much any book ever written online?)

...

Back again. I had to do some homework. Still thinking about everything we learned in class today, though, and I'll probably be thinking about it all night. Life at the beginning of the twenty-first century seems to have been so different, but I've just realized that actually Mum and Dad were my age in 2020 so they must have experienced it all. So annoying that they're both out tonight. I'm definitely going to ask them tomorrow about what life used to be like.

Wednesday 28th March 2040

Wow! Mrs. Hewlett said in class that in 2004 this man called Mark Zuckerberg invented Facebook (which was apparently one of the first and most important types of social media, even if I've never heard of it). The idea of Facebook was that everyone would share their own information and their family's information on the internet and then everyone would comment on each other's posts. I hate the idea. I've been thinking about the photos of me as a toddler with food all over my face that Mum and Dad keep safely stored in our digital vault. I'd be mortified if any of my friends saw them now!

When I asked Mum about it, she said although her parents never put any information about her online, loads of her friends' parents did. She said that when her friend Helen turned eighteen, Helen's mum sent a photograph of Helen as a chubby half-naked baby to Helen's friends, Helen's little sister's friends, their mums! How embarrassing! Even worse, she said her friend Toby's mum posted a picture on social media of Toby, aged two, using the toilet for the first time. She said those photos are probably still on the internet now for everyone to see. Gross!

She also told me about one of her friends who was only a little bit older than me, who had helped his little sister make a gingerbread house for Christmas. He didn't know that his Mum had videoed him and had posted the video on the internet until his friends started to laugh at him. He didn't speak to his Mum for days. Fortunately, I know Mum would never do that to me. Mum told me that she really doesn't agree with people posting pictures of their children online—it's not just about respecting their children's privacy (I like that she thinks that way) but also because you don't know how other people will react to the information that's posted or how they might use it.

What I just couldn't believe was when she said there were some parents who stopped working in their real jobs and just spent their whole time taking and posting videos of their family's daily life. She said that because the children were advertising the food brands they ate, the clothes they wore, and the places they visited, the parents got paid loads of money! Why would they do that? I wonder whether they ever asked their children how they felt about it? Just imagine not ever being able to spend the day in your pajamas with your hair in a mess because you've got to show this amazing image to the world. I'm going to have to chat to Emily about that one.

Thursday 29th March 2040

I had to stop what I was writing yesterday because Mum told me to turn out my light and go to bed. One of the other things that Mrs. Hewlett told us in class, which seems incredible, is that many governments, including ours, used to monitor what everyone was doing. They could check everyone's phone records and internet use and there were cameras everywhere taking photographs to record wherever you went in public. That sounds horrific. Mrs. Hewlett showed us a news clip all about a big terrorist attack on the US in 2001. She said certain governments decided the only way to keep everyone safe from the bad people was to monitor everybody (that way they could spot who the bad guys were and prevent them planning more attacks). I said to Emily that I really didn't like the idea of government (or anyone) being able to know all about my life, about who I was speaking to and what I was looking at. She didn't seem to understand what I meant—she said that in her view if you've got nothing to hide then you've got nothing to fear and so there's nothing wrong with the government knowing what you're doing. I'm not sure about that at all—I don't think I've anything I want to hide, but I still don't like the idea of someone being able to watch where I go and knowing who I talk to on the phone and online! Emily and I ended

up having a bit of an argument in the end. I really like her but sometimes she can be so annoying!

Friday 30th March 2040

We had another one of the new classes on privacy. Even more scary than the last one. Apparently, there were countries in the 2010s and 2020s where the governments developed big databases to store everyone's information, even copies of their fingerprints and scans of their eyes! Mrs. Hewlett said, in our country, everyone's medical records were stored in a big database and any doctor anywhere in the country could access a person's health records. I suppose it would be good to know that, if I went on holiday somewhere and had to go to hospital, doctors could see what medicines I take and know that I'm allergic to loads of things, but I still wouldn't like my information just sitting somewhere on a big database for people to look at. I'd want to choose who sees my information, when and why.

Saturday 31st March 2040

I've been having a chat with Mum again about everything we've been learning in privacy lessons. She said her parents stopped her going to some of her friends' houses because everything in their homes was being recorded by these strange devices—they sound a bit like robots, although they couldn't move, because you could ask them questions like "what's the weather" and tell them to do things like "play my favorite song." What Grandma and Grandad didn't like was that they also listened to the conversations that were taking place in the house. Creepy!

Sunday 1st April 2040

Easter Sunday today. Got loads of Easter eggs. Susie's nearly eaten all of hers already!

Monday 2nd April 2040

I just can't stop thinking about "The great privacy erosion of the 2000s and 2010s," as Mrs. Hewlett calls it. Poor Mum—every time I see her, I seem to have another question for her. She seems happy to answer all my questions, though, which is good, because I know I can trust her to tell me the truth about what it was like then.

In fact, she told me another interesting thing today. Apparently, when she was my age, Grandad used to take her to swimming every Sunday. One day Grandad came running through to Grandma and said:

“Wow. You’re going to be really freaked out by this!”

His phone had this basic maps app. I can’t remember what mum called it. You could type into it “I want to go to x” and it would tell you how far away it was, how long it would take you, and which was the best way to go. It even had photographs of pretty much everywhere in the world—so you could click on the place you were going to and take a virtual walk around the area and see everyone’s houses. (I wonder if that app still exists—it would be fun to see if there’s a picture of my house and Emily’s house). Anyway, Mum said that unless you turned this app off (and almost nobody knew how to) it was tracking everywhere you went. It built up a detailed picture of everyone’s weekly movements, where people worked or went to school, and other places they went to regularly. And on that Sunday, the phone told Granddad when he got in the car,

“It will take you thirty-six minutes to get to the sports center.”

He hadn’t even told it he was going to the sports center—it just knew because that was where he went on Sundays at that time!

I thought about it all the way to swim training. I’m glad I don’t have anything like that tracking me.

Tuesday 3rd April 2040

Another privacy and information class, the last one considering privacy at the beginning of the twenty-first century. I’m not really sure I understood everything Mrs. Hewlett said to us today because it was more about technology. The bit that really made think though was when she said that children were only able to use apps for their schoolwork if they told the software companies their name, age, and school. Why would anyone need that information? Why couldn’t people just use a made-up name or an avatar like I do when I do my homework?

I asked Emily to explain some things to me because I don’t want to fail the test at the end of the year. I understood the bit about how when the internet came along everyone started to do nearly everything on the

internet: listening to music, playing games, buying clothes or food, talking to their friends, reading books, doing homework (just like it is today). The big difference (I think this is right) is that the only way that anyone could do any of these things was if they agreed to all of the big companies' contracts—which were so long that no-one ever read them—and if you agreed then they could keep your information. Sometimes the companies did help you by improving their products or suggesting better ways you could use them, which sounds ok. Sometimes companies would send messages online or even put pictures on different websites to say “you were looking at this on our website, are you sure you don't want to buy it?” And I guess that could be quite helpful, although a bit annoying if you'd already bought it somewhere else or decided you didn't actually want to buy it. But sometimes they gave the information to other companies—and even worse, because they wouldn't say who they'd given that information to, nobody knew who had their details, how they'd got them or how they were going to use them. That's scary.

From what Emily said, it sounded like the companies had all the power, and if you didn't agree to allow them to use your information or to send you messages, you just couldn't do anything online. I'm glad it's not like that now.

In our next lesson, we're going to start discussing the differences between Privacy Haves and Privacy Have-Nots. I feel like there's lots I don't know so I've written a long list of questions to ask Mrs. Hewlett.

Wednesday 4th April 2040

I've been picked for the first team for a hockey match next week. First time ever. So happy!

Thursday 5th April 2040

I'm so stupid. All those awful things I wrote about last week—that's what the Privacy Have-Nots do today but ten times more! Mrs. Hewlett told us all about it in class. Their whole existence is about making sure everyone knows what they're doing, and how great their lives are. That's why they were all taking photos at Ben's party. Now I understand why Ben thought it was so weird not to take photos when we went for our walk. I think I'm finally beginning to understand what Ben meant when he said normally

everyone knows exactly where he is, what he's doing, and who he's with. Until we started meeting in secret he really didn't have any life of his own that other people didn't know about—everything about his life from before he was born is documented somewhere and available for anyone to see. I really need to speak to Ben about what it's really like to be a Privacy Have-Not.

Friday 6th April 2040

I still can't believe nobody has told me before about the differences between the Privacy Haves and Privacy Have-Nots. Mum and Dad have always said to us that we shouldn't be friends with Privacy Have-Nots, but we've never discussed why that is. I can't believe Ben can be as bad as they say.

Saturday 7th April 2040

Ben and I had a chat today about what we've been learning in privacy classes. Ben had as many questions for me as I had for him and some of his questions really made me think, especially when he asked me why I think it's so important to have privacy. It's not something I can easily explain. I think it's a bit about wanting to choose how your own stuff is used and who gets to use it; sort of like the information is my property and so I get to decide what happens to it (but not quite). It's a bit about the fact that there are just some things that I think are personal and private and that I wouldn't want people to know (like how I feel about Ben and the types of things that we discuss when we're alone together). There's stuff I don't want people to know because they might use it to hurt me (things like how I worry about being too thin and not being as clever as Emily). It's also about just feeling weird or uncomfortable at the idea that someone else knows that information (even information about ordinary things like my favorite breakfast cereal or my favorite song) but I don't know who has that information, or how they might use it. I also used my Dad as an example (sorry Dad) to explain that there are also things about my family I just don't think are anyone else's business. Who needs to know that Dad farts loudly while watching TV and that the rest of us find that gross and usually end up shouting at him to stop or start throwing cushions at him. (That's definitely not something I think anyone other than my family needs to know!)

Sunday 8th April 2040

Ben and I managed to meet while Mum and Dad went into town with Susie—I told them I had homework to finish. We talked for ages. I can't remember everything he said, just the bit when we were talking about having our photos taken. Ben says he doesn't mind if his mum and dad or his friends take his photograph, put it on the internet, or share it on a public photo screen. That's the way his family has always done it and he's never thought of it as being a strange thing to do. He thought it was weird that my family never put things on social media. (How strange is that?)

I tried to explain to Ben what Mum said to me about children getting teased or bullied and that I thought it was important for me to choose whether my photos are shared. He said that the way his parents have explained it to him, because they're his parents they have a right to decide what posts they make about him while he's a child. His view was that children could always ask for their photos to be taken down when they reach eighteen. I think that's missing the point—by then loads of people will have seen everything that's out there about him. Even he had to admit that most people don't ask to get their photos taken down—after all, what's the point when everyone has already seen them and has made nasty comments about them.

I still find it strange that I can't stop thinking about all these things when before the privacy classes I never thought about them at all. I guess the differences between people like me and people like Ben just haven't been obvious to me because the Privacy Haves and Have-Nots don't have lessons together and nobody is allowed to take photos or videos at school. Then, of course, all of my friends and family are Privacy Haves, so none of us would ever take a photograph without checking first if that was ok.

Monday 9th April 2040

Emily and I were talking at lunchtime. She asked me what happens when a Privacy Have marries a Privacy Have-Not. Neither of us knew the answer, so we did some research at lunchtime. Apparently, there is no official record of a Privacy Have ever marrying a Privacy Have-Not. That was a bit of a shock. Emily and I were talking about why that might be and she argued that right from the beginning it would be a total nightmare, like:

“Just think about the wedding. What would you put on the wedding invitations?”

As she pointed out, for all of the weddings we've ever been to there's been a clear statement on the invitation that if a Privacy Have-Not wishes to attend the wedding, they agree to forego their right to take photographs. I bet that Privacy Have-Nots have something on their wedding invites that says you are free to take photos.

Tuesday 10th April 2040

I managed to ask Ben today about what Privacy Have-Nots say on their wedding invites. It was a bit of a surprise to me what he said. Apparently, it always used to say on Have-Not wedding invitations that everyone could take as many photos as they liked and that, if you were a Privacy Have attending a Privacy Have-Not wedding, you had to accept that your photograph could be taken and posted on social media or on any other public forum (so just like I thought). He says that's all changed now because of the Photographs in Public Act (I think that's what he called it).

He was telling me that now if a Privacy Have like me finds out that there's information about them online (photos, facts, comments), they can ask the company in charge of the website to have it removed, and they must remove it or they'll get a big fine. When Ben said that I shouted:

“Hasn't that always been the case? What? Really? You mean before that law came in if someone put my photo up there I couldn't get it taken down?”

(Apparently, the answer is no. It hasn't always been the case. And yes, if someone had put my photo online ten years ago I would probably have been unable to do anything about it! Argh!)

It was a relief when Ben said that now this Photographs in Public law says that if someone wants to take a photograph they have to check with anyone who might be in that photograph whether they are ok about having their photograph taken and uploaded to social media or made public in some other form. If they aren't happy, then the photographer has to pixelate the photo, put an electronic sticker over the face or just not take the photo. (Phew! So, hopefully, I'll never find my photo online without me knowing.)

Ben said he went to a wedding last week and everyone was asking:

“Are you a Privacy Have or Have-Not? Do you mind if your information is uploaded to social media?”

That’s just what I’d expect really. I’d never think of taking a photo of my friends without checking it was ok.

Wednesday 11th April 2040

We won our hockey match 3–2!!! Yeah! I think I played ok. Emily played amazingly, as always. Hannah, who’s a Privacy Have-Not, asked at the end of the game why we couldn’t all have a team photo together. The teacher said it wasn’t possible because there were Privacy Haves in the team whose parents hadn’t agreed to us having our photos taken (I guess she meant Emily and me). I’ve never thought about it before now, but if you were somebody who liked to record everything about your life, it would be a bit strange not to have a photo to record something as exciting as winning a hockey match. Thinking about it now, I don’t want to tell everyone everything I’m doing, but I do think it would have been quite nice to have a picture of me with the rest of the team.

Thursday 12th April 2040

Everyone was talking about the hockey match before school this morning. I felt so proud to have been part of the team. I was talking to mum about it too when she got home from work. I explained about us not being able to have a full team photograph and I asked her why she won’t let me have my photograph taken at school. She said it just isn’t an option for me. Susie was in the kitchen when we were talking and, as usual, she kept asking Mum:

“Why? Why?”

The way that mum explained it is that you have to choose whether you’re a Privacy Have or a Privacy Have-Not when you’re eighteen and you follow the same rules as your parents until then. I knew that bit of course. What I hadn’t really realized though is that since all the laws are designed differently depending upon which group you belong to once you’ve made your decision (or your parents have made that decision for you) you have to stick to it. And if you’re a Privacy Have, you never put things online because then you know you’re in control of your information. I still don’t really get why I can’t have my photo taken with the hockey team but I think

we're going to be learning about the laws in our next class on privacy, so hopefully that will explain things a bit more.

Friday 13th April 2040

I was talking to Ben today about the fact that there's no record of a Privacy Have and a Privacy Have-Not ever getting married. He said it didn't surprise him. His mum and dad said that it's simply not possible for the two to live together because in every aspect of our daily life we have to make choices about our privacy and Privacy Haves and Privacy Have-Nots will never make the same choices. He said that Privacy Haves and Privacy Have-Nots even have completely different settings on their computers and when you buy your computer you have an option to buy a Privacy Have computer or a Privacy Have-Not computer. How did I not know that!!!!

I had to admit to him that I wasn't sure what he meant when he said computers had different settings. He was nice about it, which was a relief.

What he said really surprised me. I remember Mum telling me about some Online Privacy Law when I bought my favorite black top online last year. She said that organizations can't make us give them our personal information if we don't want to, but if we need to provide information, like I needed to give our address for my top to be sent to, the company has to message me afterwards to say what information they hold and they have to delete it as soon as I ask them to. From what Ben said, it sounds like the new law only applies to Privacy Haves (which is a bit like what Mum was saying to me about us having different laws). I can't quite believe it (although Ben swears it's true)—apparently, if you're a Privacy Have-Not, your computer automatically gives out information whenever it's requested to do so, and all of the Privacy Have-Nots agree that companies can use that information in whatever way they want. Ben says that's why his family is so rich; they've been selling their private information to companies for years now, and they're being paid for the pictures that they post of Ben and his brother!

Saturday 14th April 2040

I decided to ask Mum about how Privacy Have-Nots, like Ben's family, are paid for selling their information. I didn't want her to find out that I'd been speaking to Ben about it so I just pretended it was something someone mentioned at school.

Mum says it is true. The Privacy Have-Nots do get paid lots of money for letting everybody use their information. Mum said that part of the reason why she and Dad chose to be Privacy Haves is because she'd rather be poor and keep control over her information than be rich and have no privacy. That's really made me think ... Mum and Dad both have good jobs as lawyers so actually our family isn't poor. What if you don't have a good job and you haven't got enough money? Would you feel you had to sell your information to get some money even if it meant you lost all your privacy? That doesn't seem fair.

Sunday 15th April 2040

Dad was listening to the news this morning, and I heard the broadcaster say that a new law has just been agreed that will mean that when Privacy Have-Not children reach eighteen, they can get everything removed that they, their family, their friends, and even strangers had posted about them while they were children. The presenter said any posts about the child will normally just be deleted, but that if someone who had posted or shared the photographs objected to them being removed, then there was a process for asking for the faces of those who wanted them removed to be blurred instead. Apparently, the law is being introduced so that a Privacy Have-Not could choose to become a Privacy Have if they wanted to.

I just messaged Ben to see what he thought about it and he said he'd never ask his parents to delete their posts because he wouldn't want to hurt his parents' feelings. I know I wouldn't want to hurt my parents' feelings either—but I can't help thinking that it means Ben and I can never have a long-term future.

Monday 16th April 2040

A new girl joined swim club today. Her name's Mira. I really liked her, although she's a Privacy Have-Not. She was showing all of us all the pictures of everybody at her old school and swim team, and her family, and her dog, and the medals that she's won. It was easy for her to show us everything because it was all online. She said it's great being on social media, because she can keep up with everything that her old friends are doing and they can see what she's doing, so it will be easy for them to keep in touch. I guess that could be quite handy if you've moved. It's never going to be an option for me though. We don't have many photos and none of them are on social media.

Tuesday 17th April 2040

We had another privacy class today. I already knew about some of it, like the Online Privacy Law and the Photographs in Public Act. It made a change for me to be the one telling Emily something she didn't know. What I didn't know is that these are just a tiny proportion of the privacy laws introduced worldwide since the 2020s.

We watched some videos from the 2010s, which said that Facebook (the big social media company Mrs. Hewlett told us about before) started selling information about the people that used it. That seems wrong, especially as it sounded like it had loads of information, not just information that people had put on their social media profiles themselves, like their age and who they're going out with, but also information that Facebook had found out from their friends and from when people were looking at other websites. Mrs. Hewlett said that people didn't even realize Facebook had all this information and they definitely weren't expecting Facebook to sell it on.

It's because of the Facebook scandal, Mrs. Hewlett said, that our government banned all social media companies from using the information that individuals post online unless they pay the individuals. It was the first government in the world to do so and then all the other countries copied our law. (I was really pleased to hear that our country was the first country to try and protect our privacy in that way but a bit horrified that it needed to do it. I've always just assumed that whenever any person or organization has my information, they'll tell me and I'll be able to decide whether or not they can use and it and how they can use it.)

Wednesday 18th April 2040

At breakfast this morning, Mum asked me what we'd been learning in our privacy classes. Recently, it seems like it's been me asking her all the questions. Once we started talking, of course, I did have questions for her. I said what I really wanted to know was why anyone would think it was a good idea to divide society into two different groups with different laws. Why don't we just have one set of laws for everyone, like Mrs. Hewlett said used to be the case back in the 2010s?

Mum explained it by telling me about when a singer sued a newspaper. The newspaper had taken photographs of him and his children having a day out. The photographer took the photos even after the singer told

the photographer he didn't want their photographs taken—I think that's shocking! The court made the newspaper pay compensation to the children because it said they could reasonably expect not to have their photographs taken when they were having a family day out. It also said it wasn't right for the newspaper to take their photograph when their parents were trying to keep their children's lives private. I think that's what she said anyway—and if so, I think that's quite right. She said, though, that there were some people who said the court had made the wrong decision and that if you were walking about in public, you should expect to have your photograph taken (something about you can only have privacy in private? Didn't fully understand that bit). Mum said that things got worse after that. Society became divided between people who really wanted to keep privacy and people who didn't mind very much. Many people thought privacy needed to be protected but others didn't and because nobody could agree whether it was reasonable to expect anyone to have any privacy, it was decided that the law would have to change. The solution that the privacy advocates came up with was to have two sets of laws, one set to suit the people who wanted privacy (people like me and Mum) and one for people who weren't really bothered (like Ben's parents). She said that, in the end, it was the only way for anyone to get any privacy protection.

Thursday 19th April 2040

I was thinking again about the fact that Privacy Haves never marry Privacy Have-Nots and that, as far as I know, no-one who's a Privacy Have has chosen to become a Privacy Have-Not or vice versa. Then that got me thinking about what would happen if Ben and I did stay together and wanted to have children, because I don't want to be a Privacy Have-Not and Ben says he doesn't want to be a Privacy Have.

I asked Ben what he thought should happen if one parent was a Privacy Have-Not and wanted to post up pictures and the other one was a Privacy Have and didn't. It almost ended up with us having our first argument ever. What Ben and I realized though is that because Privacy Haves do everything to protect privacy and Privacy Have-Nots are always encouraged to share information, it really would be difficult for a Privacy Have to live with a Privacy Have-Not.

And then I found myself telling him about the hockey match, how I would have liked to have had my photograph taken and I wouldn't have minded if the school had shared the fact that I'd won with a few people online,

provided it didn't say anything like my name or address. Then Ben said that, after our chat last week, he's been thinking too and that actually he isn't happy about some of the things that his parents have posted about him. Some bits of his life he would have rather kept private, and he wished his parents had asked him before sharing that information. By the end of our conversation, we'd both decided that even if parents need to make decisions for young children, older children should get more say. That might mean Privacy Have parents do need to record and share some of the important things (like winning hockey matches) online and it might mean Privacy Have-Not parents can't share everything, but we thought that was probably right.

It's funny, because we both started putting across the points that our parents make but the more we thought about it, we realized that we didn't agree with what either my parents or Ben's parents say and do. We both thought it was stupid to say children can't *ever* decide privacy issues for themselves. I pointed out that Susie's perfectly capable of making decisions about whether she has her photograph taken now that she's eight. Ben didn't totally agree with me. He thought you'd need to be at least twelve to make decisions about sharing information with companies online. It doesn't make any difference anyway. None of this is possible for us—in our world, you have privacy or you don't, there's no middle ground where you can just share a tiny bit.

Friday 20th April 2040

It was the last of our privacy classes today. Mrs. Hewlett shared a quote with us that I'm writing down here because I thought it was a good one and it sums up exactly what I think. Apparently, it was made by a privacy advocate in the early 2020s, and it's why we've got a divided society now:

“People who want privacy should be allowed to have it and the law should protect their right to privacy. If an individual seeks freedom to express themselves, they should be allowed to do so. They should be free to make public whatever aspects of their lives they wish to make public, except when it adversely affects the rights of those who seek privacy. However, if people choose to relinquish privacy, they can expect no protection from the law.”

I'm quite sad that the privacy classes are ending, because they have been interesting. At the same time though, I almost wish we'd never had them.

They've made me look at our society in a very different way and I'm not sure I like it so much anymore.

Saturday 21st April 2040

Susie won a medal at her dancing competition yesterday. I'm so proud of her. Mum took a photo of her in one of the empty practice rooms so that she didn't get anyone else in her photo. It's a nice photo. It's sort of sad to think that no one else will get to see it other than me, Susie, Dad, and our grandparents. Susie's quite happy with that though. She said that she can take her medal into school to show her friends and there's no need for anyone else to see the photo of her in her dancing clothes.

Sunday 22nd April 2040

After all the excitement yesterday, Mum thought it would be a good idea if we had a lazy day at home. I didn't get out of my pajamas until the middle of the afternoon or brush my hair. Glad Ben couldn't see me.

Monday 23rd April 2040

Oh no! Ben's brother has posted all over social media that Ben and I are seeing each other. When I went into school this morning all the Privacy Have-Nots were talking about it, and by lunchtime, the whole school seemed to know. Even Susie knows. She gleefully informed me at morning break:

“You’re so going to get into trouble with Mum and Dad when they find out! There’s no way they’re going to let you keep seeing Ben.”

Thanks Susie!

I hate being talked about. I just wanted to shut myself in a cupboard and hide. To make it all even worse, Emily and I found out something when we were doing our homework.

I've always known that Mum and Dad are lawyers in the government, but they've never really explained what they do and I've never asked them. Now I know! The quote that Mrs. Hewlett put on the wall last week was apparently made by Mum in the 2020s. By my Mum!! And not only did Mum write that quote that I liked so much, but apparently my Mum and Dad were

the original privacy advocates who invented the idea of Privacy Haves and Privacy Have-Nots. No wonder they don't like the way Ben's family behaves!

How will I ever convince Mum and Dad that they should let me keep seeing Ben?

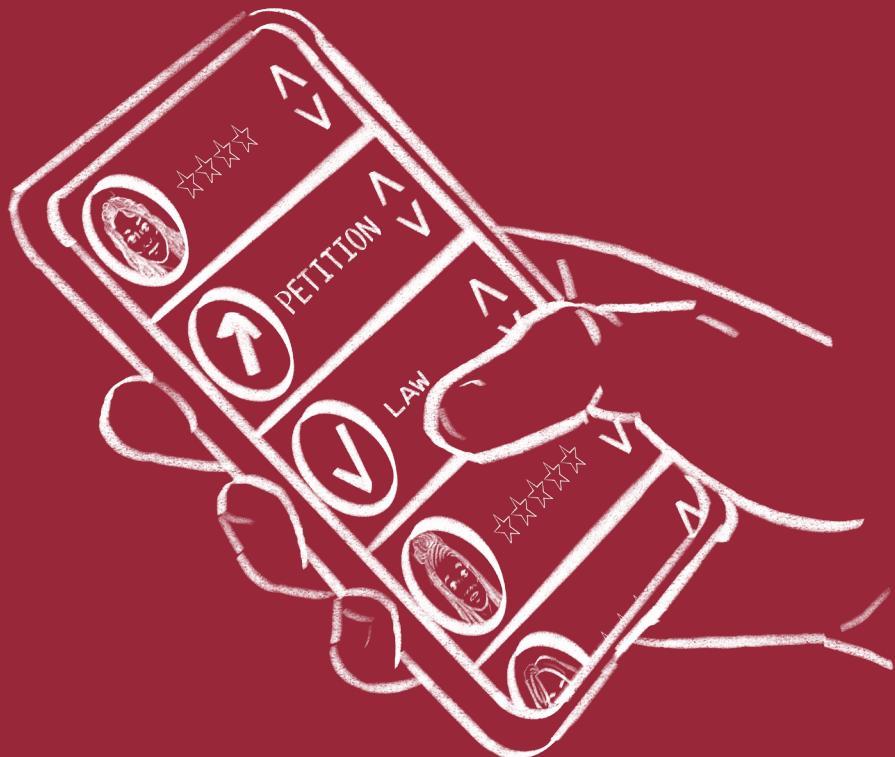
The end.

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“Nobody really wants to go back to traditional public decision-making models. Didn’t we consign top-down, direct, regulatory approaches to history a decade ago?”

GIANLUCA SGUEO

Operation Beyond Fun

What are the consequences of gamified policy-making? Is game design manipulative? What if gamified policy-making does not bring about the expected results? A story about the attempt to introduce playfulness into policy making and how it backfired.

INTRODUCTION

The story “Operation Beyond Fun” aims to show the complexity of using game-design nudges to engage citizens in decision-making and how the use of the wrong playful incentives may lead to a paradoxical effect: a ban on games in policy-making. Highly participatory at its core, the “convergence culture” we currently inhabit allows everyone connected to the internet to actively participate in matters that, in the past,

were reserved for an elite few (such as opinion makers and politicians). Obviously, increased convergence translates into higher expectations. Contemporary audiences are demanding. Yet responding quickly to the demands of citizens and communities and engaging them in the exercise of public power remains a complex task for public regulators. Hence, the question is whether we can make civic engagement fun.

Can games be experimented with as a way to innovate policy-making? In the eyes of public regulators, gamification seems to offer an easy, inexpensive, and potentially highly remunerative way of engaging demanding audiences while maintaining high levels of trust in the institutions.

The story is organized in chronological order: First we are introduced to a world in which gamification is portrayed as the “new normal” in policy making. In spite of a number of issues that emerged from previous experiments with games, including a lack of motivation among citizens to engage

in the long term and a risk of social exclusion, public regulators seem enthusiastic about game design. The disastrous consequences of gamified policy-making will lead the government to implement a new plan aimed at suspending the use of gamification. The plan is known as “Operation Beyond Fun.” The decision to eradicate gaming from government promotes a collective self-reflection on the intricacies of contemporary democracies, the pervasiveness of technology in our daily lives, and more generally about the future of governing.

THE DIGITAL GAZETTE

Swiping Pundits: Policy Making at the Tip of your Fingers

September 1, 2039 Do you miss the good old days when dating meant swiping left or right on an overpriced mobile phone? Are you an old school digital tech aficionado?

You might be in for some good news.

On Wednesday, the government announced plans for a September

launch of a new initiative on the *GovYOUment* platform. While the official name of the initiative remains unknown for now, the content sounds exciting.

Yep—it’s time to dust off your index finger, because the government wants you to swipe on policy options. How do you feel about allocating new government funds to

space colonies? Is the time right to scale up blockchain voting to governmental level? And what about over 95s—should they be given self-driving licenses? Swipe and let our leaders know!

The initiative promises to be more than pure fun—there will also be rewards. Climbing up the ranks will give participants access to extra points for those all-important social scores. Will the promotion you've been dreaming about for years finally be within reach? Will you finally have enough points to upgrade your visa status and experience the joy of taking your family on a trip abroad?

Not so fast, dreamer. Competition is going to be fierce. Will the hyper-civics score all the points, yet again?

Mario Brossi (5.1 average social credit score; three times citizen of the year) had this to say about the initiative: “I’m already warming up my fingers”—he said—“I can’t wait to participate and accumulate as many points as possible.” Mario wants to raise his score to 5.5 and qualify to purchase a new luxury apartment in the city center.

Mario is not alone in his desperate search to boost his social credit score. Others, however, are skeptical about the initiative. “Competition, levels, points, and rewards: How long do we have to wait before policy makers realize that inserting ‘playfulness’ into public policy making won’t solve

any of their problems?” said NYU’s Professor Gianluca Sgueo. And it’s not just academics speaking out: The public has been tepid in its response to gameplay as well.

Clearly, our policy makers have not succeeded in making the masses aware of the great opportunities offered by gamification.

Nevertheless, our government seems to have a recipe for reinventing government: a little dose of the competitive spirit of games, a pinch of playful design, and an appropriate system of rewards. Gamification, as our president stated in a recent interview, will fix democracy. Games for engagement, games for good.

Policy makers agree on this point. With playful policy making, everyone gets an opportunity to influence public choices in engaging, dynamic ways. It’s just a matter of when this will happen. Soon enough, optimists claim, playful design will arouse citizens’ interest in public decision making, make participation less demanding, and simplify interactions between citizens and institutions.

Speaking of interactive design: With the new initiative almost ready to go, we might expect a new wave of hires among the most in-demand professions in policy making. Designers, creative directors, networkers, and engineers: get ready! Your expertise could be needed to develop new, dynamic arenas for public debate.

It's bad news for lawyers, economists, and political scientists. But a die-hard minority of bureaucrats announced new strikes and protests yesterday. They promise they will bring governance back to its basics.

Nobody really wants to go back to traditional public decision-making models. Didn't we consign top-down, direct, regulatory approaches to history a decade ago? Not for PSTU—the Public Sector Trade Union, which released a statement following the government's decision to launch a new initiative on

GovYOUment. "Traditional decision making is unjustly considered incapable of settling increasingly inter-connected, cross-cutting and unpredictable issues," the PSTU states. While smart bureaucracies encourage synergies between ideas, competences, and skills, adds the PSTU, we should not neglect the added value of traditional skills when designing efficient regulatory approaches.

Should we swipe left on them, too?

BRIEFING PAPER FOR PRESIDENT'S NEWS CONFERENCE —EXCERPT

declassified

October 01, 2040

QUESTION:

Mr President, should the head of *GovYOUment* resign following the comments by [REDACTED] regarding “Swipe Your Regulation?” What is your response to accusations that “civic engagement” experiments of this type—and gamification efforts in public policy in general—should be permanently [REDACTED]?

CURRENT SITUATION REPORT:

- “Swipe Your Regulation” concluded yesterday.
- The 30-day initiative ran on the “*GovYOUment*” portal from September 1, 2040 to September 30, 2040.
- Project results are still being analyzed: The following report is an umbrella review of the broader issues.

*** THE FOLLOWING ANALYSIS IS PRELIMINARY AND MAY CHANGE ***

INITIAL ANALYSIS

Engagement Curve.

The initial signs were encouraging.

Visits to the “*GovYOUment*” portal peaked during the initial run (“call to action” phase) of the initiative, causing traffic problems with the “*GovYOUment Portal*.” In particular, the decision to adopt “vintage” swipe left technology as part of the holistic gamified “look and feel” of the site may have contributed to initial registration problems. However, this issue is thought to have contributed to the overall project outcomes.

Participation dropped halfway through the initiative (“engagement” phase), and bottomed out during the conclusive phase (“commitment” phase). Only 500 players completed the game—a mere fraction of the hundreds of thousands that had registered in the initial phase. As proven

by the “curve of engagement,” time and engagement on the “*GovYOUment*” portal are mutually exclusive.

Initial estimates suggest that *Swipe your Regulation* experienced an unexpectedly high and rapid drop-out rate. Despite our assumptions, it appears that neither the intrinsic rewards (impact on policy making) nor the extrinsic rewards (higher social credit score) seem to have offered a sufficient motive to continue participation for most citizens. Initial reports put this dropout rate on a par with similar gamification efforts in the 2020s (which were deemed failures). However, this is yet to be confirmed.

Tyranny of the Actives.

The participants who remained active throughout *Swipe your Regulation* appear to have been the same individuals who dominated previous gamified participatory procedures. The problem of the “hyper-civics,” as they are widely known, has long been recognized and is problematic in two respects: 1) Their overweening presence delegitimizes participatory processes. Rather than leverage social inequalities, the hyper-civics exacerbate them. 2) They are not opposed or criticized by other citizens. Indeed, they are celebrated by the majority of people—“the masses”—who self-exclude from participation.

The Capture of the Civics.

Further, we believe that interest groups may have been actively involved in influencing hyper-civics, leaning on them as a way to unduly pressure decision making. These actors include both general interest groups like the Public-Sector Trade Unions (PSTU) and special-interest groups (e.g., tech companies). The risk of “civic capture” is particularly concerning because it contradicts the original spirit of gamified governance. Back in the early 2020s, when the government committed to systematically instilling playfulness into policy making, the goal was to avoid the risk of an authoritative allocation of public assets that would favor private interests, also known as “capture of the regulator.” With civics mobilized by interest groups via gamified policy making, regulatory fairness may be again threatened.

Delegitimization.

It is too early to come to any conclusions about *Swipe your Regulation*. However, it should be noted that, if the project is deemed a failure, it will

likely increase the existing disaffection of citizens with policy making. According to the latest polls, seven in ten Europeans have no interest in policy making. Here, the “apathy civics” have grown by more than a sixth since June despite heightened playfulness in governmental decision-making. Our institutions may be blamed for two reasons. First, they failed at creating more participatory and inclusive decision-making via gamification. Critics claim that civic engagement has never been so unevenly distributed. Second, bureaucratic powers are accused of having increased the distance between them and citizens with gamification. Interestingly, they expected gamification to bridge this gap.

MOVING FORWARD:

There is no doubt that controversy has crept into the *Swipe your Regulation* project. But with the success (or the failure) of the activity TBD, the following points should be noted:

1. Call for a back-to-basics approach. Critics have questioned the morality and usability of gamified nudges. The weak response of citizens to *Swipe your Regulation* has encouraged new critical voices to join the debate. Academics and practitioners have suggested a “back to basics” approach: top-down, direct policy-making, with selected spaces for participation.
2. Government legitimacy. The outcomes of gamified governance have impacted on the (perceived) legitimacy of public institutions. The structural innovations introduced over the last decade to make government more playful have not proven efficient. Bureaucratic structures have been torn apart by the tensions between those who recommend a return to more traditional policy-making skills, namely legal and economic skills, and those who instead suggest reinventing government once again. The latter recently proposed the creation of an “enlightenment officer.”
3. The meaning of “fun.” The results of *Swipe your Regulation*, as well as of previous similar initiatives have shown how difficult it is to instill a pre-fabricated sense of playfulness into citizens. Reflection is urged on how to inject fun into definitions. This leads to a reflection on the opportunity to identify an exit strategy from gamification. The intelligence services have named this “Operation Beyond Fun.”

EXECUTIVE ORDER NO. 01 OF JANUARY 1, 2041

Minimizing the Burden of Gamified Policy Making, and Introducing the “Beyond Fun” Social Program

By the authority vested in me as president by the constitution of this country, and to foster the democratic values of our nation, make our politics more participative, and our administration more engaging. I hereby declare the following:

Section 1(a). It has been the policy of my administration to limit the damage produced by the excessive commodification of gamified nudges in our policies. Playful decision-making has exacerbated social inequalities; turnout from citizens has been lower than expected, leaving many underrepresented in our political processes; gamified nudges have exposed decision-makers to undue influence from interest groups; the participatory platform “*GovYOUment*” has not improved the level of trust in our administration.

Section 1(b). Our government is committed to adopting innovative, measurable, and outcome-driven initiatives that could foster civic engagement and establish solid, long-standing, relations between citizens and decision-makers. For the purpose of this order, fun shall be abolished from public decision-making. The platform “*GovYOUment*” shall be taken offline.

Section 2(a). The “Beyond Fun” social program is hereby introduced. The government program establishes a new system for calculating citizens’ social credit scores. In the “Beyond Fun” program, points shall be attributed on the basis of four individual skills:

1. Social-interaction skills—all socially interactive activities (house parties, restaurant dinners, movie-theater trips) between individuals and groups of individuals shall be rewarded with +1 point per month.
2. Family-caring skills—providing home care to relatives shall be rewarded with +2 points per month.
3. Political competence skills—all political-literacy skills shall be rewarded with +1 point per action. Voting in local and national elections shall be rewarded with +2 points per vote. Other actions like signing a petition, volunteering for a candidate or a political party, or engaging in meaningful debate on political topics through major social networks

shall be rewarded +1 point (NB. *Exceptions apply. See Section 2b.*)

4. Dietary habits—+1 point per semester shall be awarded to those with adequate dietary habits; points may be deducted for unhealthy dietary behavior (e.g., excessive fast food consumption).

Section 2(b). An Office for Citizens Behavior (OCB) shall be introduced. OCB, in consultation with the Office of the Secretary of State, is hereby authorized to register and assess individual applications for points.

OCB may, consistent with applicable law, apply sanctions to individuals who have been reported by the competent authorities for neglecting their social competences.

THE DIGITAL GAZETTE

2040—When Gamification Backfired

March 3, 2048 Who can forget 2040, the year when gamification backfired?

What began as a long list of botched attempts to instill a sense of fun into policy making by our government ended with the monumental failure of “Swipe your Regulation”—remember that? It was such a disaster when those who had celebrated the virtues of playful policy-making were proven incontrovertibly wrong.

2040 will also be remembered as the year when social division worsened. Citizens separated into two broad social groups.

On the one hand, there were those with preferential access to time and knowledge, who had quickly developed an addiction to gamified nudges. They were deemed the “hyper-civics.” The juicy dopamine provided by gaming transformed them into super-committed and highly skilled players. And, to further complicate things, they managed to monopolize civic participation due to their extraordinary expertise in regulatory issues.

If you are one of our faithful readers, and you have a good memory, you might remember the opinions of Mario Brossi—a contemporary celeb we used to interview.

These new celebrities remained, however, became a minority. The

majority of citizens didn’t have the time to participate or simply lacked the knowledge to do so.

They only engaged occasionally, seldom committing for long periods, and generally showing little interest in being pushed out of their comfort zones. In short: It was a disaster.

Actually, it was a collective disaster. There were so many of these uncommitted individuals that they soon got lumped together under the collective moniker “the masses.”

What about public authorities? Surprising as it may seem, they went back to square one when they started to experiment with games. Policy makers were the newest villains. They were supposed to save us all with gamification; instead, they failed twice.

They aimed to create more participatory and inclusive decision-making; what they achieved was even more unevenly distributed civic engagement. Bureaucratic powers were expected to bridge the gap between them and citizens. Instead, gamified governance alienated them even further from civics.

In short: gamification backfired. The “Beyond Fun” social program, which recently turned 7 years old, seems to be working pretty well. No need to develop your skills at gaming, no more use for garishly

colored, annoying engagement platforms. All you need to do—all WE need to do—is to behave like optimal citizens.

Eat your cereal at breakfast, take your 8 hours-a-night of beauty sleep, work hard, stay with your family, and your score will grow. The sky is the limit for those who commit to being good citizens.

What about the others? The “leftovers,” as the Office of Citizens’ Behavior recently named them, are now obliged to attend reintegration classes. Nobody shall be left behind,

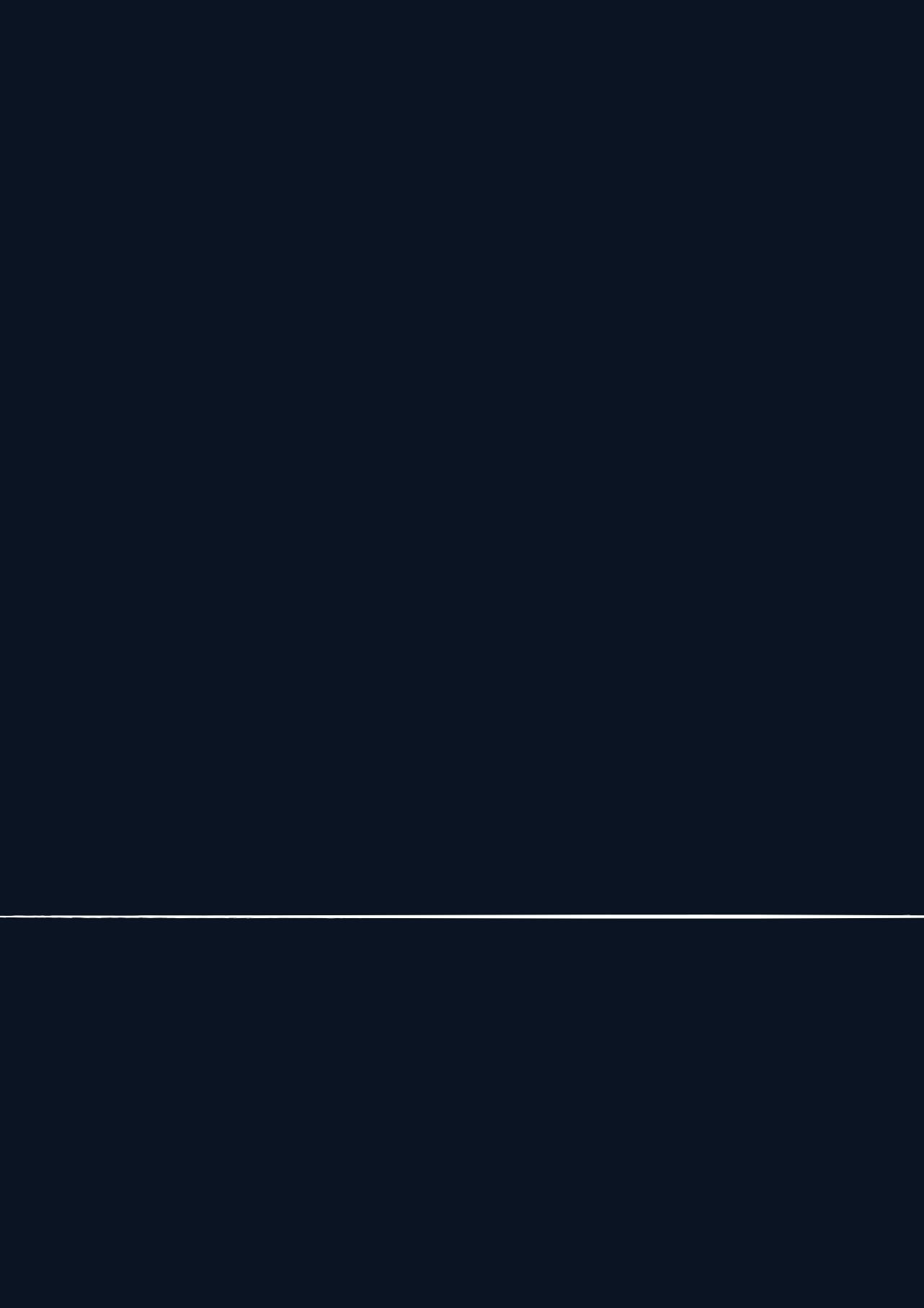
as our president has declared many times. The rehabilitation program was launched by the government to give anyone an extra chance to redeem themselves. After 7 years of the successful application of the governmental program, which eliminates fun from policy-making, the time is right to nudge optimal collective behavior. “Society has never been so inclusive and moderate”—declared our president yesterday, during his weekly speech to the nation.

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What will tomorrow be made of? This very old question may have found a new kind of answer. *Twentyforty – Utopias for a Digital Society* is a collection of thirteen stories written by researchers working in a variety of fields ranging from artificial intelligence to law and geography. It is, first and foremost, an unlikely experiment in science communication: We invited scholars to discover a new interface with the world, namely that of their own imagination.

This was not an obvious endeavor. The authors had to break free from the “peer prison” in which they normally speak and write. They had to take a leap of faith to look beyond the horizon, wrestle with the blank page, and bring back something new. Something born from the same inquisitive mind that had produced their own research but speaking to another kind of peer: you and me.

Twentyforty is an experiment designed to explore new ways of translating scientific insights into storytelling. Only thus can we hope to make their societal implications available to debate and to make their insights available for the construction of tomorrow’s world.