FORESIGHT STUDIO SFIN 6021-001

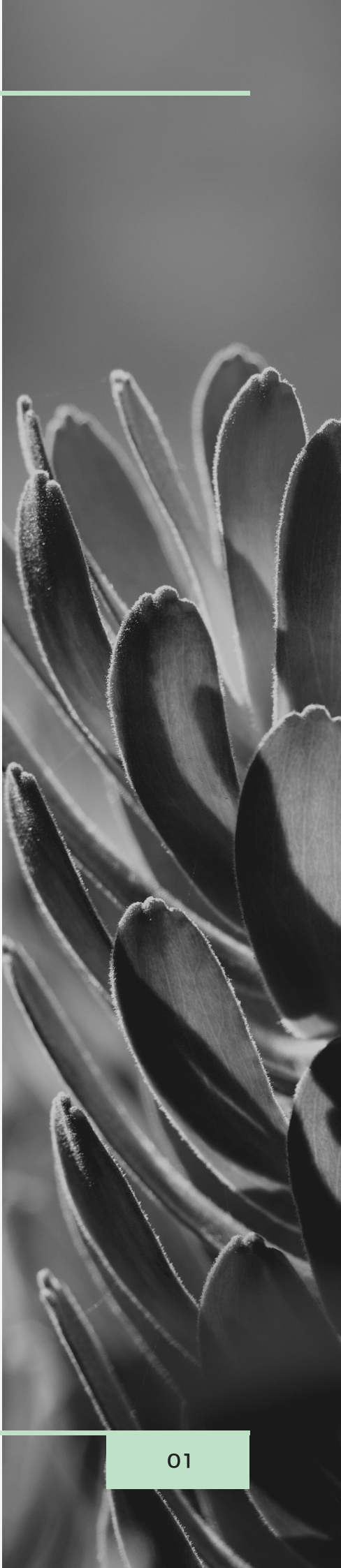
HUMANS & HEALTH: 2040

MARCH 2020

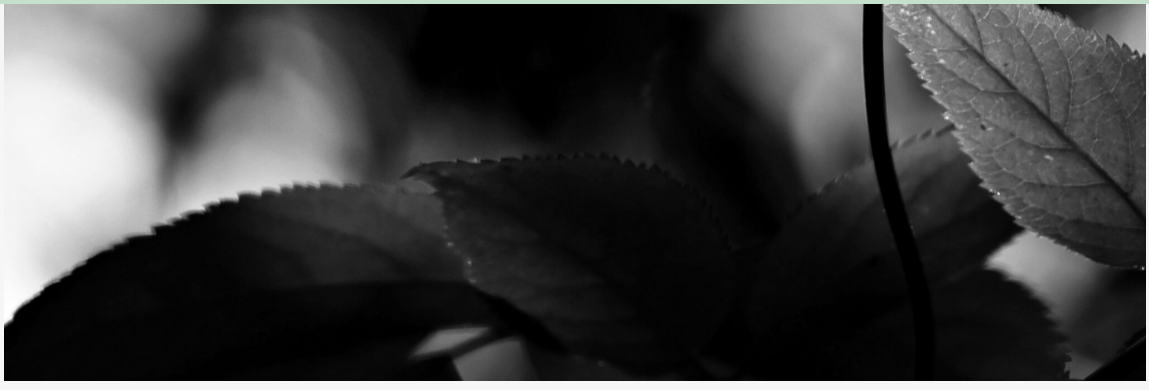
PREPARED AND PRESENTED BY

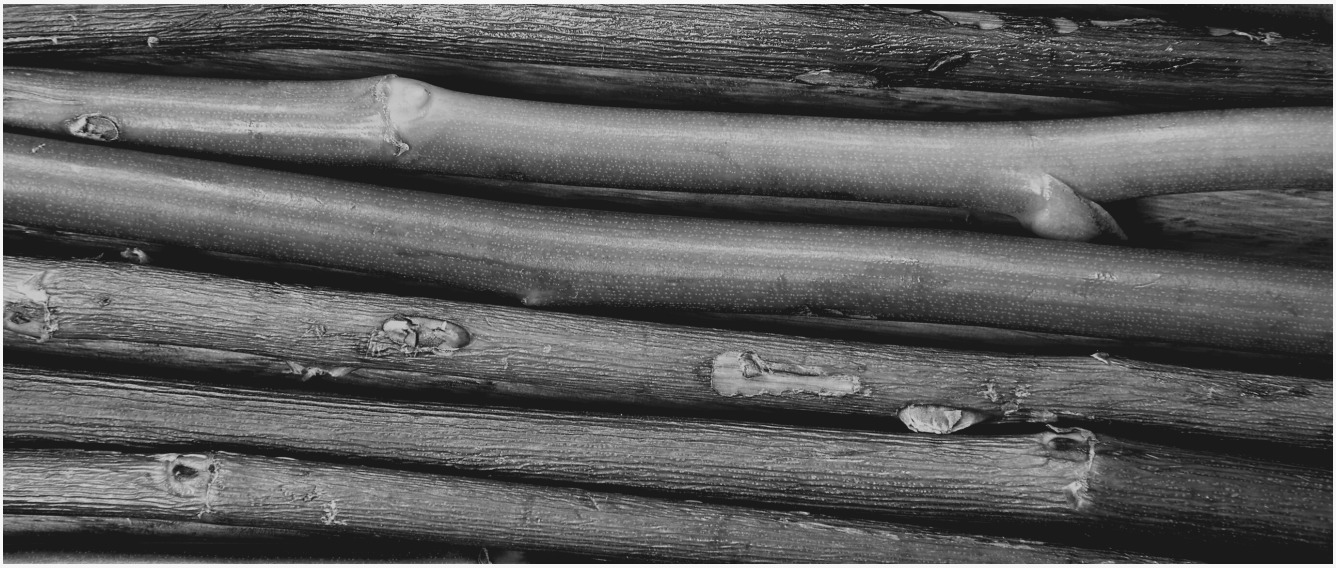
Ali Milad
Gulnar Joshi
Siying Chen
Trevor Bel

TABLE OF CONTENT



INTRODUCTION





THE TEAM:

TREVOR BELL
SIYING CHEN
GULNAR JOSHI
ALI MILAD

We are a group of four Masters students enrolled in OCAD University's Strategic Foresight and Innovation program in Toronto, Canada.

As part of our Strategic Foresight course, for a 12-week period, we researched for telling signals of the future, analyzed relevant trends, and used foresight methodologies such as Causal Layered Analysis and Generic Images of the Future to generate four alternative futures that investigate the interplay between health and nature.

We believe that our truly international representation and multidisciplinary backgrounds spanning fields such as journalism, business, industrial design, and interior design enabled us to challenge existing paradigms and craft divergent future worlds.

THE ISSUE:

Nature has been used as a source of healing for thousands of years. Despite the current availability of synthetic chemicals, up to 50 percent of drugs approved for use in the last 30 years come directly or indirectly from natural products (Veeresham). Moreover, recent studies have shown that exposure to nature is associated with diverse and significant health benefits including increased sleep duration, reduced stress, and reduced risk to diseases such as diabetes and cardiovascular disease.

Therefore, we are operating under the assumption that changes in ecology translate to changes in the underpinnings of human health and wellbeing, and that these changes in ecology could either dismantle our world or transform it for the better.

This report explores alternate versions of human health and wellbeing in the year 2040, placing nature as the primary agent of change. It serves to inform long-term strategic planning on the parts of healthcare policymakers, researchers, and innovators by offering four alternate lenses on how the future might unfold.

PROJECT OVERVIEW

This report provides an insider's look into our thought process and methodology. Although the futures outlayed herein are speculative in nature, they are emergent from a collective research and sensemaking process that is grounded in rationale provided by the works of renowned foresight experts such as Jim Dator and Sohail Inayatullah.

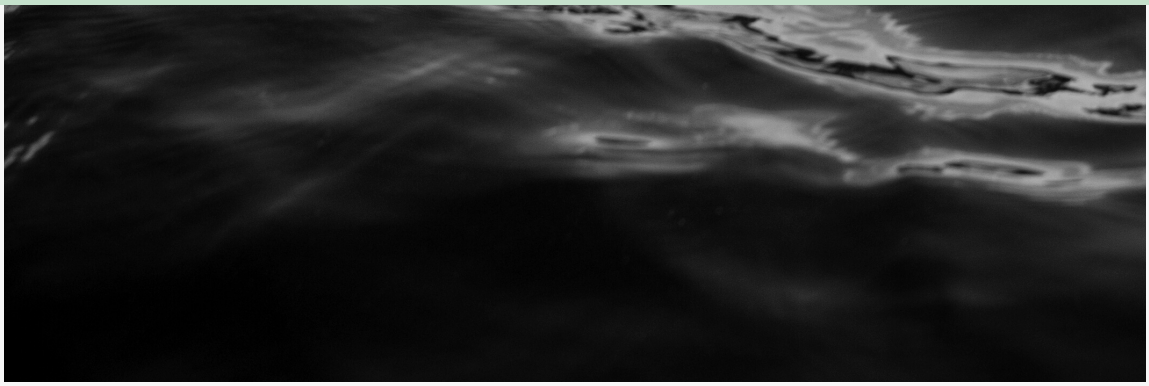
The first part of this report provides a collection of twelve relevant trends born out of our initial horizon scanning process. Our horizon scan followed a STEEPV framework to uncover signals or "pockets of the future in the present" [SOURCE] that point towards changes in society, technology, environment, economics, politics, and values.

The second part of the report provides four future scenarios portraying different trajectories of health and wellbeing in 2040. The twelve trends were used as springboards for ideation, with nature being emphasized as the main driver of change. The foresight tools used to inform world-building are Inayatullah's Causal Layered Analysis (CLA) and Dator's Generic Images of the Future. This section also includes a set of proposed strategic interventions to guide opportunities or mitigate risks presented in each scenario.

The third part of the report is a creative spin on one scenario through the design of an artifact from the future. The artifact is meant to provide a peek into the norms of a possible future by putting on display a medical service that might be offered in such a world.

We would like to note that a significant portion of this project was conducted amidst the COVID-19 lockdown. The realities of our life under lockdown influenced our choice of the experiential scenario and also how we decided to put it together–as an audio/video presentation for remote delivery from 4 locations over Microsoft Teams.

TRENDS



TRENDS

Signals captured during the foresight exercise of Horizon Scan were clustered into Trends and then probed using the ethnographic VERGE framework to deduce implications and extrapolations. Implications point towards impact within the next 5-10 years, while extrapolations speculate how a trend might evolve in the next 20 years.

LIFE AFTER DEATH

WILD HEALS: WELCOME TO THE URBAN FOREST

GENE EDITING AND CLONING

FORESTS AS A SOURCE OF ENERGY

THE WILD WILL HAVE A VOICE

(HUMAN SENSE) 10

VERTICAL FARM TO TABLE

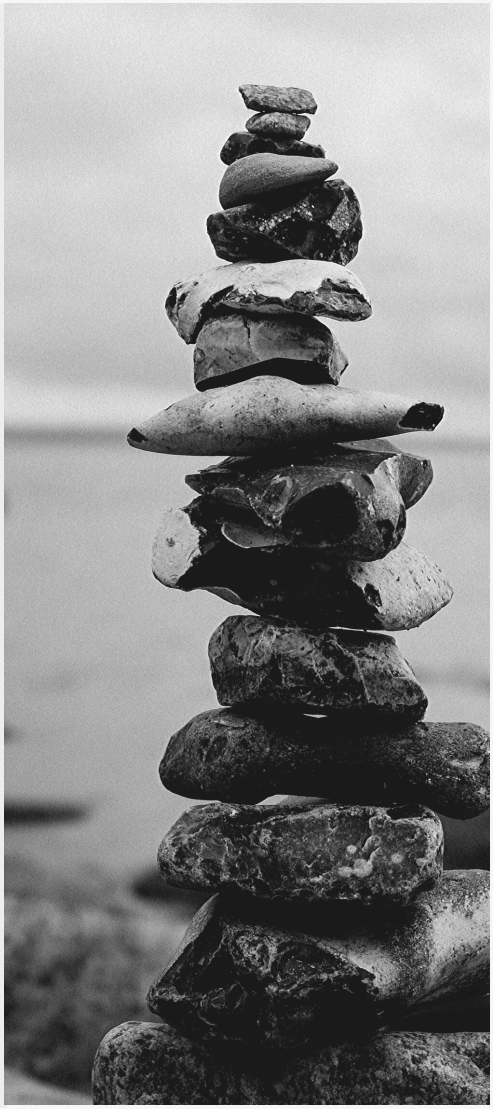
GROWING TOMORROW

REVERSE POLARITIES TOWARDS NATURE

PRIVATIZATION OF THE WILD

NEW URBAN ECOSYSTEMS

THE PLASTIC WAR



LIFE AFTER DEATH

IS COMPOSTING DEAD BODIES THE NEXT FRONTIER IN MAKING DEATH ECO-FRIENDLY?

Death is an absolute truth, subject to lengthy scientific, ethical, and spiritual debate. Once thought of as mere concepts, assisted dying and funerary composting are now moving into practice. Humanity's approach to dying is starting to change. Switzerland's assisted dying clinics have given birth to the term "suicide tourism", and Seattle based start-up Recompose offers an environmentally friendly alternative to conventional burial methods. In India, followers of the Jain religion view death by voluntary starvation (Sallekhana) as a means of transcending the reincarnation cycle, and have successfully campaigned to lift a 2015 governmental ban on the practice.

SIGNALS:

- Finally a place to compost your body when you're done with it.
- Should India's Jains be given the right to die?
- Suicide tourism and understanding the swiss model of the right to die *.
- The troubled 29 year old helped to die by Dutch doctors.
- Who gets a ventilator? The gut wrenching choice facing US health workers.
- After Trump's statements about hydroxychloroquine, lupus and arthritis patients face drug shortage.

IMPLICATIONS:

An alternative approach to death points towards a fundamental change in the thought process in the foundations of human culture. Although dying itself has not changed, by rising to the surface topics like assisted dying and funerary composting may begin to spread and intersect with topics such as overpopulation (and impact on the earth), organ donation, life after death, and resource depletion (driven by mindless consumption). By giving new forms of agency to the end of one's life, death may change—from an event that is largely involuntary, to an event that we act on and proactively bring about.

EXTRAPOLATION:

The overburdening of the healthcare system during the Coronavirus pandemic forced health workers to make triage decisions that favored the young and healthy. With the advent of a new approach to dying, as well as an increasing global population certain societies may start encouraging their sick and elderly to prematurely end their lives. Uproar against such practices will be met with counter arguments that advocate for the greater good. New industries will arise that offer sleek and marketable "dying experiences" or "after-death solutions". Assisted death may become more mainstream. Voluntary euthanasia (VE) and physician-assisted suicide (PAS) have been the focus of great controversy in recent years, but may become more acceptable in the next 20 years.

COUNTER TRENDS:

- RELIGIOUS INSTITUTIONS
- DEEP-ROOTED CULTURAL NORMS

WILD HEALS: WELCOME TO THE URBAN FOREST

IN 2040, WHEN MOST BASIC HUMAN NEEDS ARE MET, HIGHER ORDER NEEDS WILL PREVAIL, PEOPLE WILL TURN TO NATURE FOR WELLBEING

Rapid urbanization and city expansion, combined with a rise in the loneliness epidemic will have a negative impact on mental health. Immersion into green spaces will be seen as a natural way to remedy mental problems brought on by social and environmental changes. Decline in human connection will also put an emphasis on connection with wildlife, and enhanced opportunities for nature-related experiences will become an intrinsic part of schooling. New VR tools may have the ability to connect people to nature in a therapeutic way. Nature sounds and scents will also be harvested in the future to alleviate negative emotions, pain, and anxiety.

SIGNALS:

- A World of Pain.
- Trip to the Doctor: Once taboo, Psychedelics are Making an Enlightening Medical Comeback.
- Superflux shows How Future Homes Might Face Realities of Climate Change in 2219.
- Wild Home.
- Keeping antivirals viable.
- Cities Gone Wild.
- How to Protect Kids from Nature-Deficit Disorder.
- The Most Advanced Bionic Leg on the Planet & the Team Bringing it to Life.
- Scientists are putting antibiotics into the ocean - on purpose. And it's our only hope.
- How Privatization Impacts Public Spaces and Infrastructure.
- A prescription for "nature"- the potential of using virtual nature in therapeutics.
- Ecotherapy Aims to Tap Into Nature to Improve Your Wellbeing.
- Floating cities - fantasy or future.

IMPLICATIONS:

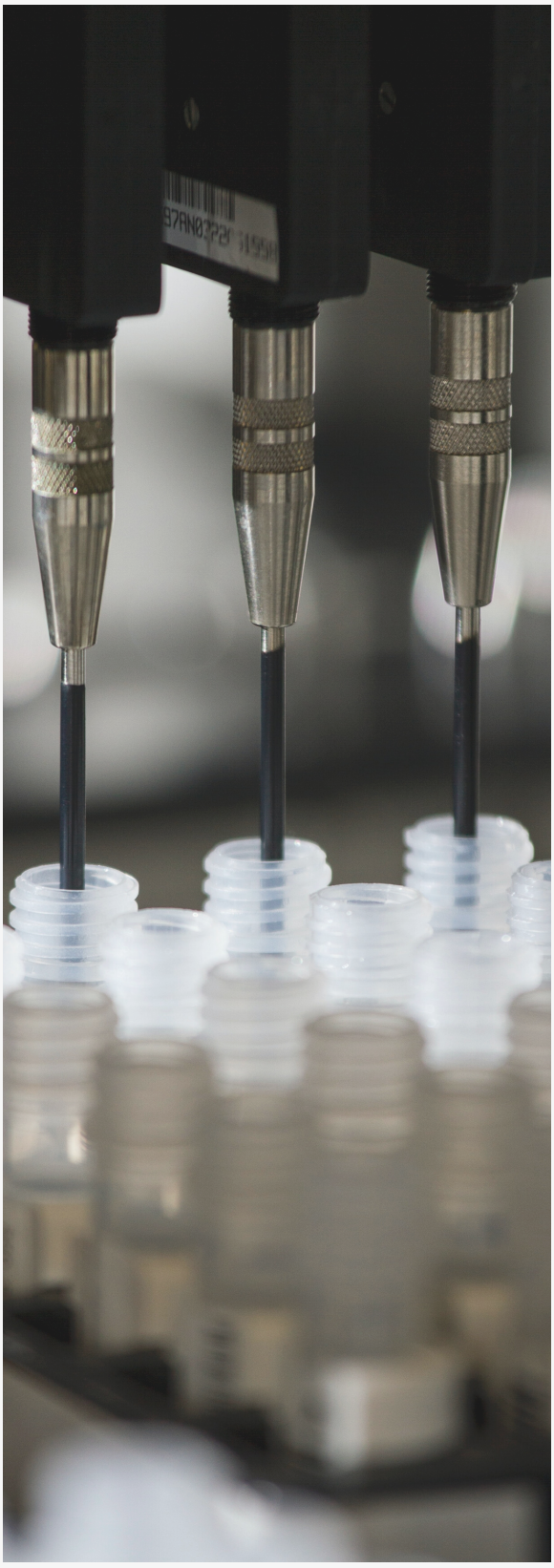
People who participate in ecotherapy treatments have significant improvements in self esteem, wellbeing, social inclusion and mental health. Biodiversity within human structures will increase comfort in less “sterile” environments, and place an increased value on green spaces. There may be some back to tradition movement with people challenging the notion that modernization is always a positive change., to an event that we act on and proactively bring about.

EXTRAPOLATION:

A green sustainable lifestyle is mainstream —Urban forests, vertical forests and forest spas will become essential to urban living. Wildlife is seen as critical to human existence. Capsule wildlife experience will be a viable revenue stream. Nature may also be substituted with virtual environments when access is difficult. City skylines will change perceptibly due to consumer-driven need for greener homes and workspaces.
Overall mental health is improved (Increased overall productivity. Big pharma has less power over healthcare bills, due to decrease in prescription needs.)People are less reliant on prescription drugs, which leads to a decrease in drug traces in sewers, rivers and lakes.
Loneliness epidemic subsides, and people are more able to build meaningful relationships; building an increase in empathy, which could lead to a decrease in civil unrest.Tech will bring new solutions to those wanting to work out of remote green oases within or at the outskirts of the city.
Agriculture and forestry in the cities will answer to a variety of urban development goals beyond the provision of green infrastructure and food, such as social inclusion, adaptation to climate change, poverty alleviation, urban water management, and opportunities for the productive reuse of urban waste

COUNTER TRENDS:

- There is a greater push for micro housing within cities, leading to greater isolation between people.
- “Rewilding” movement encourages people to move away from rural areas, so that regrowth can take place.
- Ocean cities are developed in response to rising ocean levels, and people have even less connection to the wild.



GENE EDITING AND CLONING

A RACE TO THE BOTTOM FOR TECHNOLOGICAL SUPERIORITY

In 2019, thirteen years later after the birth of the first animal clone Dolly the Sheep, Japanese scientists have confirmed the presence of biological activity in transplanted wooly mammoth cells. Once thought of as science fiction, gene editing and cloning technologies are already being used to aid in wildlife conservation.

For instance, Australian scientists are working on editing quoll (marsupials native to Australia and New Guinea) DNA to be resistant to the toxins of the invasive cane toad. In Brazil, scientists are working on using cloning to repopulate endangered species. However, experts warn of ethical consequences and the lack of a universal governing body to regulate such practices. As witnessed in the Chinese He Jianku CRISPR controversy, rogue cases have appeared.

SIGNALS:

- Melbourne scientists are trying to edit quoll DNA to make them cane toad proof
- Chinese scientist who genetically edited babies gets 3 years in prison
- Japanese scientists make breakthrough in cloning a woolly mammoth
- Brazil aims to clone endangered animals
- CRISPR's Creatures: Protecting wildlife in the age of genomic editing

IMPLICATIONS:

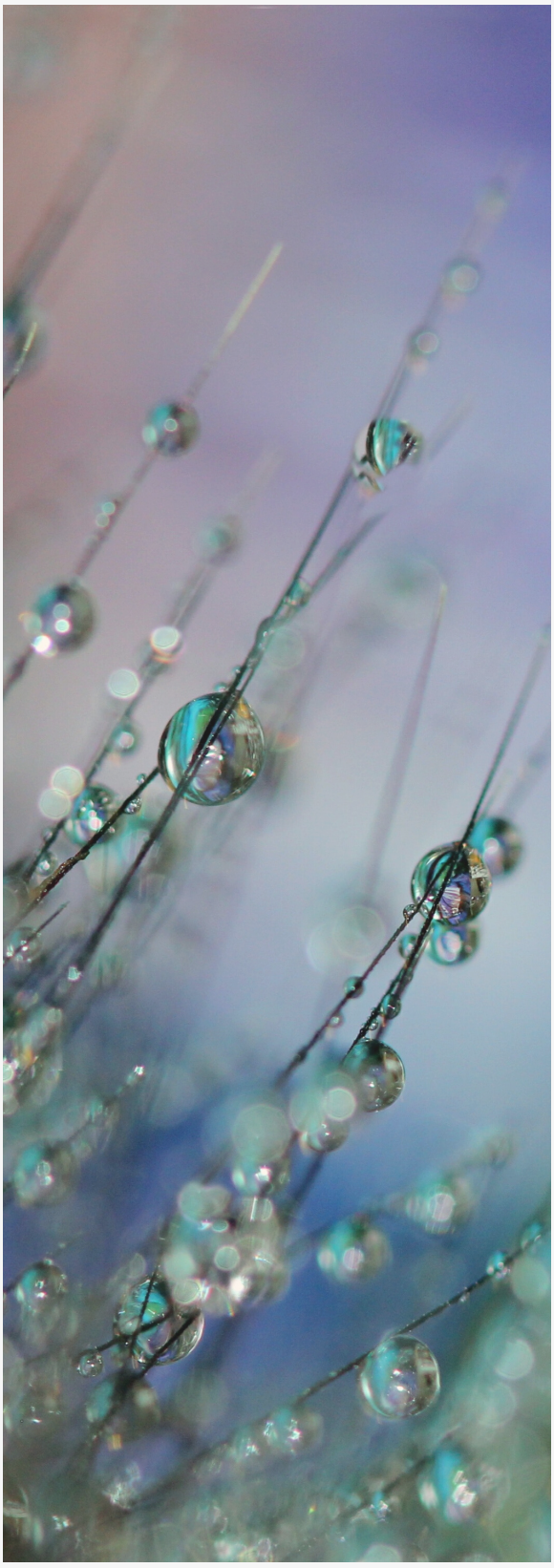
The lack of universal regulation, coupled with the appearance of rogue cases over a spread of countries will clash with political, economic, and environmental agendas to tip the once dormant field of cloning and gene editing into a state of high activity under a “race to the bottom” mentality.

COUNTER TRENDS:

- PUBLIC AFFINITY TO NATURE AND ORGANIC PRODUCTS
- PERSECUTION OF DR. HE JIANKU

EXTRAPOLATION:

Gene editing and cloning will be hailed by interest groups as a “silver bullet” solution to wildlife degradation, overshadowing conservatory approaches. Due to an increase in supply, commercial hunting will flourish, the poaching black market will be decimated (reallocating into other illegal activities such as human trafficking). Consumer overconsumption will remain unchanged. Animal populations will be viewed as a manageable stock, and a new academic discipline will emerge to learn how to manage them effectively.
This will lead to a world where “Wildlife Controller” is a sought after, high-paying occupation, and where the stock of animals is managed (and meddled with) much like the way a central bank prints currency. At first, the role of “Wildlife Controllers” will be to balance and repair existing ecosystems, but their role will then shift to managing completely new ecosystems born out of the emergence of their actions.



FORESTS AS A SOURCE OF ENERGY

GLOBAL ENERGY DEMAND WILL RISE BY ABOUT 25 PERCENT FROM 2014 TO 2040. WILL FORESTS BE THE NEXT POWER PLANTS?

Plants naturally deposit biomatter as they grow, which in turn feeds the natural bacteria present in the soil, creating energy that can be harnessed by fuel cells. This energy can be used to power a wide range of vital conservation tools remotely, including sensors, monitoring platforms and camera traps.

SIGNALS:

- World's first plant-based IoT sensor transmits into space
- Engineers create plants that glow
- Digital information storage on DNA in living organisms
- These Plant-Powered Lamps Light Up A Peruvian Rainforest Village

IMPLICATIONS:

Most power sources have limits – batteries must be replaced while solar panels rely on a source of sunlight – but plants can survive in the shade, naturally moving into position to maximise the potential of absorbing sunlight – meaning the potential for plant-powered energy is pretty much limitless.
Also illumination from nanobionic plants might one day replace some electrical lighting.

EXTRAPOLATION:

Plant nanobionics is attempting to engineer plants to take over many of the functions now performed by electrical devices. If that works it is possible that streetlamps of the future are in fact, nanobionic treated trees and indoor plants provide indirect lighting around homes. New technology will create plants that shut off their light emission in response to environmental conditions such as sunlight. Plants are also being seen as a source of power. If this happens it will enable major progress in conservation efforts. Measurements of temperature, humidity and plant growth are important in furthering our understanding of climate change, habitat loss and other threats, and this kind of technology could be used in remote and inhospitable locations that are hard to reach for humans, who usually need to change batteries. (4)

COUNTER TRENDS:

THE TECHNOLOGY IS NASCENT, AND THE MOTIVATION IS MAINLY AESTHETICS, NOT SUSTAINABILITY

THE WILD WILL HAVE A VOICE

POLITICAL AND GEOLOGICAL CHANGES WILL BRING ABOUT CHANGES TO THE WILD, AND HOW WE WILL INTERACT WITH IT. GIVING VOICE TO THE WILD COULD FORCE HUMANS TO RAPIDLY CHANGE CONSUMPTION OF NATURAL RESOURCES

We could see a shift in human interaction with the wild towards something that resembles countries sharing borders. As we learn more about how our actions affect environments and animal populations, we may create regulations that distance us from the wild for the sake of preservation. Giving voice to the wild, in the form of an AI political representative, could give guidance for the best practices as we begin to make these changes.

SIGNALS:

- Kashmir's internet has been shut down for 5 months
- A bold Idea to Replace Politicians
- Make Environmental Damage a War Crime, Say Scientists
- Floating cities - fantasy or the future

IMPLICATIONS:

If we begin to inhabit the oceans, our relations on ocean borders will change.As the Government of Northwest Territories becomes a more self-governing body, the focus will change more towards the communities of the First Nation's specific needs.With an implementation of AI in a direct democracy, there could be a move to give voice to the land, rivers, and animal population.

EXTRAPOLATION:

There would have to be a greater knowledge of marine life migratory patterns, as food sources in the oceans would constantly be crossing borders. Guidelines would be created between countries on how much of a fish population can be taken per country/location, and during what seasons.
If Nature has its own political voices, what does that mean for borders within borders? Will we need environmental ethics certification passports to enter Wild spaces?
Would giving Nature a political voice mean that opposing ecosystems and species would be at war with one another?
Would humans be responsible for taking political action against animals and ecosystems for their political crimes (Ex: cats are arrested for the murder of a local bird)

COUNTER TRENDS:

STUDIES COULD SHOW THAT LIVING IN OCEAN CITIES IS NOT GOOD FOR PEOPLE'S MENTAL HEALTH, AND THAT MIGHT DETER US FROM POPULATING THOSE SPACES.

(HUMAN SENSES)X10

AS WE BEGIN TO UNLOCK THE SECRETS OF OUR BRAIN, WE CAN START TO UNDERSTAND HOW TO INTEGRATE OURSELVES INTO THE TECHNOLOGIES, ARCHITECTURAL FRAMEWORKS, AND BIOLOGICAL SYSTEMS WE DESIGN, TO MAKE BETTER DECISIONS.

We are rapidly approaching the next phase in human evolution. As the neural connection to the technologies we use becomes less latent, and the capabilities continue to expand, our understanding of the world around us will change drastically. Additions and improvements to our existing senses will open up new pathways for innovation, while helping us understand how everything we do affects the world around us. Along with new abilities to feel through the machines and technologies we use and build, we will also develop a greater empathy for the world we live in.

SIGNALS:

- The Incredible Inventions of Intuitive AI
- Can We Create New Senses for Humans?
- The Government is Serious About Creating Mind-Controlled Weapons
- CRISPR's Creatures: Protecting Wildlife in the Age of Genomic Editing
- NASA Wants to grow a Moon Base Out of Mushrooms
- Machine Learning Takes the Guesswork Out of Design Optimization

IMPLICATIONS:

Implementation of machine learning does not require previous experience, or expertise for proficient use, allowing users to adapt quickly. Architecture can be grown remotely, with sensory control and intuitive AI guiding its growth.With brain-computer interfaces, people will be able to work faster with machines and the internet of things.Intuitive AI will help people to work together with machines. Instead of replacing people in the workplace, it may be more efficient to work together.Feeling how systems, like a plane and the information on its gages, will make it easier for pilots to make fast responses to situations.

COUNTER TRENDS:

EXTREMIST RELIGIOUS GROUPS ARE AGAINST TRANSHUMANISM, AND THE NEGATIVE TREATMENT FROM SUCH GROUPS TOWARDS PEOPLE LOOKING TO INTEGRATE TECHNOLOGY INTO THEIR BODIES MAY BE A DETERRENCE, AND COULD BE THE CAUSE OF HATE AND DISCRIMINATION.

EXTRAPOLATION:

- People will be able to create neural links to control new machines, technologies, and interfaces like an extension of themselves in a matter of minutes.
- Architects, city planners, and developers will be able to feel how their designs will affect the environment they are building through simulation. This will include understanding how to safely terraform planets, and meteors for a less obtrusive colonization.
- Early education models will start incorporating more sensory methods of learning course material. Because students will be learning faster, classes can be more rigorous, and children will reach what is now understood to be college levels of competency in a fraction of the time.
- The integration of bionics with neural haptic feedback will create ability for humans, animals, and potentially plants, where disability is seen.

VERTICAL FARM TO TABLE

THE FUTURE OF FOOD WILL SHAPE FUTURE CITIES (AND SAVE THE WORLD)

Insect populations, which collectively outweigh humans by 17 times in terms of mass, have been declining at a rate of 2.5% over the last 30 years. Scientists warn that these plummeting insect populations could lead to catastrophic chain reactions as natural feeding orders are destabilized. This decline is attributed to the intensification of agricultural activities such as forest clearing and pesticide use. However, the rise of lab grown food, vertical farming, and Millennial spending power positions the agricultural industry for disruption, for instance, the American dairy industry declined in sales by 1 billion dollars in 2018.

SIGNALS:

- Plummeting insect numbers threaten collapse of nature.
- Lab grown food will destroy farming and save the planet.
- This company wants to build a vertical farm next to every major city.
- America's obsession with oat milk is hurting the dairy industry.
- 73% of millennials are willing to spend more money on sustainable products.
- Food-as-Software technologies, scientists can upload food at a molecular level to databases around the world.
- Some companies have begun replacing human labour with robotics within vertical farm models.
- The world largest vertical farm with “high-density vertical growing system,” which Urban Produce patented, which can save 95% water and 80% fertilizer.
- An aquaponics farm, Deep Water Farm, was founded in Calgary in 2017. It will produce more than 2 tons of leafy greens each week, as well as 500 pounds of fish.
- Philips GrowWise Reveals Research Results on Indoor Vertical Farming. LED light technology can affect and control the nutrition benefit of vegetables and plants.
- A new system of growing produce is sunless, soilless, and highly productive: the Newark facility could eventually produce two million pounds of greens in a year.

IMPLICATIONS:

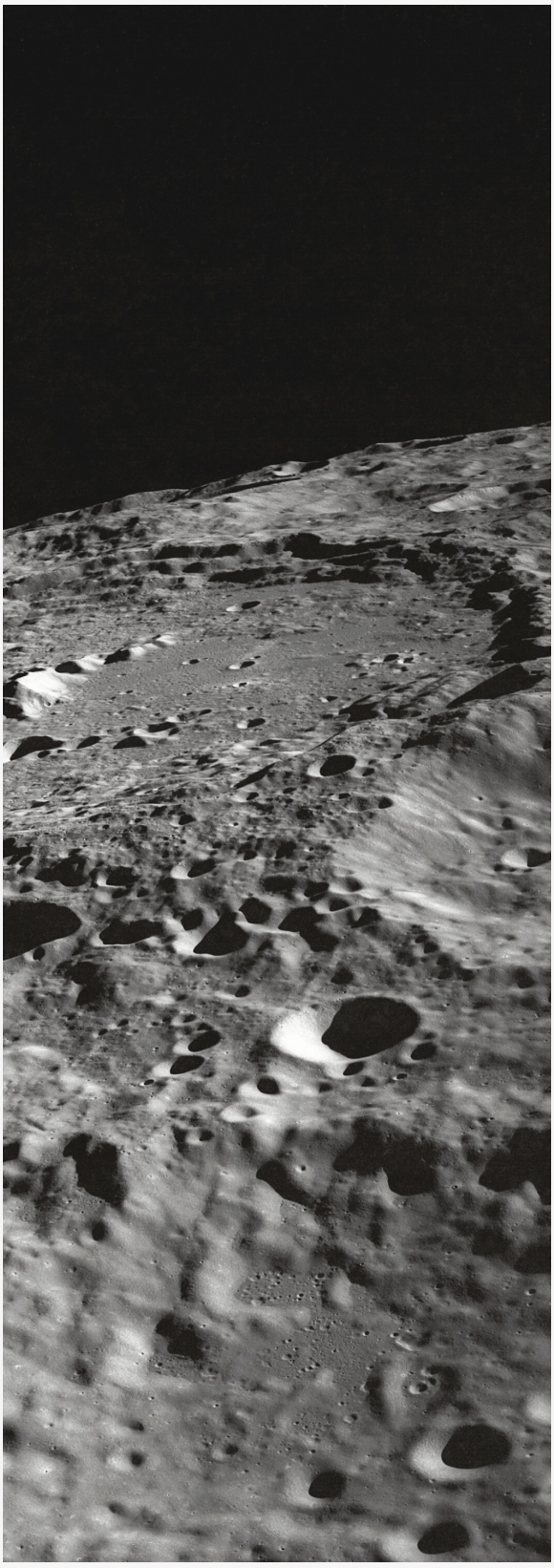
IVertical farming and lab-grown foods are set to undo negative consequences of commercial farming by paving the way for rewilding, reducing emissions, and reducing pesticide pollution. These advancements will bring food production closer to the end consumer, and therefore supply chain systems will have to be reconfigured. Furthermore, a shift towards vertical farming and lab grown foods could put farming economies of South America in peril.Vertical farms are heavily reliant on technology and energy. They will become a leverage point to highly impact the quality and quality of food production. Usage of energy to get the farms running might impact the environment negatively.

COUNTER TRENDS:

- Commercial farming lobby groups
- Agriculture dependent governments
- Corporate power - Bayer/Monsanto
- Increasing rate of unemployment

EXTRAPOLATION:

Vertical farming start ups such as Plenty aim to put a vertical farm next to every major city in the world. Changes in city planning, architecture, and zoning laws will reposition cities around these farms. As farms integrate into cities, food production will be tailored to city demand and human connections with food will be strengthened–leading to a reduction in food waste. Furthermore, this will refocus the food supply chain from long-haul to last-mile, leading to the re-emergence of the “milk man” in the form of the “plant man” (or drone). The combination of these factors will reduce carbon emissions and ecological strain, curbing environmentally-related insect and animal die-offs. However, agriculture exporting countries such as Argentina, Brazil, and Uruguay will face economic collapse, leading to unrest, violence, and immigration.



GROWING TOMORROW

OUR UNDERSTANDING OF BIOLOGICAL SYSTEMS, BIOMATERIALS, AND HOW THEY INTERWEAVE WITH TECHNOLOGICAL AND SOCIETAL CHANGES, WILL SHAPE OUR FUTURE, AND GIVE IT A NEW DNA

Breakthroughs in machine learning, biomaterials, and ecosystems are beginning to merge together in ways that show glimpses of what the future will look like as we continue to expand our living spaces to accommodate the growing population. Whether that means changing the way we continue to grow our urban sprawl, strategically planning the integration of Earth's organisms onto planets we want to terraform, the laws of nature will be followed more carefully than they have been in the past.

SIGNALS:

- The incredible Inventions of Intuitive AI
- How the Animals of Chernobyl Thrive in the Radioactive Red Forest
- NASA Wants to grow a Moon Base Out of Mushrooms
- The future of indoor agriculture is vertical farms run by robots
- Engineers create Plants That Glow
- Machine Learning Takes the Guesswork Out of Design Optimization

IMPLICATIONS:

The terraforming of the moon and Mars calls for regulations to protect the balance of outer space environments, since the introduction of an Earth organism might disrupt the ecosystem. It also increases the potential of investments in research and technology de- velopments in biochemistry and biotechnology.
Computer generated design can create complex solutions beyond the reach of people's imaginations, much faster. By studying the structures of biomaterials, intuitive AI can design complex structures with these materials that involve great complexities.
Because vertical farming systems are conducted indoors, with high production density and low footprint requirements, they can be set up in locations that would be unsuitable for conventional farms -- most anywhere, really. This reduces the amount of shipping and handling produce must undergo, resulting in fresher and healthier fruits and vegetables.Plants that glow could be a lower light alternative for bright lights, which consume 20% of the energy we use.
The repopulation of Chernobyl's Red Forest poses the question that humans may be more of a threat to wildlife than the toxic radiation.

EXTRAPOLATION:

Researching the changes that will come about from introducing Earth organisms to other planets will help us gain a better understanding about how we impact earth by tampering with nature's systems.
Intuitively designed structures made from biomaterial could have the ability to adapt to changes. Houses could shrink or grow to accommodate the size of the family.
Coastal cities would have better adaptability to possible flooding.
Integrating vertical farming into apartment complexes and high-rises will reduce the carbon footprint of food transportation.
Farmers will not lose their jobs but will transition into traveling farm technicians.The technology used in glowing plants will be incorporated into biomaterials. Interior lighting, wayfinding, and street/sidewalk signage and lighting will all be powered by the living biomaterials used to build the cities of the future.Mutations from the animals living in the Red Forest could spread.

COUNTER TRENDS:

EARTH-ONLY TERRAFORMS PLANTS THAT WILL NOT BE ABLE TO ADAPT WELL OUT OF THE EARTH ECOSYSTEM AND WILL CAUSE CATASTROPHIC CHANGES TO THE ECOSYSTEMS ON THOSE PLANETS OR ASTEROIDS.

REVERSED POLARITIES TOWARDS NATURE

WESTERN REVIVAL AND NON-WESTERN ABANDONMENT

Economic development of countries in East Asia and Africa is catalysing urbanization, lowering death rates, and lifting millions out of poverty. However, this growth has come at a cost—Revenue generating land reclamation and infrastructure projects are being pushed at the detriment of ecological systems, resulting in peak levels of reported biodiversity loss. Meanwhile, the EU just unveiled its most comprehensive plan at combating climate change—The "European Green Deal". With the overarching objective of achieving climate neutrality in Europe by 2050, the plan is being touted as Europe's "man on the moon moment".

SIGNALS:

- Cities from the sea: the true cost of reclaimed land
- Asia's environment is at a tipping point
- How Kenya's push for development is threatening its prized wild lands
- EU commission unveils European Green Deal
- Reforesting the UK: Trees are the ultimate long-term project

IMPLICATIONS:

Facilitated by democratic political systems that allow for bottom-up decision making, along with a wealth in the abundance of research institutions, sustainable and environmentally conscious behaviors will thrive in developed Western countries. On the other side of the world, ecologically destructive economic growth will not only prove valuable to kleptocratic regimes that aim to enrich themselves, but will also be demanded by citizens hoping for better living conditions—thereby allowing for unsustainable production and consumption to take precedent.

EXTRAPOLATION:

On one hand, ecological degradation will be curbed in the West due to sustainable practices such as vertical farming. On the other, it will become rampant in non-Western countries leading to the destruction of wild ecosystems. Furthermore, environmentally preservative, and holistic practices that originate from non-Western countries will be integrated into Western culture, and their origins may even be forgotten. This will create a world where the West takes over as the de facto cultural leader and champion of sustainable practices, and the non-West loses its deeply rooted connection with nature.

COUNTER TRENDS:

- RISE OF FAR-RIGHT POLITICS IN THE WEST
- CONSERVATION & REWILDING IN AFRICA & ASIA

PRIVATIZATION OF THE WILD

WILDLIFE IN THE CROSSHAIRS OF PROFITEERING

From forests to coral reefs, human activities such as commercial fishing, agriculture and mining have destroyed ecosystems–even halving wildlife populations in some cases. Not only is this bad for wildlife, but for humans as well; for instance, a booming luxury camping ("glamping") industry, and the trending notion of "eco-therapy" demonstrate a human need and demand for the outdoors. However, as more legislation makes way for the privatization of wild land, this may turn into a classic case of supply and demand that can be exploited for profit.".

SIGNALS:

- Earth's most diverse ecosystems face a perfect storm
- The Privatization of BC's Wildlife
- Glamping market size worth $4.5 billion by 2025
- Privatizing Wildlife: Dangerous trend or economic necessity
- Ecotherapy aims to tap into nature to improve your wellbeing
- Drugs from Bugs: Bioprospecting insects to fight superbugs

IMPLICATIONS:

Although privatization of land is primarily used to regulate commercial hunting, the increasing therapeutic and leisure-related demand for the outdoors will facilitate a shift of wildlife from a public to a private good. As supply decreases inversely to perceived value (and in turn, demand) wildlife and nature will be viewed as a means for economic gain.

EXTRAPOLATION:

A new market will emerge of parks and resorts that will work in developing their own unique proposition. As the market grows, investors and new players will be enticed to enter, resulting in the emergence of branding, price tiers and market segments. Citizens will be forced to pay for outdoor experiences taken for granted today, and lower-income citizens will be barred from certain experiences due to their spending power. This will create a world where wildlife and nature are industrialized, sterilized, and even manufactured to specifications.

COUNTER TRENDS:

- INDIGENOUS RIGHTS AND RECONCILIATION
- WILDLIFE ACTIVISM

NEW URBAN ECOSYSTEMS

CITIES INTEGRATE FORESTS BECAUSE OF ENVIRONMENT AND HUMAN NEEDS

Urbanization is increasing the pressure on the environment with it's high carbon footprint and pollution. Advances in technology will enable us to build a city with lots of vegetation to define a new urban ecosystem. This will reduce the carbon emission in the city, regulate the heat, produce more oxygen to clean air of pollutants, and help mitigate climate change. Also, it will enhance people's physical and mental health and impact the well-being of the society .

SIGNALS:

- World first floating city concept. The city can produce their own food and energy and manage water and water disposal.
- New way of compost the body into nature will reduce the carbon footprint and land-use. Also influence the idea of life and death within the natural ecosystem.
- Public installation and sculptures embrace urban culture to nature to evoke social awareness of nature.
- Scientists and designers designed new construction material with moss.
- Announce a new policy and regulations on green cities to reduce the carbon footprint, ie. the Green Roof Policy in BC and Toronto.

IMPLICATIONS:

- Ecotherapy can help reduce general mortality, improve mental health, increase physical and emotional well-being.
- Nature enhances education quality and builds connection between children and nature.
- Incorporate plants and living environment together interior and exterior. Build a strong connection between human and nature.

EXTRAPOLATION:

Environmental conditions will improve, and the city population will see a significant growth. City plans will evolve. Quality of life will improve, crime rate will decrease. More wild animals will come into the city and live with people. New Urban-forest ecosystem will evolve. Wild animals might bring new diseases into the cities with high population density.

COUNTER TRENDS:

INDUSTRIALIZATION
DIGITALIZATION

THE PLASTIC WAR

HUMANS SPENT MUCH IN INVENTING PLASTIC, MORE TIME NEEDS TO BE SPENT TO RID THE EARTH OF IT

Plastic is made from chemicals sourced from fossil fuels. Plastic pollution is extremely harmful to the global environment and human health. It directly undermines efforts by cities, countries, and the global community to combat the growing air and water pollution. How to deal with plastic pollution is still a long-term mission for our planet.

SIGNALS:

- China passed the "National Sword" policy banning plastic waste from being imported.
- England will ban the plastic straws and cotton buds in April 2020.
- The Queen of England bans the plastic straws and bottles from the Royal estates.
- Microplastic found in human stools, which come from the water we drink, the food we eat and the tool we use. Microplastic was found in the ocean and flying insects.
- The society has become more environmentally conscious. Designers start designing eco-friendly systems and products to reduce single use plastic. Reusable Packaging Startup Loop Makes Headway On Store Shelves.
- Toronto launched the Blue Bin program to increase plastic recycling and to reduce plastic waste.

IMPLICATIONS:

Most plastic waste ends up in landfills. These chemical materials will highly damage the quality of the soil. Plastic waste also pollutes the atmosphere. In England, more than half-a-million tons of plastics and other household garbage were burned last year. Plastic waste has heavily polluted the sea already. It has interrupted the ocean ecosystem and harmed marine life. Microplastic is everywhere now, which has becomes a big threat for all living species and the whole environment

EXTRAPOLATION:

With new policies and regulation to ban plastic products, the new clean-power development might cause a minor economic shift in the world. The world might move from fossil fuel resources to natural resources as a result.

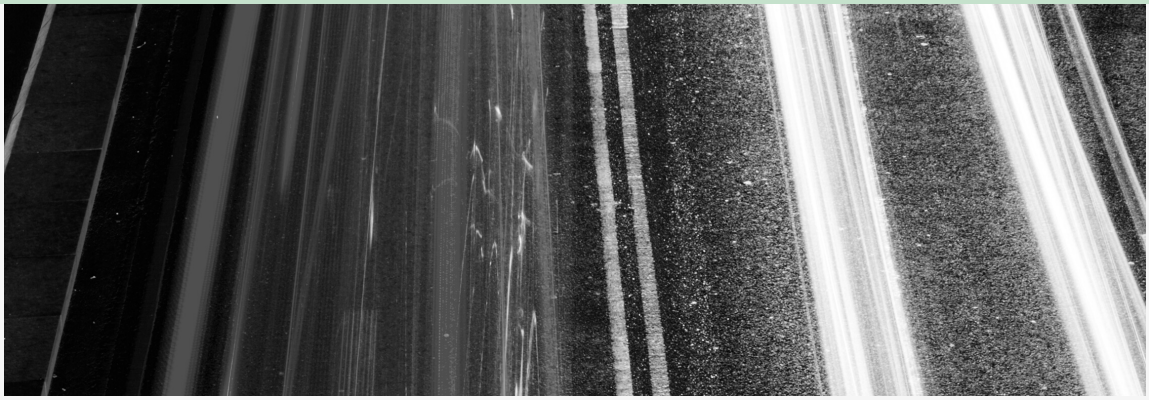
Due to development of technologies, like chemical recycling, blockchain, etc newer methods and strategies to tackle the plastic issue will emerge.

With the increase of awareness of environmental impact, the plastic crisis will reduce in time.

COUNTER TRENDS:

- RENEWABLE
- ENERGYTECHNOLOGY BOOM
- BLOCKCHAIN

FUTURE SCENARIOS



OVERVIEW

PROCESS & METHODOLOGY:

Scenarios were constructed using a combination of Sohail Inayatullah's Causal Layered Analysis (CLA) and Jim Dator's Generic Images of the Future.

Current State CLA

Generic Imagies

Alternate State CLA

Back-Cast

Scenario Writing

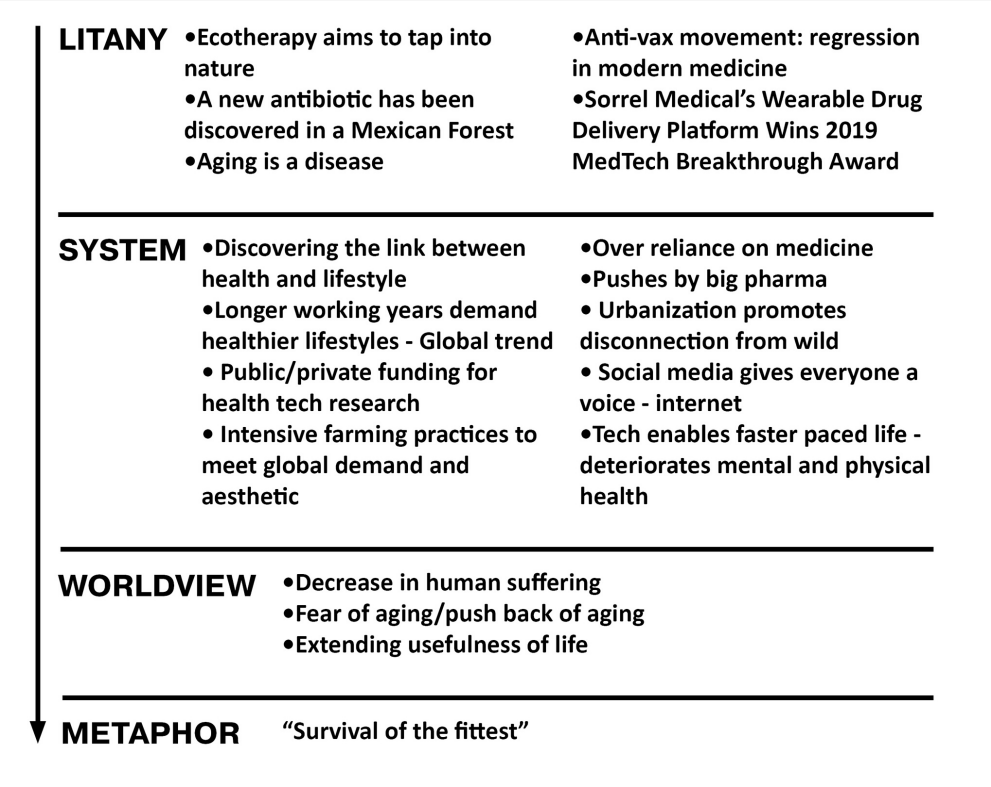
CURRENT STATE CLA

The first phase of the process entailed the use of CLA (Causal Layers Analyze) to assess the existing worldscape by analyzing four layers of causality that emerge from a core metaphor. The focus on the metaphor within CLA serves to provide a deeper and more anthropological explanation as to why things are the way they are.

THE FOUR LAYERS OF CAUSAL LAYERS ANALYZE

1. **Litany**: News headlines, opinions, observations, events
2. **Systems**: Social or systemic causes, policies, technical explanations
3. **Worldview**: Paradigms, values, mental models
4. **Metaphor**: Myths and archetypes

By using the signals and trends identified in our horizon scan to work down from the litany level, we were able to identify a metaphor which we believe best described the current state of human health and wellbeing. The chosen metaphor was "Survival of the fittest"; we believe that it exemplifies the push for productivity and the desire to be better, faster, and stronger.



GENERIC IMAGES

Dator's Generic Images of Growth, Limit/Discipline, Collapse, and Transform were then used to provide scaffolding for four alternate futures and their corresponding metaphors.

GENERIC IMAGES OF THE FUTURE:

- **Growth:** Business as usual status-quo growth
- **Collapse:** Breakdown and degradation of the system
- **Limits & Discipline:** Adapting to limits, preventing collapse
- **Transform:** New technologies, business, or social factors change the game

CLA was then reintroduced to build the newly created metaphors up to the level of litany, thereby adding richness to context. Finally, a backcasting exercise was performed as a plausibility sense check.

GROWTH: DRIVEN BY PRODUCTIVITY

- Anti-aging medications are commonly used
- Machines in workplace take over hard labor jobs allowing for greater productivity
- Age of retirement rises
- Youth unemployment rises, so students stay in school longer
- High demand on energy grid from increase in electric transportation, and growth of data farms
- Greater collective shift to renewable energy to keep up with energy demand
- Research on biomaterials in reaction to governments putting bans on single plastic use

COLLAPSE: CHAOS REIGNS

- No access to natural resources
- High frequency extreme weather and natural disasters have destroyed human and wildlife habitats
- Wars around the world, countries are focused on weaponization
- Poor public healthcare and hygiene conditions, communicable diseases spread.
- Family structures breakdown, government raises children in camps, enhanced focus on physical endurance
- Due to population decline and increasing birth rates, government policies/technologies focus on boosting fertility, fetal, and neonatal health

LIMIT & DISCIPLINE: PREVENTATIVE MINIMALISM

- Collective guilt pervades after close encounters with disaster, humans blame themselves.
- Millennials & Gen Z in power–lifestyles shift to minimalism, frugality, and austerity.
- Overconsumption and overmedication prohibited, food and medication are rationed.
- Natural based lifestyle and exercise is prescribed by doctors, focus is on prevention.
- Antibiotic resistance is a mainstream threat
- Gene editing protects the newly born, the living must endure a life of caution

TRANSFORM: HEALTHCARE TRANSFORMED BY TECHNOLOGY

- There is abundance of resources, energy is green
- Nationalistic boundaries have blurred, cultural identities have deepened
- Technology is omniscient, always on and pervasive
- Work from home and study from home is a norm
- Ageing, lifestyle diseases like diabetes and high blood pressure are history
- Most Food is lab grown, animal testing is a crime
- Nature is harvest for medicines, bioprospecting is popular

DRIVEN BY PRODUCTIVITY

GROWTH

DRIVEN BY PRODUCTIVITY

In 2040 cultural shifts in work, health, and social habits have reinforced themselves in line with the rise of productivity, general health, and the drive to stay relevant in terms of social value.

Immigration's Effect on Culture
With the continuation of immigration across major countries, we saw changes in cultural dynamics. Immigration has also brought about the new generations of global citizens, either by couples' immigration and having children in other countries, or multicultural couples signing dual citizenship for their children. Cultural barriers are broken down by these young generations as they grow up with the influences of diverse families, and by living in close proximity to other cultural hubs. There is now a mixture of loss of cultural identity, recombination of culture, and even strengthened identity of culture within these young generations.

Environmental Research Improves Health
There is a growing respect for nature, born from research done in the fields of health and wellness. A majority of major corporations and industries are aligning with the UN's SDGs. The ecotherapy movement of the 20's was popularized by many celebrity doctors, and now green spaces are commonly found in homes and workplaces. Environmentalists, biologists, and environmental health specialists have made contributions to the medical field with their research findings, creating new antibiotics, natural alternatives to medications, and advancements in anti-aging treatments. The improvement in people's general health from these findings has reduced the prevalence of lifestyle diseases and created a society that encourages lasting productivity. Dietician's research on gut biomes have disproven many fad diets, with discovery findings showing that one diet cannot meet all of an individual's needs. Research is being done to figure out how to identify ideal diets on an individual basis.

Effects of Global Warming
As polar ice caps melt, diseases are released into the oceans and infect marine life. Micro-organisms are greatly affected by this, and there is a drop in biodiversity. Diseases found in fish are spread to the birds and mammals that eat them. There is a growing concern of eating seafood from polar regions.

Material Research in Biology
Material sciences studying structures found in nature, such as the webs of silkworms and spiders, and mycelium have made great changes in many fields. The increase in government bans on single plastic use has caused packaging and product industries to shift towards the use of reusable, or short-life biodegradable materials. This has decreased the growth of landfills, though they still pose a great problem to the land, oceans, and health of the species that populate them.

Energy Demands
Clean energy is in high demand. The SDGs initial push for green energy has increased the number of industries using and investing in renewable energy. The transportation industries' increased output of electric vehicles required more energy on the grid and called for less petrol and diesel. Another requirement for energy is AI data farms. These data farms house the AI used in the medical, manufacturing, and transportation fields. The success of robotics and AI powered machine learning in the manufacturing field is a strong indicator that it will be used more in the medical field, as AI approaches the singularity and gets better at making judgment calls, and technological ability increases.

Education Evolves
Early education has been moving towards the wild. For several decades, kindergartens have been expressing the importance of exposing children to nature; promoting the importance of understanding and respecting nature, while creating strong immune systems through exposure. Elementary schools, high schools, and secondary schools have also started adopting this trend by implementing the same green spaces used in homes and workspaces.

Government funding allocations, and education cuts brought about the bottom-up approach to learning which students now use to navigate topics of their own interest. Ultimately, this has shown to have increased the time spent learning outside of the classical educational setting. With secondary schools offering more courses online due to the budget cuts, and the demand for remote learning, the omnipresence of technology is becoming a staple in higher education.

More students are attending secondary schools now, than they have in past decades. The years spent in school have also increased. Because people are living longer and healthier lives, the retirement age has gone down. This, in combination with robots taking over many physical labor jobs, and machine learning becoming prevalent assistants, the unemployment rate for youth has risen. Students are studying for specific jobs earlier, mostly in research fields, to become experts by the time they graduate, increasing their odds of securing a position in the workforce.

IMPACT ON THE WILD

- Growing respect for nature
- Nature is a primary resource for health research
- Melting glaciers spread diseases to marine life
- High energy demand on the grid requires implementation of renewable sources - decreases emissions

TRENDS&SIGNALS:

- Popularization of ecotherapy
- Research on biomaterials
- Move towards clean energy
- Research and implementation of machine learning in the workplace
- Rising retirement age
- Thawing tundras and glaciers release diseases increasing productivity
- Kindergartens advocate teaching children in nature

A DAY IN THE LIFE

Iman woke to a meow from his bedroom door. “Alright, I’m coming little lady. Just hold your horses for a minute” he mumbled, sleepily. Iman showered, put clothes on, and walked to the kitchen to feed the cats. He opened the refrigerator to look for his own breakfast. His eyes searched through the stacks of mycelium to-go boxes, and briefly fell on the last slices of his 30th birthday cake. “No, I’m better than that” he mused. He settled on leftovers from last night’s dinner. “Mmm, seafood.” It had been some time since he had eaten any, because of the spread of glacial diseases in marine life. “Must be farm-raised.” he thought.

Iman left his apartment and headed to the nature room on his floor - it was his day to feed the bird. As he opened the door, he was greeted with a raspy “Please sir!” from the parrot. “Haha, getting better, Asintmah! Please sir, may I have some more?” Iman had been teaching Asintmah phrases about food since moving into the building over a year ago. He found humour to be a great stress reliever, and repeated the phrase several times as he fed her, grinning to himself.

Iman looked around the nature room. There was still some litter strewn about from the New Year’s party last week. This annoyed him. The building was full of university students and young professionals who didn’t have time to worry about such things. He walked around, picking up the ‘New Decade, New Me’ crowns and ‘2040’ glasses, and threw them into the recycling chute.

The wind blew chilly outside as Iman made his way to the TTC. It was cold, but not as cold as last January, he thought. The bus was full of students, ranging in age from teens to mid thirties, all exhibiting a general aura of stress and exhaustion. It was normal this early in the morning to be surrounded by fellow students, and job hunters. Most people worked remotely, and rush hour was only bad at lunch, when all the working class people came out of their homes for a quick bite.

Iman arrived at the Li Ka Shing Knowledge institute, where he was interning as a research assistant. On his way through the lobby he ran into his friend, Aiden, who worked in material research. He had started university the same year as Iman, but because of family connections in the hospital, had fast-tracked his way into a career two years ago. This was pretty uncommon with the age of retirement always increasing, and the youth unemployment problem ever growing. It was one of Iman’s major causes of stress. “You wanna’ get lunch at 1? Aiden asked. “I have a lab test looking at spider webs as tendons in prosthetics. It might run a little late”

“That works for me!” Iman replied. They agreed on a new restaurant that had been advertising their ability to cater to people's specific dietary needs based on gut biome. The menu looked promising, and the experience might relieve some of the stresses of work.

In his vine covered cubicle, Iman stared at the piles of research data on his desk. Pretty ironic, he thought, to be analysing the data of a new, natural form of anti-aging treatment, against the current pharmaceutical medication. “Just making it harder for myself by increasing the retirement age again” he thought. He chuckled, remembering a Robert Frost poem from Grade 10 English, “The woods are lovely, dark and deep. But I have promises to keep. And miles to go before I sleep. And miles to go before I sleep.” “More like years to go,” Iman mused, “but you’re not wrong Rob’o.”

CLA: GROWTH 2040

LITANY

- Demand on energy grid is high
- Green spaces in homes and workplace
- Dual citizenship is common in youth
- Population stabilizing
- Philanthropy supports health research
- Increased economic productivity
- Education moves away from standardization
- Drop in lifestyle diseases
- Climate diseases in marine life
- Youth unemployment increases

SYSTEM

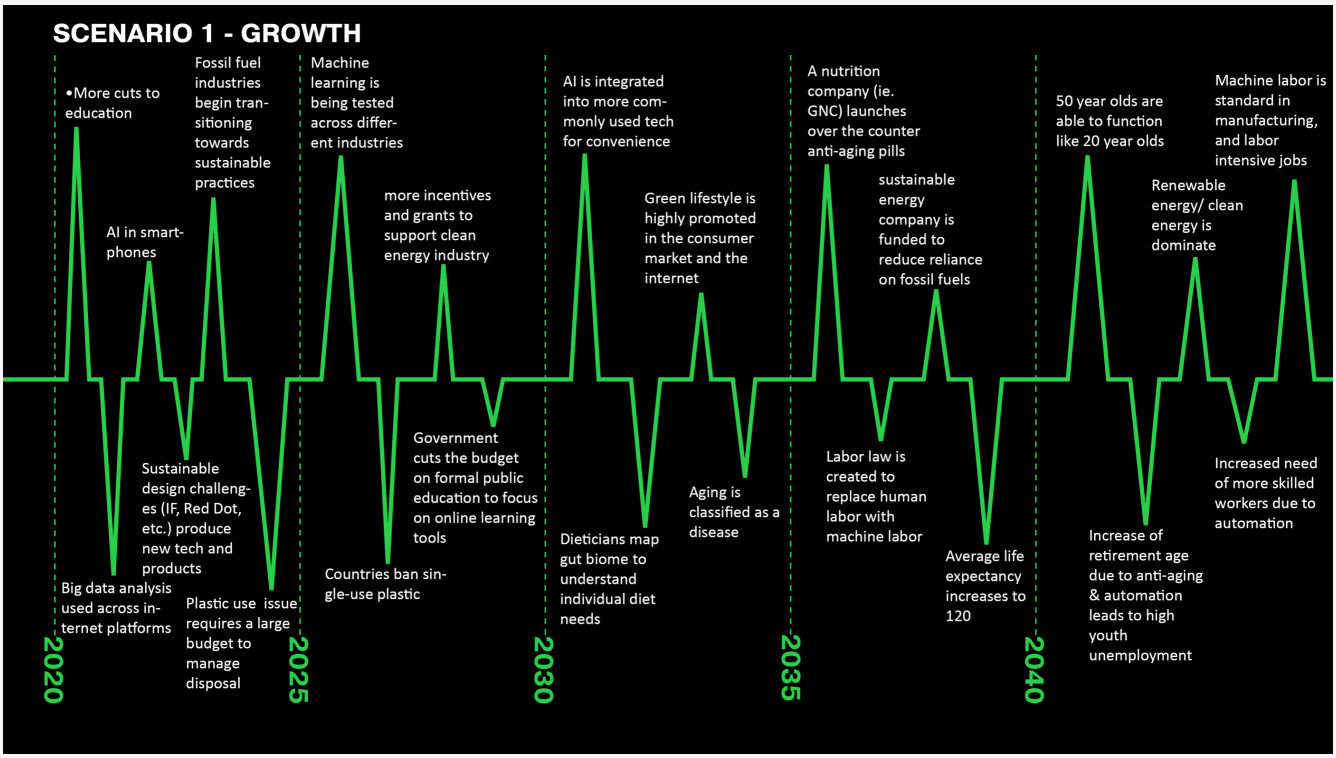
- Material research to replace single use plastics
- Focus on age reducing tech
- Schools expose kids to nature
- Industries are aligning with SDGs
- Working years are extended
- Diets designed for individuals
- Workload distribution with tech promotes slower and healthier lifestyles

WORLDVIEW

- Highly productive lifestyle
- World collaborative efforts to tackling the spread of diseases
- World centered view, not human centered view.

METAPHOR FLIP

"Strength in numbers"



BACKCAST - GROWTH

CHAOS REIGNS

COLLAPSE

CHAOS REIGNS

Ongoing overconsumption without care for the environment has tipped the world into a state of collapse. Heavy pollution has significantly reduced access to quality air and water, causing respiratory and infectious diseases to be commonplace. Global temperature has risen by 2 degrees causing extreme volatility: rising sea levels have displaced many humans and animals, the frequency of natural disasters has doubled, and large areas of land are infertile or desertified. This results in a vicious cycle: nature becomes rare because it has been destroyed through overconsumption, and it is destroyed even further due to fighting over its possession. The time for cooperation is over, now, it's every man for himself.

A fight over resources

The lack of natural resources and energy have caused governments to focus their efforts, technologies, research, and budgets towards extraction by any means–including war. Countries are either trying to create new resources, fighting to take them forcefully, or fighting to defend them. Many regimes are totalitarian, taking control of citizen's freewill by making either resource production, scientific research, or military service the only options for work. Poverty is widespread, and society is unstable. Moreover, the relationship between humans and animals is toxic. Medical testing and military experiments are rampantly conducted on animals.

Healthcare for a few

The focus on production and defense has diverted funding away from basic healthcare. Only government officials, the military, or the very rich are able to access healthcare, with the majority of the population lacking access. Public hygiene conditions are low, and there is a rise in the spread of communicable diseases. New diseases emerge, and old diseases, once thought to be cured, re-emerge. Although advanced technology exists to provide solutions, it is used to serve state objectives and priority of resource extraction.

Focus on reproduction
World population is on a decline due to disease, armed conflict, natural disasters, high pollution, and low fertility. This is seen as a problem as it limits manpower. Reproductive health becomes a top priority in order to feed the production and defence industries. Research in gene editing is focused on using animal genes to improve fertility, reduce pregnancy durations, and increase womb capacity. Furthermore, a policy of polygamy is introduced, and birth control is banned. Traditional family structure ceases to exist. Gene sequencing and AI allows doctors to identify potential skills and sort new-borns into either military or technology/research streams as mandated by the state. This creates a black market for birth control and baby smugglers.

Maintaining Manpower
The planet's flora and fauna is critically endangered due to chain reactions of extinctions caused by climate change, habitat loss and overhunting. As a result, many of the vitamins and nutrients essential to human life are scarce. Famine is common, and large portions of the population hunt and consume any animal insight–this causes new diseases to emerge.

In response, lab grown food and vertical farms are moved underground in order to fuel the human race. The state acknowledges that a weak and unproductive population results in a weak economy and military, and this gap is filled through supplements such as meal replacements, pills, or super-drinks. The pharmaceutical industry now serves four main objectives: Increasing fertility and birth quality, increasing attentiveness and cognitive ability, increasing complacency by tackling hopelessness and mental health, and reducing pain in combat.

IMPACT ON THE WILD

- Carbon emissions & global warming lead to biological extinction
- Pollution poisons marine life and affects soil quality
- Natural disasters (earthquake, tsunami, forest) and wars destroy wildlife habitat
- Animal as a resource for biotech
- Hunting and animal test endanger wild animals
- Animals carry new diseases, which spread to the cities

TRENDS&SIGNALS:

- Global warming leads to extreme weather and rise in sea-level
- Carbon emission increases cancer and other human diseases, kills wildlife
- Plastic pollution and microplastics are a lingering issue
- Sea pollution endangers marine life
- Energy wars are rife as people are still dependent on fossil fuels
- Biological extinction breaks the balance of natural ecosystem
- Land increasingly gets desertifiedLab-grown protein fulfils basic protein needs
- Vertical farms make agriculture production efficient and all-year phenomenon

A DAY IN THE LIFE

A public alarm wakes up Iman for the mandatory morning exercise. In 15 minutes, he finishes dressing up, washes himself using the water from the domestic water filtering system. He follows the instructions of the morning exercise while watching the news on the TV. There are wars everywhere. He reminisces about Tyler, his close friend from school, who was put on battlefront last year--Wonder how he is! He downs two slices of alternative bread with a cup of "super" coffee (designed to clean the toxins in his body and protect him from adverse effects of pollutants resulting from frequent sandstorms). Iman wears his mask and leaves for work.

It is a normal working day, and he takes a train to the office--had to sell off his car yesterday as gas is becoming too expensive. He stands—there is no place to sit and far too many sick people on the train. He is uncomfortable because he forgot to bring his gloves today. It takes eight stops to get to his office, which is in a large field away outside the city. It is a newish building unlike the apartment building he lives in. It is a Pharmaceutical factory funded by the government. Iman is a research assistant and helps biotech scientists who are testing ways to make humans have multiple births (like animals). They take DNA from R-selected mammals and test on K-selected mammals.

The lunch is a "nutri-soup" of lab-grown proteins and canned vegetables, which had been dispatched from the government. He packs some for dinner. After lunch, he goes to check on a test sample, a pregnant horse, who is expected to deliver 3 foals today. The test failed and the horse delivered 3 stillbirths. However, everyone seems excited about it in the team. They shared the "precious" meat. Iman got some steaks too. And then they re-examined the data to correct the error.

He finishes his work early as he wants to go home to prepare a birthday meal for his daughter. She turns 11 today. It is a visit day in public school. Because of the "happy accident", he makes a meat pie as her birthday treat. The public school is in a desert near the city and has high walls and guards, who demand to see his citizen ID before he gets in. Finally, he meets his daughter in a lounge. She has grown a lot since the last visit, which was 3 month ago. Her skin is glowing. She has no idea what "meat" is but she loves the pie--it is delicious and different. AI tests will decide if she is going to join the military or be a public worker. She dreams of becoming a part of the military and feels it is her duty to protect her country. Her birthday present is a book of wildlife photography, his 11-years birthday gift from his mother. She flipped the book and was amazed by the beautiful nature.
Tamanna asks: "Daddy, where are these beautiful places?"
Iman hugs her and answers: "They are always in your heart."

Iman meets Tamanna's mother (a convenience store owner) on the way out of the public school. She is pregnant with her fifth birth now and wants money as her store is not doing well due to the shortage of supplies and was also robbed by some anti-government activists. He refuses, as he thinks of the looming ridiculous electricity bill he has to pay to run the air-filtering machine in his house.

Back home, he removes his mask and hides the antibiotics (stolen from the Lab) that he plans to sell to an underground drug store tomorrow. He goes to his secret hallucinogenic mushroom lab for some mushroom capsules to help him sleep happy.

CLA: COLLAPSE 2040

LITANY

- Government creates mandatory gymnastics classes in public schools
- Dengue fever is coming back
- Kid's rights march in the central square
- Multiple babies in one delivery is no longer a fairy tale
- "Bright colors" art movement
- The last elephant on the planet died yesterday
- New mask invented to filter the pollution in the air
- An illegal birth control factory is shut down
- Arctic temperatures soar 15 degrees above normal
- Scientists grow a new plant in a lab 2 times faster than before

SYSTEM

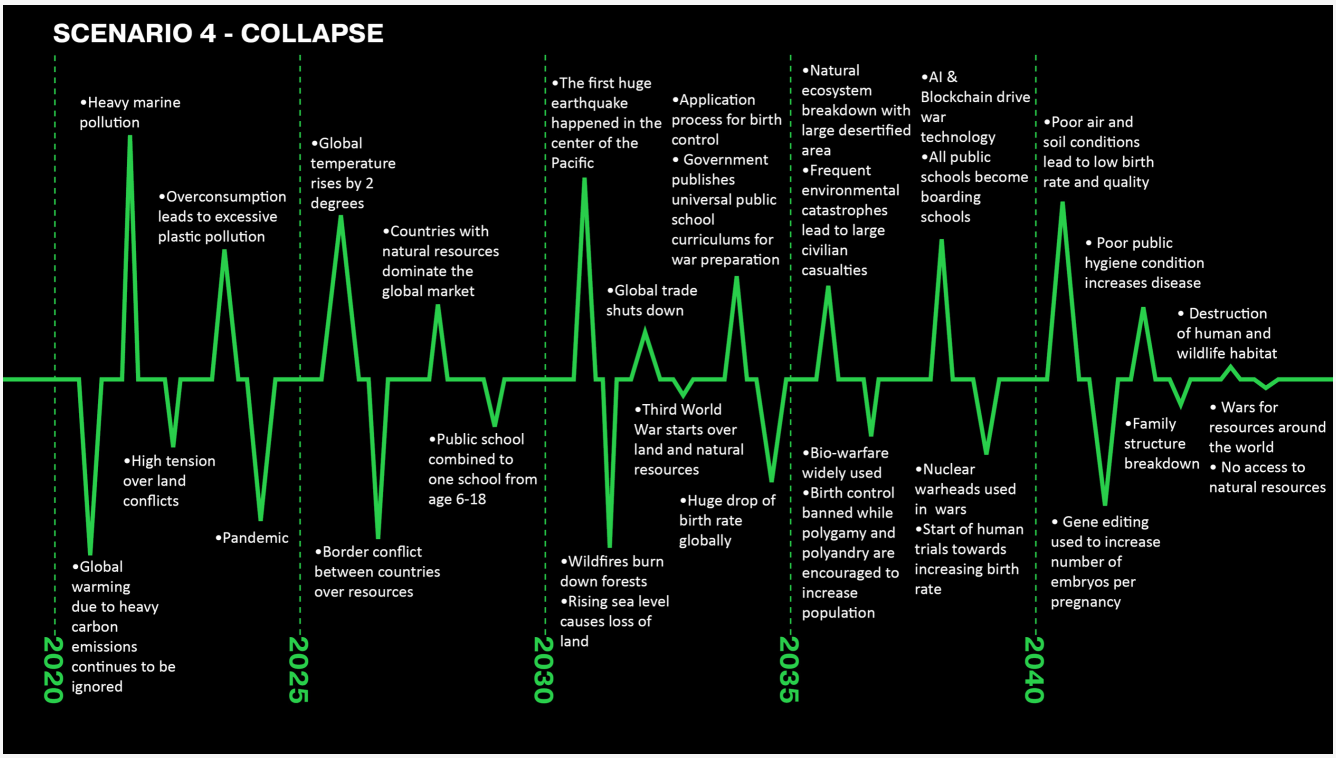
- Wars
- Uprising
- Gov't withholds information
- Polygamy policy
- Underground facilities for lab grown plants
- Physical education
- Birth control banned
- Military service regulations
- House plants are illegal
- Suicide banned
- Legal organ trade market

WORLDVIEW

- Centralized, Totalitarian
- All for survival
- Take as much as I can

METAPHOR FLIP

"Every man for himself"



BACKCAST - COLLAPSE

DISCIPLINE

PREVENTATIVE MINIMALISM

A drastic rise in natural disasters and the spread of disease has stirred fear in the hearts of humankind. The European Green Deal has failed to deliver its ambitious targets. Greta Thunberg is now 37 years old, her voice, once dismissed, now booms louder and stronger than ever. With Millennials and Gen Zs assuming more influential positions, and the old capitalist guard either retiring or dying out; Europe has decided to overhaul its way of life.

Irreversible Damage

Instead, efforts are now focused on taming the world in order to stop it from tipping into catastrophe. As the Buddha said: “Life is suffering”. And to survive, we must suffer. This is a time of slow growth, a sense of collective guilt pervades as the human race begins to hold itself accountable for its role in ecological degradation. Minimalism and frugality is the norm in this world, with consumer products limited to essential needs. Advertising has shifted from hyperbole to function, and the fashion industry is hanging on by a thread as it attempts to cope with a change in consumer taste. Overall consumption is monitored and rationed, and humans only consume what they need. This is a time where “measure twice, cut once” is the norm, and where an ounce of prevention is worth more than a pound of cure.

This shift in mindset has changed how humans heal themselves. Technology in healthcare, once focused on treatment, now focuses on prevention. Those about to be born are the luckiest–CRISPR gene editing is used to remove risk of future illness. For those living, strictness and austerity is prescribed through a regiment of forest-bathing, daily exercise, natural medicine, and a restrictive plant-focused diet. Providing environmentally compatible healthcare to this group is becoming one of the world’s toughest challenges. For those willing, assisted suicide becomes the norm, it is seen as a form of martyrdom that limits strain on the planet.

Despite Improvements, Prevention is Critical

This restrictive and natural-based lifestyle has improved life expectancy. Heart disease and stroke, once responsible for the largest number of annual deaths worldwide, drops sharply–along with the demand for cholesterol and blood pressure medication. However, a new super-killer now exists–antibiotic resistance is finally acknowledged as a threat to humanity. Prescriptions are now reserved only for the most extreme cases–doctors and pharmacists found to be overprescribing risk losing their medical licenses. Instead, humans are advised to take the utmost caution to avoid infection, and a mixture of herbs and mushrooms, grown in medicinal vertical farms, are consumed daily to boost immunity.

Bringing in a new life into this world is now considered a collective decision in regard to environmental strain. Governments have implemented family planning policies–failing to adhere to them could lead to severe punishments such as sterilization. At the same time, traditional contraceptive pills are banned as chemical run-offs have been linked with damage in aquatic ecosystems. Instead, safe, herb-based birth control, influenced by ancient remedies is used.

Similar to contraceptives, antidepressant medication is also deemed damaging to aquatic ecosystems, and prescriptions are limited. Mental health remains an issue, however, therapy, forest-bathing, and “green-chambers' installed in homes are used to alleviate symptoms. Furthermore, social media conglomerates are held accountable for their negative impact on mental health, Facebook & Instagram are no longer accessible past 7PM.

IMPACT ON THE WILD

- Damage is not reversed, but is tamed
- Strain on resources reduced due to consumption cap and limited population growth
- Emissions and pollution reduced due to decline in commercial farming
- Plants and animal habitats are protected and valued

TRENDS&SIGNALS:

- CRISPR used to produce HIV resistance in unborn twins
- Ecotherapy aims to tap into nature to improve your wellbeing
- Greta Thunberg: "Leaders failed us on climate change"
- Minimalists are doing more with less
- Self-isolation and social distancing in the wake of the Coronavirus
- Drugs flushed into the environment could be cause of wildlife decline
- Lab grown food will destroy farming and save the planet
- EU commission unveils the European Green Deal
- The rise of antibiotic resistant superbugs

A DAY IN THE LIFE

Iman opens his eyes to a modest but well-organized apartment. It's Saturday, and since there is no work, he decides to observe a fast from Noon till dinner–as recommended by leading health and environmental experts. Although it used to be a challenge when Greta Supreme came into power, Iman has now adapted to a life of austerity and discipline.

He wastes no time getting out of bed, turns on the television and begins his daily morning exercise–15 repetitions, with a 30 second rest in between. The news reports of 5 community members who have decided to end their lives the past week, they are mostly middle aged although one is in his 20s. As usual, the reporter thanks them for their sacrifice and help in reducing the strain on the planet, and ends by stating that their names will be added to the monument on Martyr's Square, along with all the lives lost during the outbreaks of antibiotic resistance bacteria.

After his workout, Iman prepares his first meal of the day: Seaweed, rice, and tofu. Now in his 30s, he recalls how it was only twenty years ago that him and his brother would pester their mother for a Macdonald's breakfast sandwich of eggs and sausage. The memory is bittersweet, "We were so foolish…How did we not realize that that was so gluttonous", he says under his breath before his final bite. Iman then washes down his daily supplements of Vitamins D, B12, and Iron with a herbal immunity booster, dons a mask and a pair of latex gloves, then sets off to the community vertical farm.

Iman arrives at the farm and waits in line to be handed the standard weekly ration of food, supplements and fertility blockers allotted to 30-year-old males. Everyone that stands in line with him is dressed in black, as is appropriate nowadays. Gone is the flamboyance that he remembers from his childhood,

"we were so foolish" he mutters.
"What was that?" the clerk says"Nothing, just thinking aloud" Iman responds

To his surprise, he's received a complimentary pound of lab-grown meat for having completed 14 days of fasting last month.

On his way home, Iman observes a group of children covered in dirt, playing football in a park. He is filled with a sense of envy. It is too risky for him–he was not born at an age where disease could simply be edited out in utero, so exposure to the outside world must be limited. Upon his return, Iman disinfects himself, and opts to spend the rest of the day meditating and forest bathing in his apartment's rooftop garden.

CLA: DISCIPLINE 2040

LITANY

- Medicine is preventative, FDA approval for new drugs slows
- Ramadan (Fasting) now a universal event
- Assisted suicide clinics reach mainstream
- Communal forestbathing
- Patient refused treatment due to bad behavior, "You brought it on yourself"
- Reproduction through sex considered "savage"
- Triage favors the young vs need (Rise of age-ism)
- Antibiotics withheld
- Countries refused assistance due to bad behavior, "You brought it on yourself"

SYSTEM

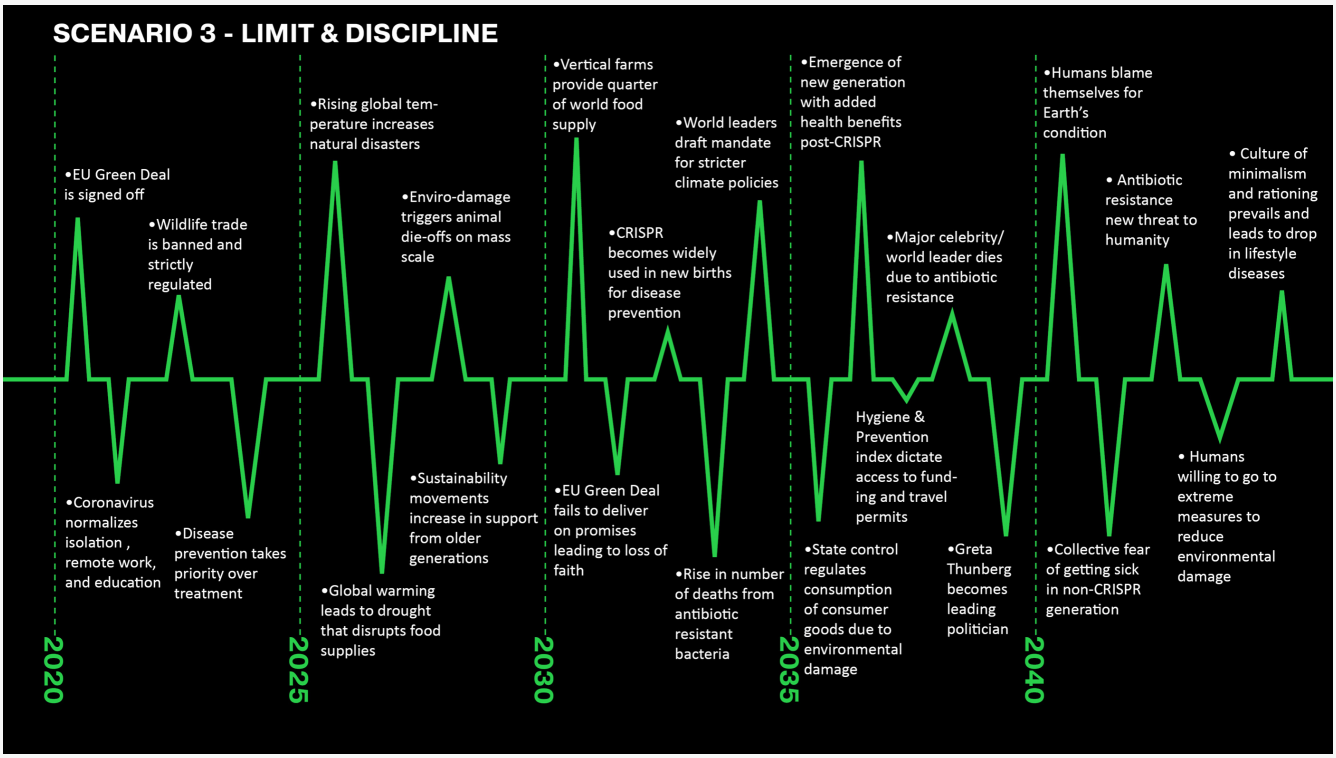
- Individual consumption tracked & taxed
- Hygiene fees (ala Singapore)
- Tech Caps & Nature Targets
- Pass down/reuse, instead of buy new
- Prevention regimen mandated
- Universal Birth Control
- Mandatory green spaces
- Reforesting, restoring, rewilding industry
- Community vertical farming
- IMF dispensing tied to "Prevention Index"
- Edit out disease prone genes
- Entry visa for forest reserves

WORLDVIEW

- Slow and Meticulous: "Measure twice, cut once."
- Minimalist & Sterile
- Buddhist: "Life is suffering

METAPHOR FLIP

"An ounce of pain is worth more than a pound of cure"



BACKCAST - DISCIPLIINE

TRANSFORM

HEALTHCARE TRANSFORMED BY TECHNOLOGY

IIt is 2040. Mississauga is the largest city in Canada. Urban forests, vertical farms, skyline dotted with buildings that have gardens on terrace tops and a library where you can check out plants for therapy are some of the attractions that bring increasingly younger-looking, healthy 50+ population and their bionic, robotic, animal families here. A typical mixed-species household (the norm) has on an average 1.5 humans and 2 or more critters … in a 3D-printed sustainable house on the lake or 3D-printed ambient adaptive dwellings.

Nationalistic boundaries have blurred, cultural identities have deepened…technology is omniscient, always on and pervasive. We live alongside powerful non-human systems, surrounded by technology that's never switched off, our lives are entirely data-fied. UltraG (and advances in Quantum computing) has enabled smart bodies. We are now permanently connected and continuously stream data to doctors' offices (and to our own cloud-based storage systems). The newly opened ADM (auto doctor machine) near Celebration Square has now made it possible for all households to have real-time health data, they can use their digital sequence cards to get personalised medicines, and wellbeing schedules. Customers are vigilant about animal testing, any company that indulges in such anachronistic practice is blacklisted.

Majority of the 10 billion people on Earth interact with the world with the help of a single personal device, which also runs homes, drives cars, manages bank accounts, and organizes education and learning. Work from home and study from home is a norm, Immersive schools allow children to study at their own pace. Interaction is facilitated by nature camps where species meet in controlled environments—most of the social interaction happens via VR and AI. Isolation and continuous interaction with pervasive technology has given rise to new diseases like virtual post-traumatic stress disorder (v-PTSD) common in gamers who participate in large virtual battles wearing VR masks (such as Call of Duty). Pandemics, lifestyle diseases are history, cancer has a cure (Yale found it in 2024 using herbs from Traditional Chinese medicine) but allergies and infections are on a rise.

Ecology-led drug discovery
All antibiotics have failed as viruses have been mutating much faster than technology. Building supreme immunity is a focus of the healthcare system which is not 'sickcare' anymore. We are in an era of medicine that is proactive, preventative, and focussed on continuous care as infections if not treated promptly can be fatal.

There is a shift back to natural products. can now mine an organism's entire DNA to search for useful compounds. Looming health crises and rise of antibiotic resistance lead scientists to discover bioprospecting in 2020 to find drugs that are still undiscovered, lurking within plants, animals, fungi and bacteria. This is one area that is attracting huge investment—nature's molecular diversity seems to hold an answer to medicines that work.

The global burden of disease is shifting from infectious/lifestyle diseases to mental wellbeing. Traditional medical interventions are preferred over social and physical environmental interventions. No city plan can be approved if it does not fall into within the prescribed vicinity of an urban forest. In fact many public schools have turned into urban green retreats and children under 14 are mandated by law to spend three days a week there for mental wellbeing and life-functional skills as part of which they tend to their groves of energy-producing plants.

Tools, such as DNA sequencing have revealed many "new" species and advances in mass spectrometry, genomics and genetic engineering have allowed us to harness their molecular diversity without excessive harvesting of wild specimens. Unscrupulous "bioprospectors" illegally collect living material, the only currency in this world of tech abundance.

Animal is not food
Food problem is near resolution… more than 50% of the 'meat' consumed is lab cultured. Cultured foie gras, synthetic chorizo, and artificial nugget are on menus of most contemporary restaurants. Animal farms are getting out of business as it is considered savage to consume animal meat—a huge cultural shift that was set into motion after it was found that some of the world's worst pandemics originate in meat/wildlife trade markets in China.

Ocean is the new source of nutrients. Photosynthetic, multicellular edible microbes like Spirulina, chlorella, and dunaliella are widely consumed as they are nature's richest and most complete source of nutrition with B-complex vitamins, minerals, proteins and super antioxidants. These are also finding a significant role in health care management due to their therapeutic functions such as anti-bacterial, antiviral, anticancer, anti-inflammatory, anti-allergic and antidiabetic and plethora of beneficial functions.

Social distancing is a norm and lives are full yet of virtual interactions, yet there is no touch between individuals that do not share a common living space. Life is rich, life is Busy, and life is also lonely.

IMPACT ON THE WILD

- Nature is a Healer
- Bioprospecting is huge
- Rise of designer pets
- Animals have identity and rights
- Animals are not food anymoreUrban forests are a norm

TRENDS&SIGNALS:

- The technology of producing biological parts is advancing, raising new legal and regulatory questions.
- 3D printing of body parts is coming fast – but regulations are not ready
- Nature is a rich source of medicine if we can protect it
- Spirulina in Health Care Management
- Healthy urban forests promote healthy futures
- The next blockbuster medicine could be lurking inside an insect
- 20 Medical Technology Advances: Medicine In The Future
- AI used for animal conservation

A DAY IN THE LIFE

It is 8 am and Iman emerges from his VR surgical pod and removes his bionic third eye… he has had to perform an unusual surgery…. Most diagnostics at his office are carried out by robots and machines…but this case was tough and needed 'human' intervention. A multi-species family had been run over by the driverless carpod, and being a cross-species surgeon he had had to step in to program the system, write personalised medicines and print a 4D heart to resuscitate the family's dead designer dog-member.

Since infections are a huge threat, he rarely sees patients. ADM (auto doc machine) has advanced diagnostics and medicine dispensation abilities and surgeons like him are rare. If they need to operate, they usually rely on hologram-technology and robots. However, in these days of social distancing…it is still heartening to touch, to connect and to save lives. The family of six will recuperate in their private forest, an additional algae supplement has been prescribed for each member and children have been given a note to stay out of their nature school for a week.

After a VR chat with mom, who just turned 70 and is back in school again as she prepares to start a new bug cosmetic business aimed at millennials (the generation that never seems to get old!), there is a short Tai-chi session in his private healing garden before he heads to the lab for a lunch of cultured fish and chips with potatoes from his vertical home farm. His grandmother, who died 20 years ago from cardiac arrest, was also a diabetic and used to inject herself with insulin before every meal. As a child he remembers fearing the 'syringe'… thankfully something they never have to use now. Lifestyle diseases took so many lives then!

After a quick relaxing moment with Patchy, his tortoise-shell cat (designed on a similar cat he had as a six-year-old), he heads back to the lab to work on genetic enhancements that allow athletes to prevent injuries. He is working on creating a 'fracture putty' out of Aloe vera that will heal broken bones in span of days. He and his friends from the Bioprospectors Club have invested in Aloe and Hoodia plantations in Africa.

Dinner is actually a social interaction in a closed chatroom with the President of Asia and his brother who spends time leading philanthropic activities across Asia after his start-up 'ani-talk' got bought over… his app that lets animal language be understood is as popular as WhatsApp used to be when they were kids. His new interest centres on harvesting energy out of forests. Today they hope to discuss how the energy surplus from deep forests of Amazon can be made available to people living in vast deserts of Asia.

Before sleeping, he runs quick VR analytics to check if the new 4D heart is working well… it is. Thankfully the busy day with its many interactions is coming to an end. He heads to his sleeping pod, where forest sounds will lull him to sleep as Patchy purrs and curls up next to him.

CLA: TRANSFORM 2040

LITANY

- ‘Nebula Genomics’ Unveils $299 Sequencing Test
- Stop the Wildlife Trade, Conservationists Say
- UltraG makes tech pervasive, invasive
- Future organs will be personalized and 4D printed
- A healthy human future depends on healthy oceans.
- ADM open in Celebration Square
- Housing permit denied for not falling in green zone

SYSTEM

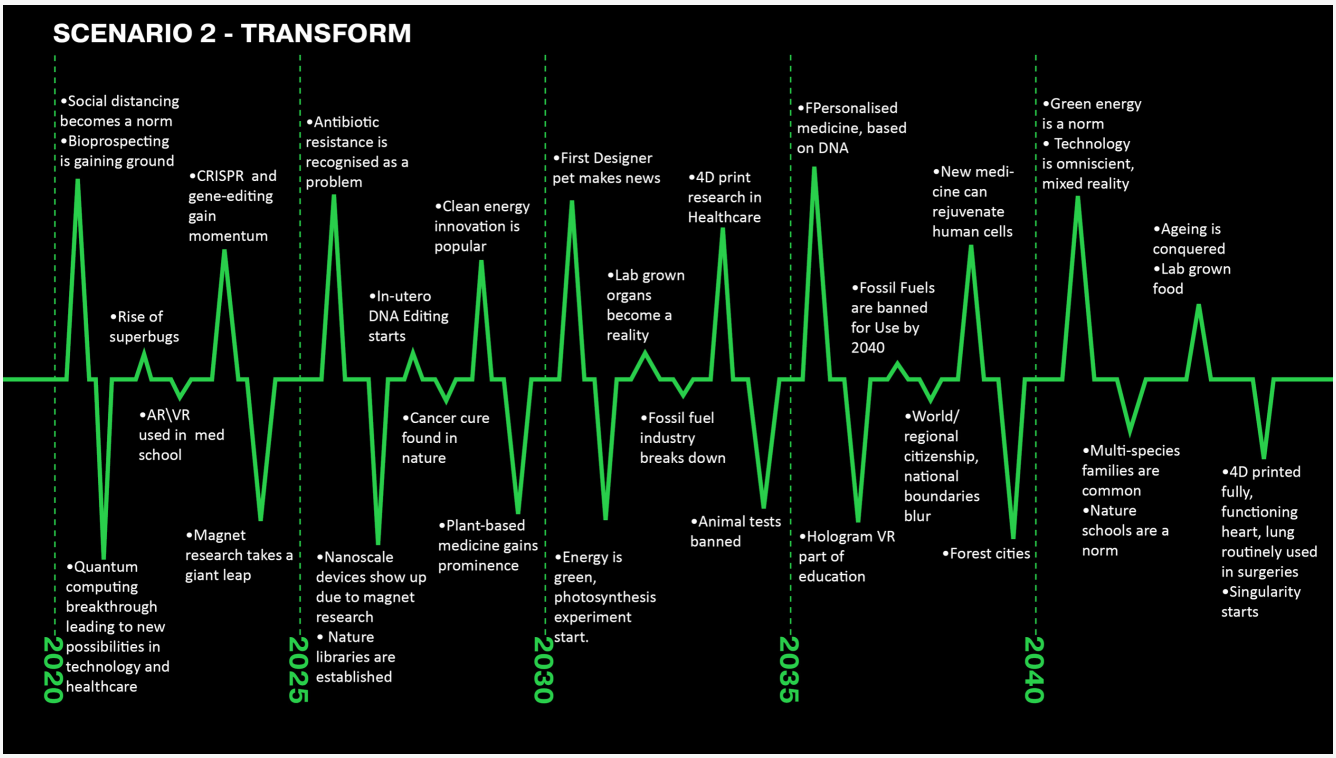
- Economic and social interventions promote social justice
- Higher order values. There is abundance of everything
- Quantum computing has transformed tech
- Democratization of health information
- DNA sequencing & gene editing are the norm
- Antibiotics have failed to control infection
- Ecotherapy and bioprospecting are driving medicine
- Demand driven, personalised medicine for millennials who see personalisation as essential

WORLDVIEW

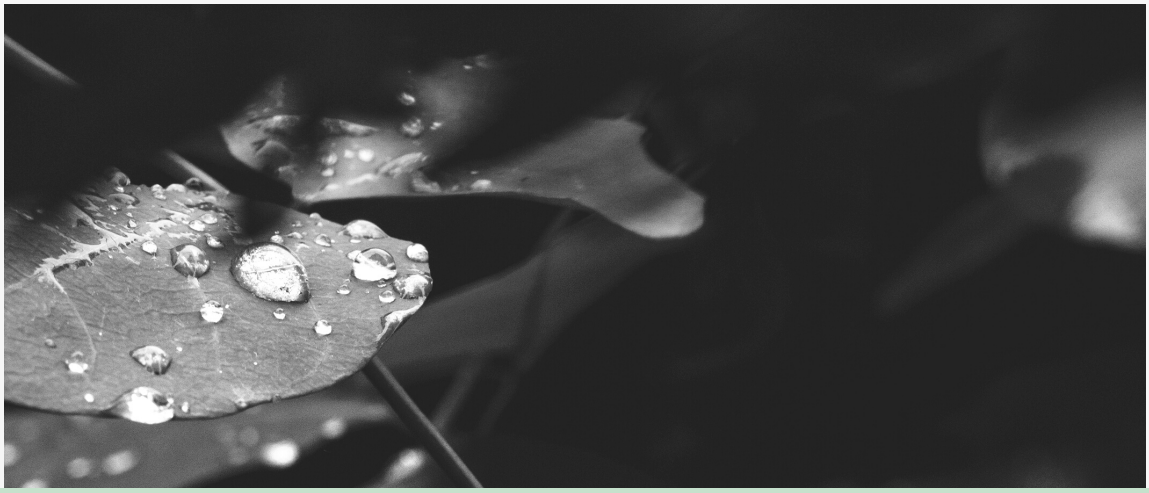
- Alternative medicine is the original medicine
- Pluralistic: where people’s values are respected
- Libertarian, freedom of choice, voluntary association and individual judgement

METAPHOR FLIP

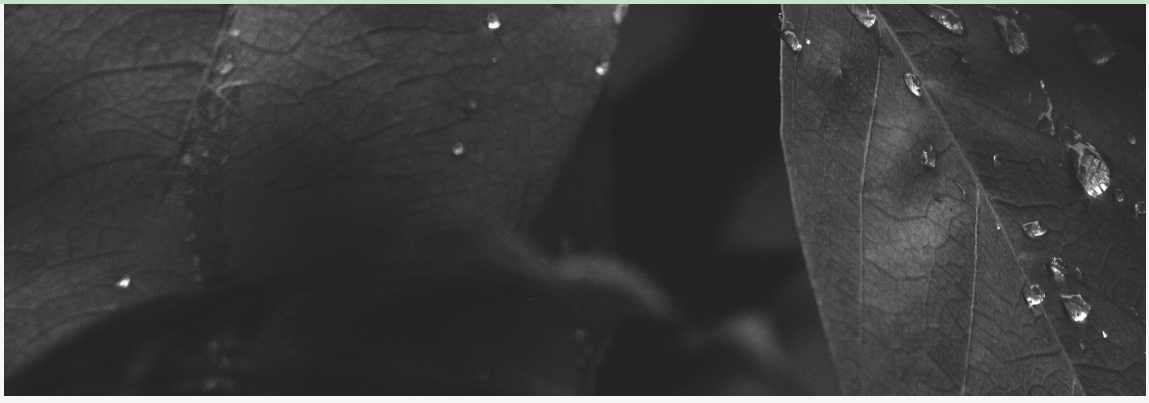
“Forever young”



BACKCAST - TRANSFORM



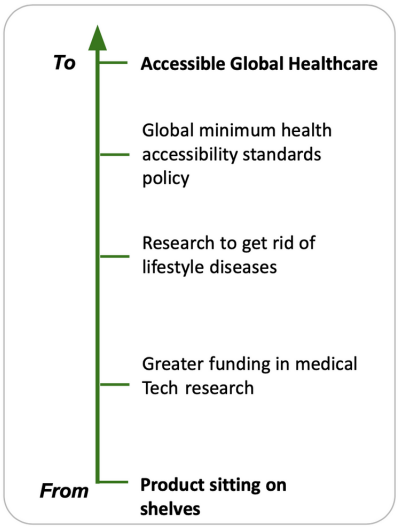
STRATEGIC IMPLICATIONS



GROWTH

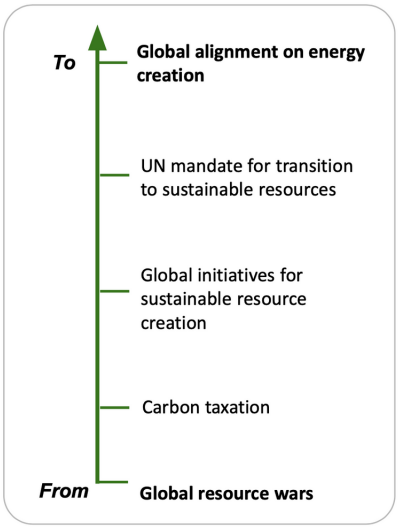
Health + Tech

Improving equality of health through Tech capabilities



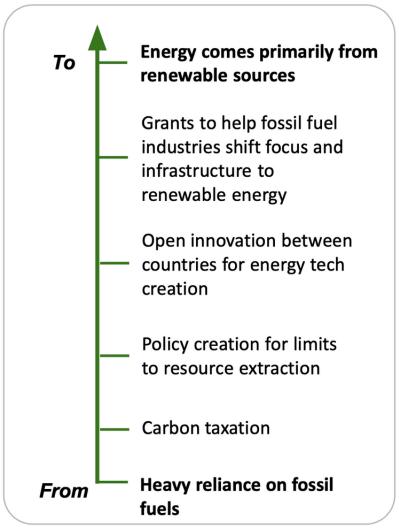
Governmental Changes

Government's go from resource wars, to globally aligning with SDGs



Environment + Energy

From solely extractive technology, to energy creation that lets us step away from the environment.



Growth

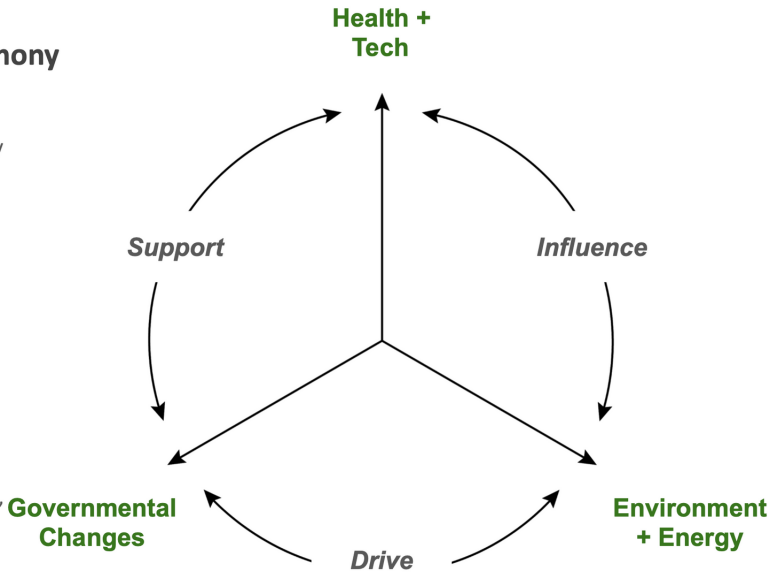
Environmental Health and Harmony

Purpose...

There are millions spent on disputes over energy resources, whether it be through international wars, or civil land and resource disputes. With a growing respect for the wild, it is important to reduce the draw from nature in respect to energy consumption and physical presence. Nature can help with wellness, but should be used in an unobtrusive fashion.

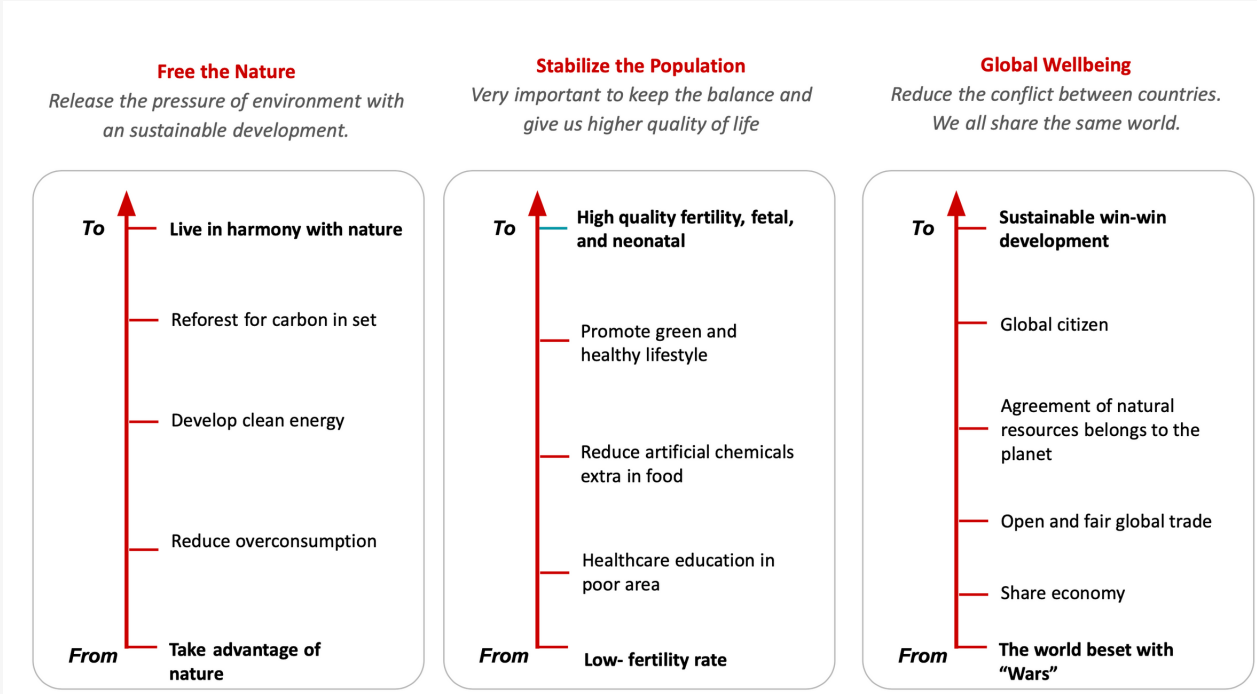
Means to success…

Through policy creation concerning environmental wellness and global healthcare accessibility within countries and across borders, spending can be shifted from conflict resolution to sustainability, and human health.



BASED ON THE DIFFERENT FUTURES OF HEALTHCARE, AS OUTLINED IN OUR FOUR SCENARIOS, WE DEVELOPED STRATEGIC ARCHITECTURES THAT WE FEEL WORK BEST TO DEFINE OUR INTENDED INTERVENTIONS.

COLLAPSE



Collapse

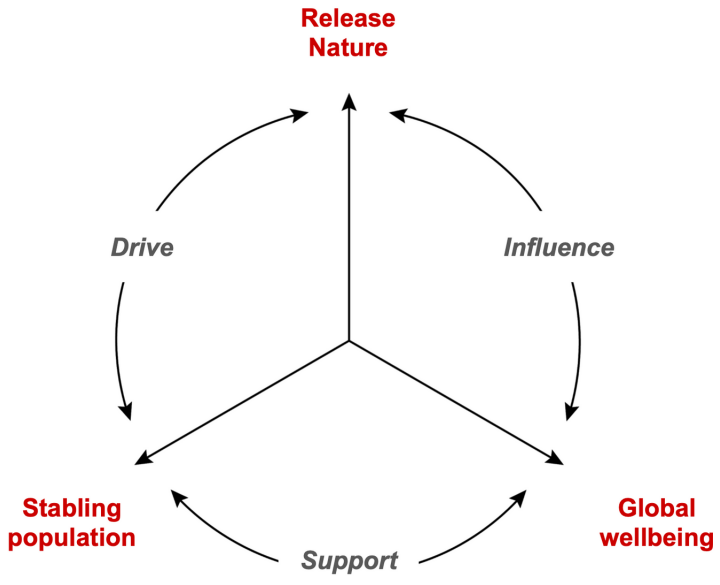
Healing the Earth

Purpose...

We aim to relieve the environment of the current pressure to avoid the collapse scenario. Living in harmony with nature is better for the health. The health of the planet and human health quality of life are interconnected. Natural resources are always the best treatment for human body.
Many diseases and cancer are caused by the environment we are live in. The only way forward is to reduce the pollution, reduce the over-consumption of resources, and support each other—this will ensure healthier life on earth for coming generations.

Means to success…

A shift from fossil fuel industry to clean energy will be a big jump for human sustainable development.



BASED ON THE DIFFERENT FUTURES OF HEALTHCARE, AS OUTLINED IN OUR FOUR SCENARIOS, WE DEVELOPED STRATEGIC ARCHITECTURES THAT WE FEEL WORK BEST TO DEFINE OUR INTENDED INTERVENTIONS.

DISCIPLINE

Protect & Reforest

Drive protection & reforestation effort to reduce loss of biodiversity

- To: **Manageable resource**
- Mobilize technological capabilities to model and manage animal extinctions
- Mobilize technological capabilities to reforest habitats
- Global ban on wildlife trade
- Education on links to nature and human wellness
- From: **Depletable resource**

Manage Overprescription

Take a stance against antibiotic resistance & chemical spillages that arise from overprescription

- To: **Universal wellness**
- Medical professionals take into account long term social environmental impact
- Pharmaceutical industry is banned from political lobbying
- Measurement and tracking tools to monitor overprescription
- Medical professionals required to disclose pharmaceutical affiliations to public
- From: **Pharma-industry focused**

Ethics in Gene Editing

Create global body that regulates and addresses ethical considerations of gene editing

- To: **Clear information & guidelines**
- Gene editing limited to prevention of critical diseases
- Universal genetic regulating body created
- Implications of gene editing taught in schools
- From: **"Black Box"**

Limit/Discipline

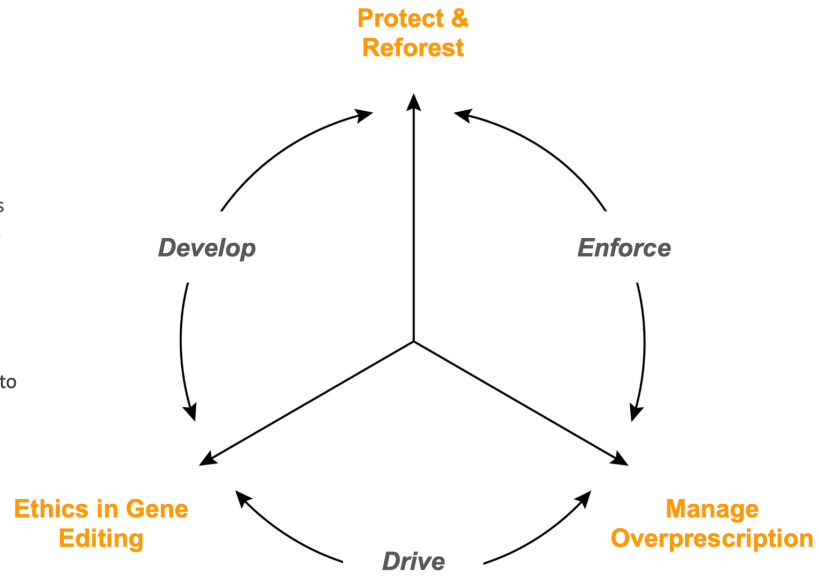
Mitigate with Intent

Purpose...

Proactive policies are to be implemented in order to enact precautionary measures and softer limits earlier on–so that the conditions that give birth to the extreme limits of a true Limit/Discipline scenario do not emerge. Mitigating future accessibility issues is key.

Means to success…

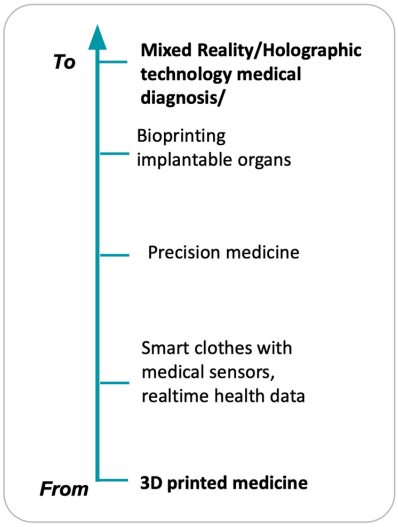
Necessary guidelines and a proactive stance to ensure that desperate measures are avoided in the future



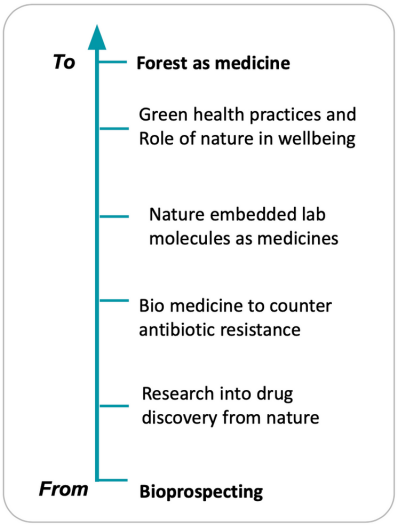
BASED ON THE DIFFERENT FUTURES OF HEALTHCARE, AS OUTLINED IN OUR FOUR SCENARIOS, WE DEVELOPED STRATEGIC ARCHITECTURES THAT WE FEEL WORK BEST TO DEFINE OUR INTENDED INTERVENTIONS.

TRANSFORM

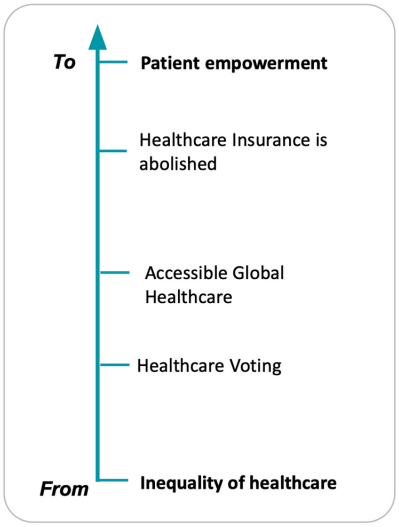
Advances in Technology
Improving delivery of health through Technological advancements



Biodiversity Research
Harvesting nature for medicines



Medicine+ Healthcare
Patient become the centre of the power dynamics in the health care system



Transform

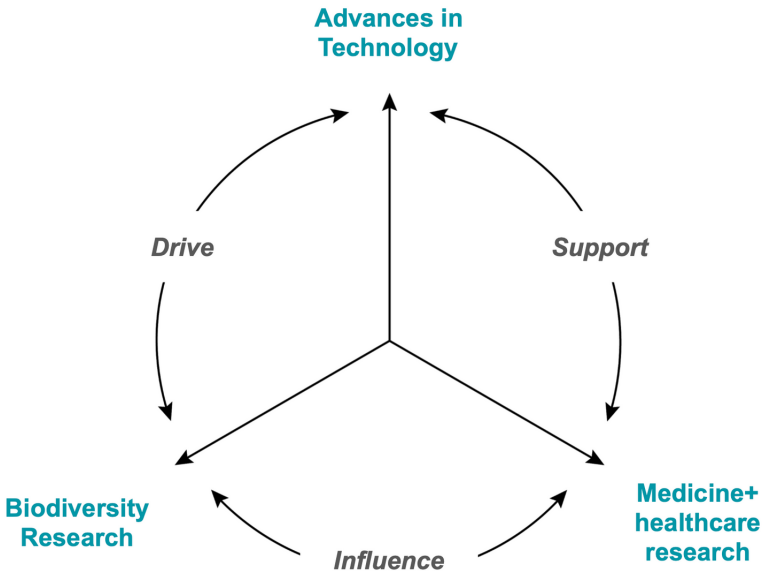
Tech + Bio to Improve Life

Purpose...

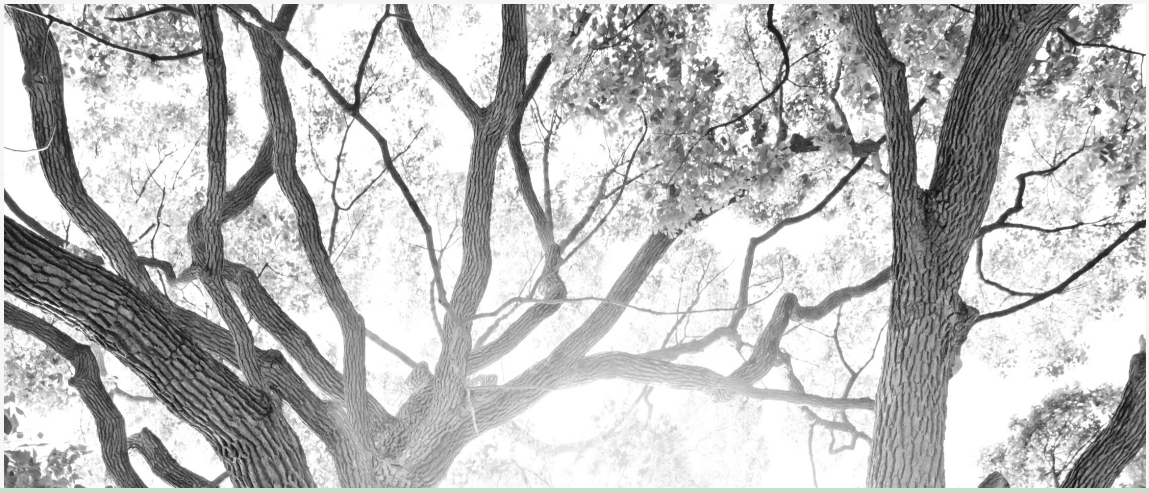
Transformational future will come about at the meeting place of technology and healthcare and biomedical research.
Mind-reading exoskeletons, digital tattoos, 3D printed drugs, RFID implants for recreational purposes will go hand in hand with discovery of unusual substances with medical benefits harvested from nature (specifically insects)

Means to success...

Antibiotics resistance and side-effects of chemical drugs are key issues that will be addressed. Patient will become a centre of the healthcare system as more and more diagnostic transition to realtime



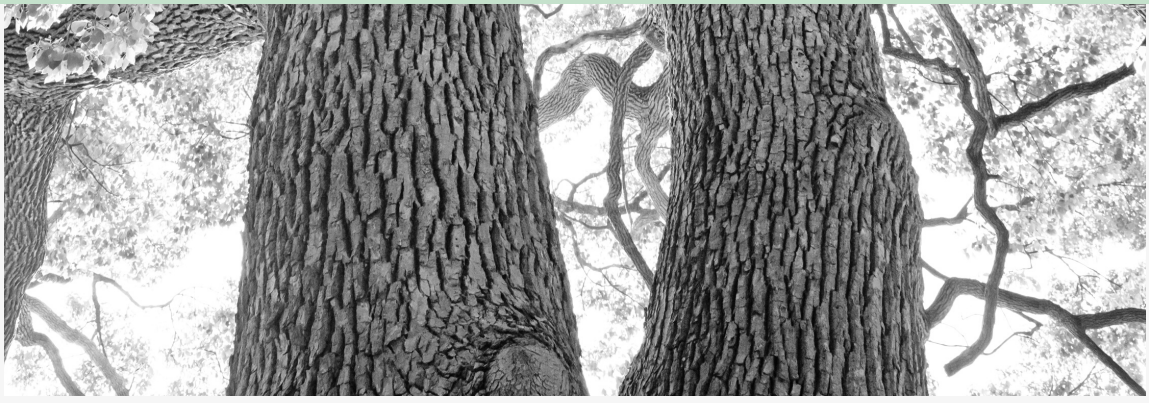
BASED ON THE DIFFERENT FUTURES OF HEALTHCARE, AS OUTLINED IN OUR FOUR SCENARIOS, WE DEVELOPED STRATEGIC ARCHITECTURES THAT WE FEEL WORK BEST TO DEFINE OUR INTENDED INTERVENTIONS.



EXPERIENTIAL FUTURE

[Ctrl+Del+Alt]

www.ctrldelalt.com

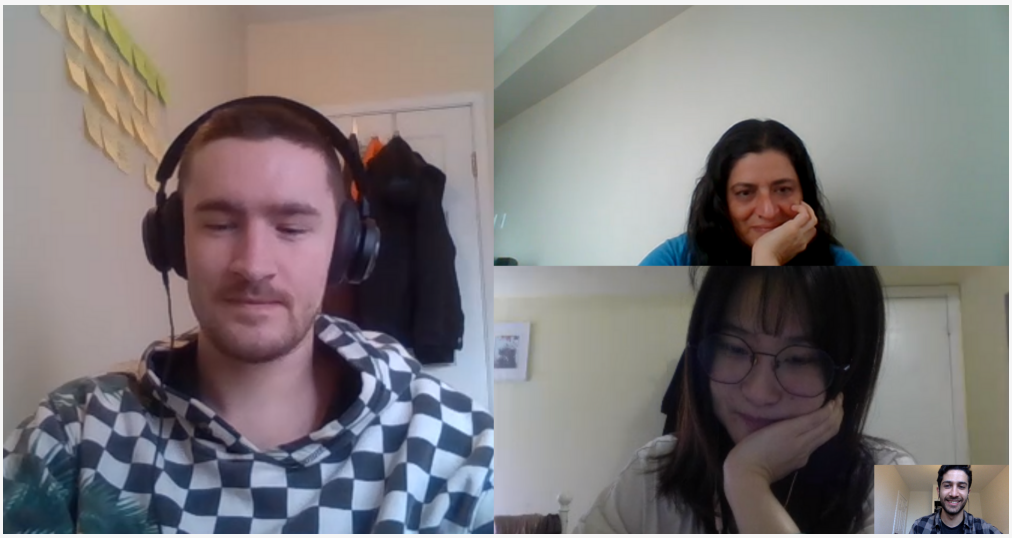


Our experiential future is a dramatization of our Limit/Discipline scenario. It takes place in 2040 and follows a resident of a world wherein an austere minimalist lifestyle is prescribed to prevent the system from tipping into collapse. The narrative follows our resident, Iman, as he learns more about a service offered in this future.

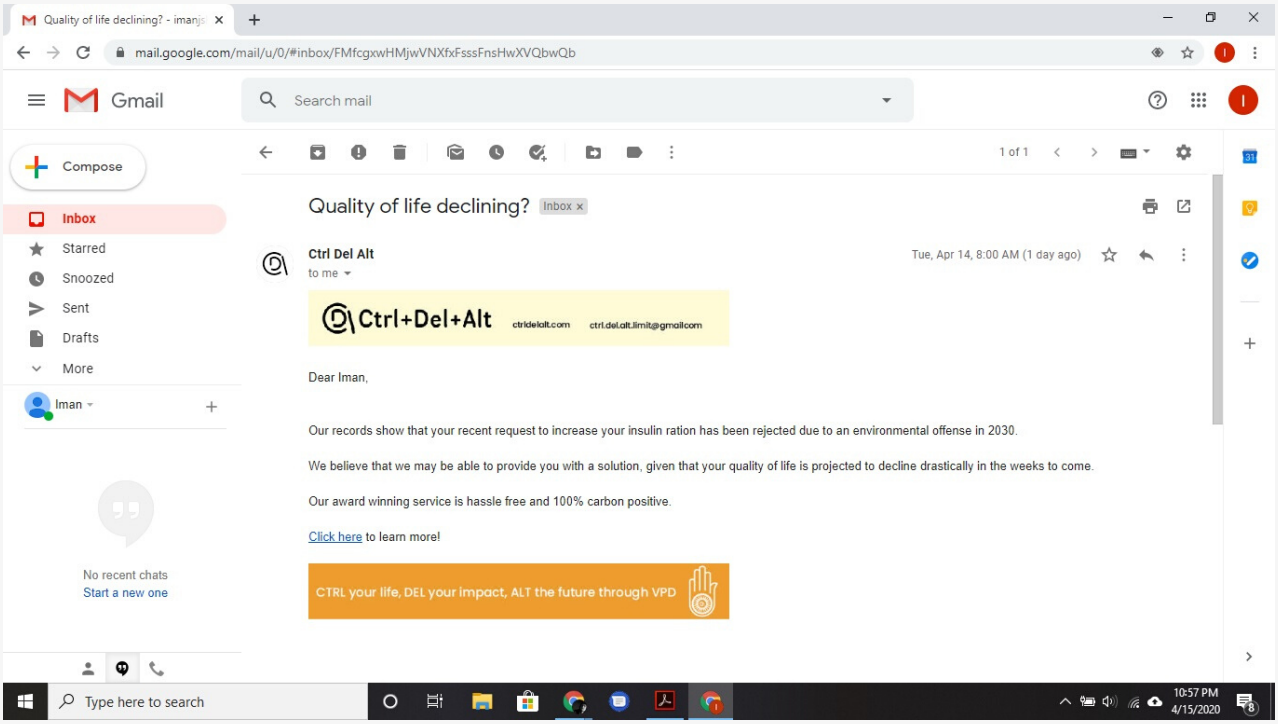
Iman is contacted unexpectedly by a company named Ctrl+Del+Alt after his insulin rations are set to be reduced due to a previous environmental offense. The company promises to not only solve Iman's problem, but help in saving the planet through an ambiguous service referred to only as "VPD".

The COVID-19 lockdown influenced our medium and delivery method for this dramatization, as the presentation was to be held remotely via Microsoft Teams. We decided to use this to our advantage, and crafted our experiential future as an enactment of a conversation between Iman and an AI customer service bot. The enactment was performed live by two team members, with a website walkthrough being incorporated into the performance. Content for the website included video testimonials of previous customers, which were recorded in a team member's apartment. Moreover, futuristic sounds and robotic voices were included as part of performance to provide an engaging auditory experience with a futuristic feel.

At the end of the walkthrough, it is revealed that VPD stands for "Voluntary Personal Decommissioning", and that our protagonist has chosen to end their life (in an environmentally friendly way). We were influenced by Dunn & Raby's approach to critical design, wherein darkness is used as an antidote to "naive techno-utopianism", and to challenge conventional thinking by drawing attention to scary possibilities. Our approach was to provoke by normalizing the interaction, using black humor to speak to the absurdity of the situation.



NARRATIVE WALKTROUGH

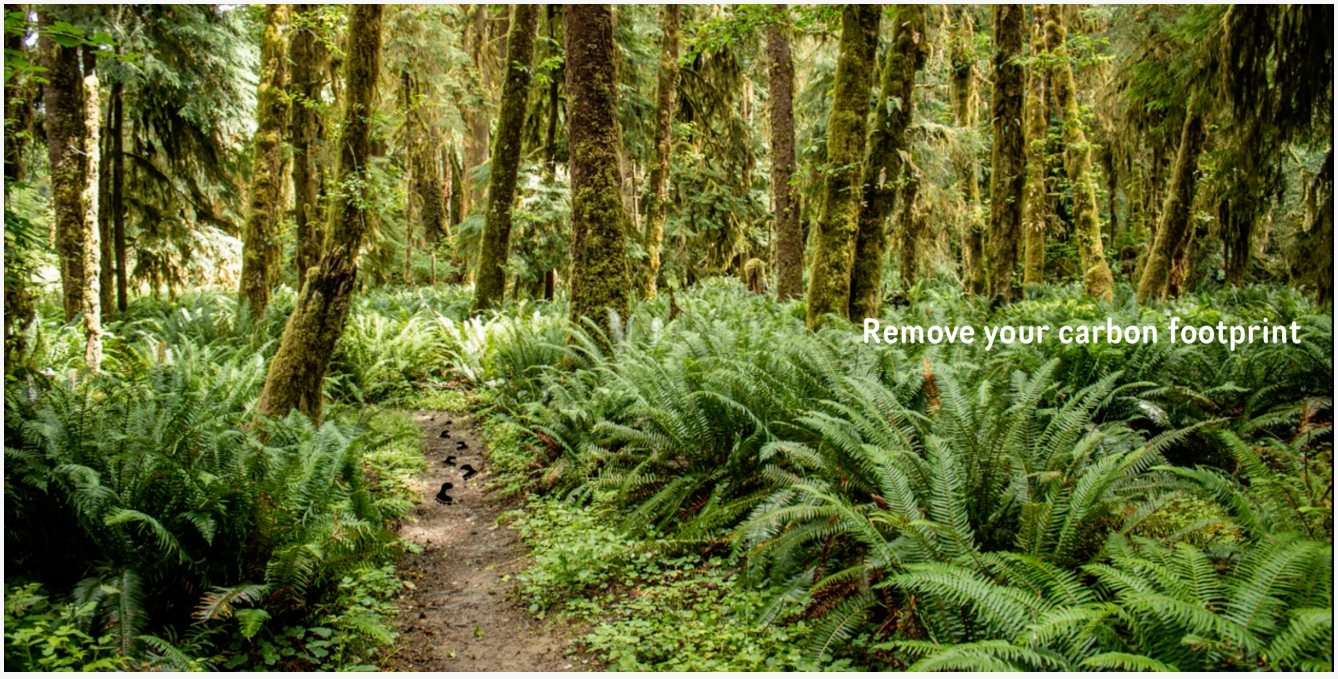


IMAN RECEIVES A MYSTERIOUS MESSAGE

[Ctrl+Del+Alt]

Open the link to learn more!

www.ctrldelalt.com



WEBSITE COMMUNICATION AND VISUALS INTENDED WERE WHOLESOME AND POSITIVE ON PURPOSE.

"ONE PERSON AT A TIME" AND "REMOVAL OF CARBON FOOTPRINT" IS INTENDED TO HOLD TWO MEANINGS.

Reforestation

Do something good for the planet

Support reforestation in a region of your choice

Purchase

World Food Supply

Leave something nice for your family

Share your food rations with your family or the community

Purchase

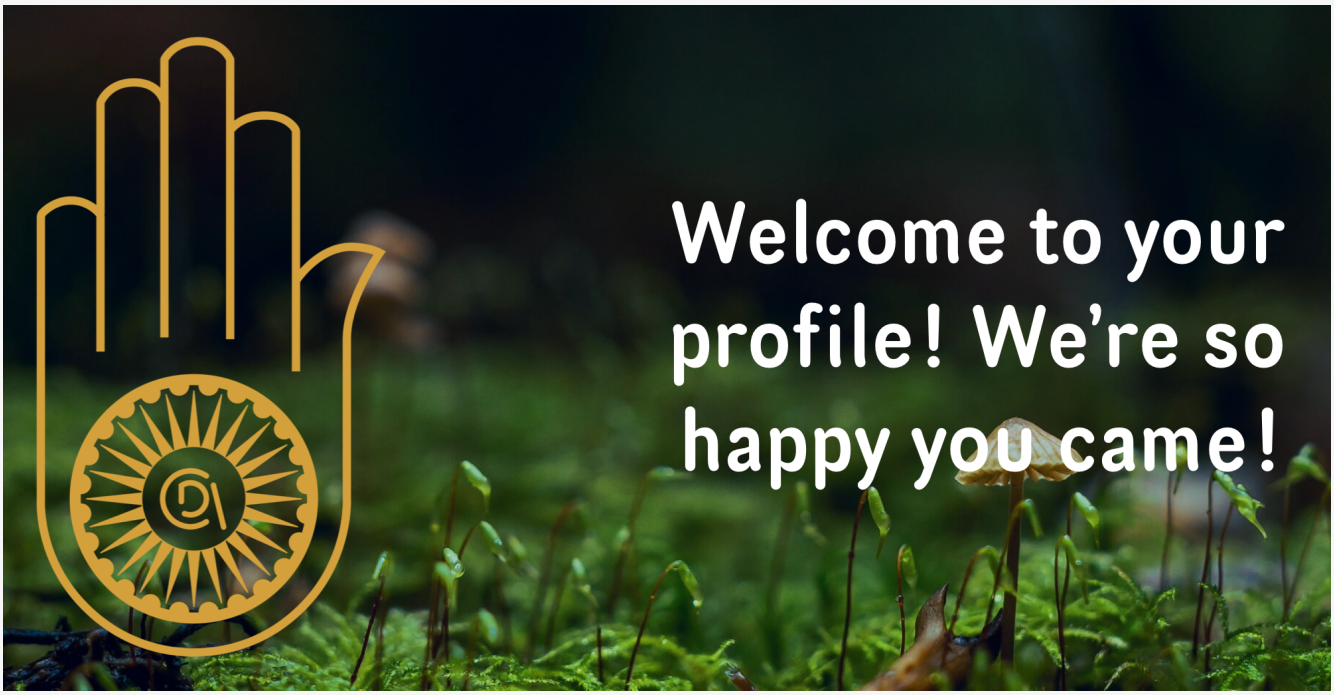
Sponsor a Child

Create a better world, and life for your loved ones

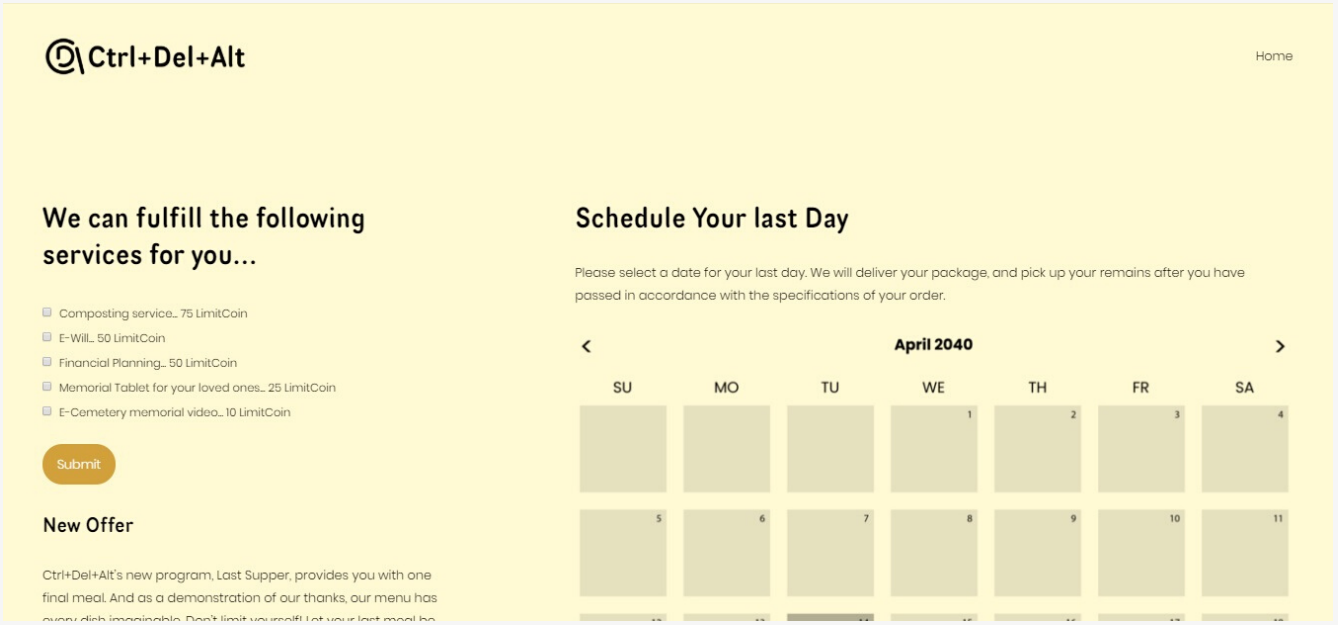
Create an opportunity for a child, or grant a loved one the permission to have a baby of their own

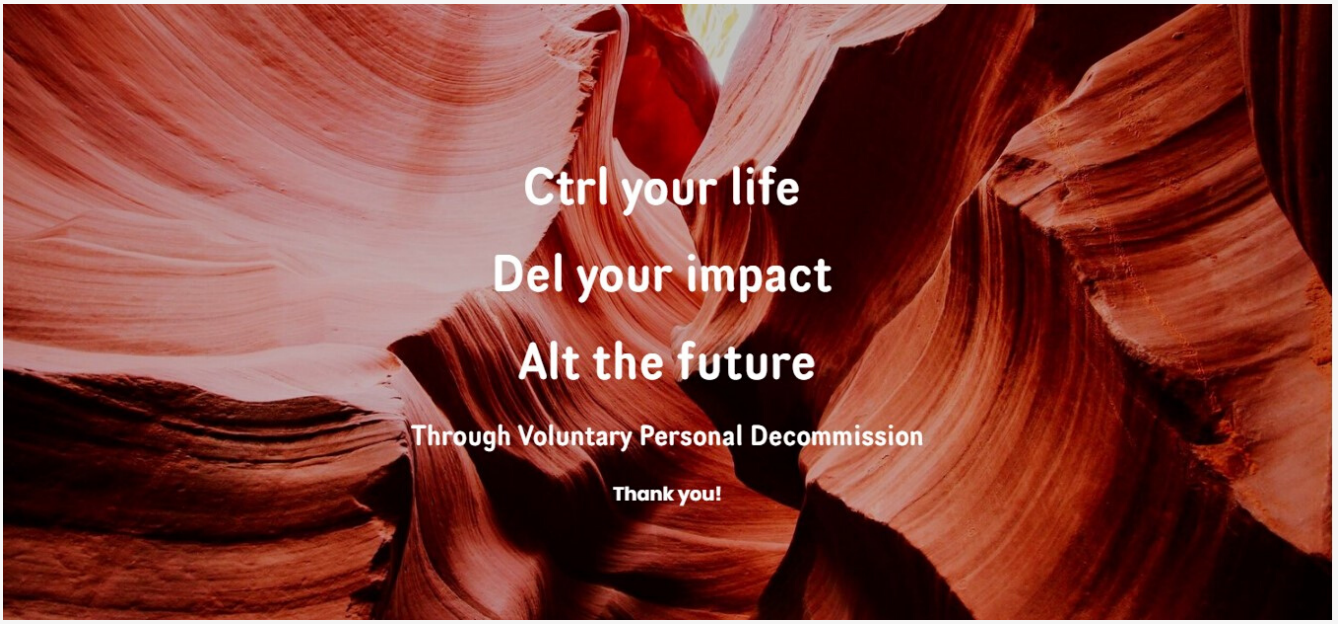
Purchase

USERS SELECT WHAT CAUSE TO CONTRIBUTE TO. UNBEKNOWNST TO THE VIEWER, THE "SPONSOR A CHILD" OPTION IMPLIES A "ONE-IN-ONE-OUT" SYSTEM OF FAMILY PLANNING.

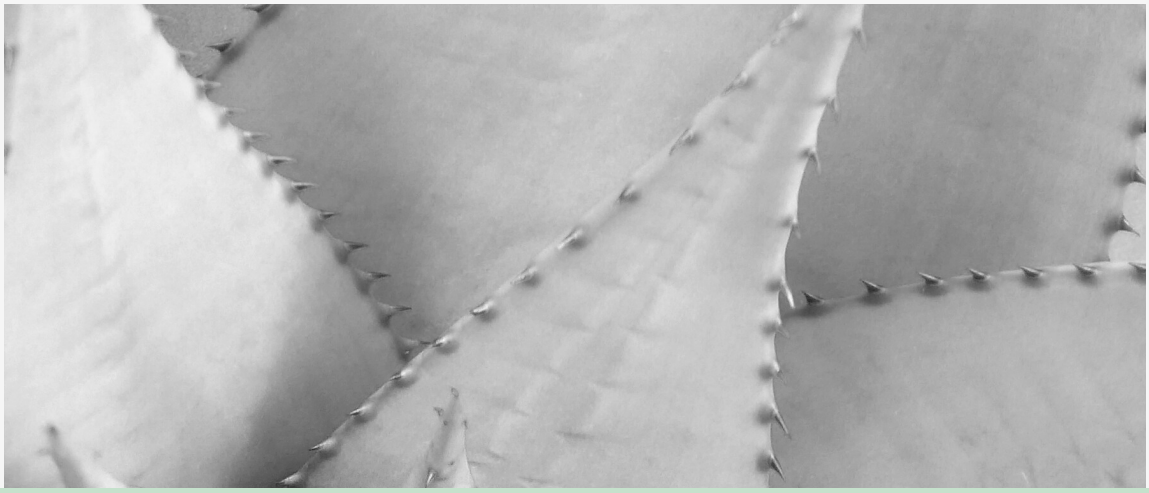


OUR LOGO BORROWS FROM THE RELIGION OF JAINISM. FOLLOWERS OF JAINISM LIVE AUSTERE LIVES, AND SOME PERFORM "SALLEKHANA, A VOLUNTARY FAST TO DEATH MEANT TO BREAK REINCARNATION CYCLES.

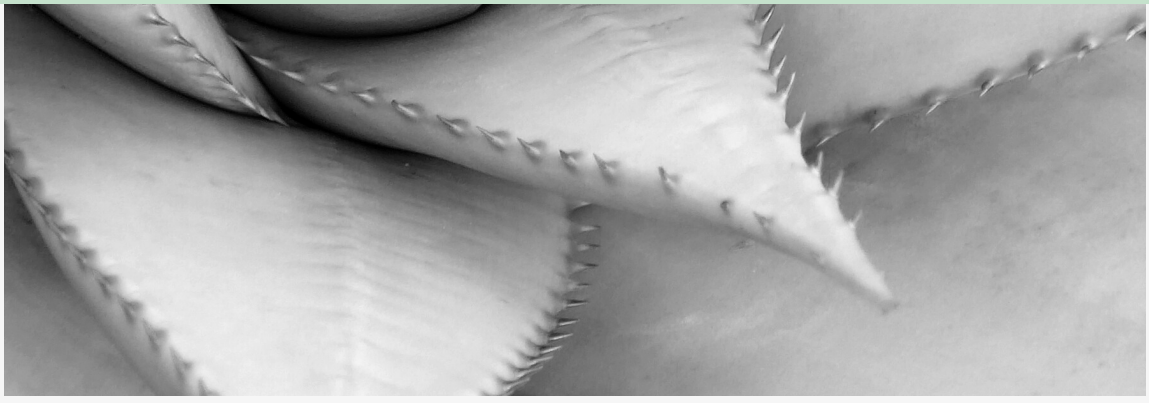




THE GRAND REVEAL



REFERENCES



TRENDS:

1 Life After Death

Kazior, John P, Finally, a place to compost your body when you're done with it. (2020, January 8). Core77. https://www.core77.com/posts/92040/Finally-A-Place-To-Compost-Your-Body-When-Youre-Done-With-It

Biswas, S. (2015, August 21). Should Jains be given the choice to die? BBC News. https://www.bbc.com/news/world-asia-india-33998688

Blouin, S. (2018, May 23). 'Suicide tourism' and understanding the Swiss model of the right to die. The Conversation. https://theconversation.com/suicide-tourism-and-understanding-the-swiss-model-of-the-right-to-die-96698

Pressly, L. (2018, August 9). The troubled 29-year-old helped to die by Dutch doctors. BBC News. https://www.bbc.com/news/stories-45117163

Glenza, J. (2020, April 9). Who gets a ventilator? The 'gut-wrenching' choices facing US health workers. the Guardian. https://www.theguardian.com/world/2020/apr/09/us-healthcare-workers-make-gut-wrenching-decisions-coronavirus

Cohen, E., & Cohen, M. (2020, April 7). Lupus and arthritis patients facing hydroxychloroquine shortage. CNN. https://www.cnn.com/2020/04/07/health/hydroxychloroquine-shortage-lupus-arthritis/index.html

2 Wild Heals: Welcome to the Urban Forest

Wood, C. (2020, January 8). Ecotherapy aims to tap into nature to improve your wellbeing. Retrieved from https://theconversation.com

Dewar, G. (2018, February). Outdoor learning: How kids benefit from learning and playing in nature. Retrieved from https://www.parentingscience.com

Qadqawd(2018, November 8). A prescription for "nature" - the potential of using virtual nature in therapeutics. Retrieved from https://www.ncbi.nlm.nih.gov

Roberts, D. (2018, April 11). This company wants to build a giant indoor farm next to every major city in the world. Retrieved from https://www.vox.com

The Group Raising An NRA-Style 'Army Of Environmental Super Voters? Is Expanding. (2019, September 1). Retrieved from https://www.huffingtonpost.ca/entry/climate-vote-2020-environmental-voter-project_n_5d689479e4b0488c0d12103e?ri18n=true

Dunford, J. (2020, January 19). 10 of the best UK spas and wellbeing holidays. Retrieved from https://www.theguardian.com

Win, T.L. (2019, September 24). The United Nations wants to grow urban forests in 30 countries. Retrieved from https://www.weforum.org

Changing Urban Agriculture Through Tech and Innovation. (2019, December 16). Retrieved from https://foodtank.com/news/2019/12/16-initiatives-changing-urban-agriculture-through-tech-and-innovation/

Stuek, W. (2018, May 16). Vancouver struggling to keep trees in the face of development. Retrieved from https://www.theglobeandmail.com

3 Gene Editing and Cloning

Mannix, L. (2020, January 15). Melbourne scientists are trying to edit quoll DNA to make them cane-toad proof. Retrieved February 6, 2020, from https://www.smh.com.au/national/melbourne-scientists-are-trying-to
-edit-quoll-dna-to-make-them-cane-toad-proof-20200115-p53rqt.html

Wee, S.-lee. (2019, December 30). Chinese Scientist Who Genetically Edited Babies Gets 3 Years in Prison. Retrieved February 6, 2020, from https://www.nytimes.com/2019/12/30/business/china-scientist-genetic-baby-prison.html

Deutsche Welle. (2019, March 26). Japanese scientists make breakthrough in cloning a woolly mammoth: DW: 26.03.2019. Retrieved February 6, 2020, from https://www.dw.com/en/japanese-scientists-make
-breakthrough-in-cloning-a-woolly-mammoth/a-48063060

Coghlan, A. (2012, November 12). Brazil aims to clone endangered animals. Retrieved February 6, 2020, from https://www.newscientist.com/article/dn22493-brazil-aims-to-clone-endangered-animals/

Grunewald, S. (2019). CRISPR's Creatures: Protecting Wildlife in the Age of Genomic Editing. UCLA Journal of Environmental Law and Policy, 37(1). Retrieved February 6, 2020, from https://escholarship.org/uc/item/79k515j0

4 Forests as a Source of Energy

World's first plant-based IoT sensor transmits into space. (2020, January 16). Retrieved from https://www.theinternetofallthings.com/worlds-first-plant-based-iot-sensor-transmits-into-space/

Engineers create plants that glow. (2017, December 12). Retrieved from https://news.mit.edu/2017/engineers-create-nanobionic-plants-that-glow-1213

Sorrel, C. (2015, December 1). These Plant-Powered Lamps Light Up A Peruvian Rainforest Village. Retrieved from https://www.fastcompany.com/3054031/these-plant-powered-lamps-light-up-a-peruvian-rainforest-village

Plants can generate electricity? and we may be able to use it · Earth.com. (2019, February 14). Retrieved from https://www.earth.com/news/plants-generate-electricity/

Nicola Davison, CNN. (2018, January 8). Could glowing plants replace light bulbs? Retrieved from https://www.cnn.com/style/article/glowing-plants-mit/index.html

5 The Wild Will Have a Voice

Duhaime-Ross, A. (2020, January 23). Kashmir's internet has been shut down for 5 months [Audio Podcast]. Retrieved from https://open.spotify.com/episode/2M3KIjMo3R021XjBMTt9u?si=7Z7tQ42ATNaoLyyeW_ekcA

Hidalgo, C. [TED]. (2019, April 3). A bold Idea to Replace Politicians [Video]. YouTube. https://www.youtube.com/watch?v=CyGWML6cI_k

Watts, J. (2019, July 24). Make Environmental Damage a War Crime, Say Scientists. The Guardian. https://www.theguardian.com/law/2019/jul/24/make-environmental-damage-a-war-say-scientists-geneva-convention

Wright, G. (2019, April 7). Floating cities - fantasy or the future. BBC News. https://www.bbc.com/news/world-47827136

6 (Human Senses)x10

Conti, M. [TED]. (2017, February 28). The incredible Inventions of Intuitive AI [Video]. YouTube. https://www.youtube.com/watch?v=aR5N2Jl8k14

Eagleman, D. [Talks at Google]. (2018, July 6). Can We Create New Senses for Humans? [Video]. YouTube. https://www.youtube.com/watch?v=3epJuzVfvgc

Gent, E. (2019, May 23). The Government is Serious About Creating Mind-Controlled Weapons. Live Science. https://www.livescience.com/65546-darpa-mind-controlled-weapons.htmlGrunewald, S. (2019). CRISPR's Creatures: Protecting Wildlife in the Age of Genomic Editing. UCLA J. Envtl. L. & Pol'y, 37, 1.

Robitzski, D. (2020, January 16). NASA Wants to grow a Moon Base Out of Mushrooms. Futurism. https://futurism.com/the-byte/nasa-grow-moon-base-mushrooms

Wired. (2019, August 9). Machine Learning Takes the Guesswork Out of Design Optimization. https://www.wired.com/brandlab/2019/08/machine-learning-takes-guesswork-design-optimization/

7 Vertical Farm to Table

Carrington, D. (2019, February 10). Plummeting insect numbers 'threaten collapse of nature'. Retrieved February 6, 2020, from https://www.theguardian.com/environment/2019/feb/10/plummeting-insect-numbers-threaten-collapse-of-nature

Monbiot, G. (2020, January 8). Lab-grown food is about to destroy farming – and save the planet | George Monbiot. Retrieved February 6, 2020, from https://www.theguardian.com/commentisfree/2020/jan/08/lab-grown-food-destroy-farming-save-planet

Roberts, D. (2018, April 11). This company wants to build a giant indoor farm next to every major city in the world. Retrieved February 6, 2020, from https://www.vox.com/energy-and-environment/2017/11/8/16611710/vertical-farms

Houck, B. (2019, March 26). America's Obsession With Oat Milk Is Hurting the Dairy Industry. Retrieved February 6, 2020, from https://www.eater.com/2019/3/26/18282831/milk-sales-fall-2018-plant-based-alternatives

Curtin, M. (2018, March 30). 73 Percent of Millennials are Willing to Spend More Money on This 1 Type of Product. Retrieved February 6, 2020, from https://www.inc.com/melanie-curtin/73-percent-of-millennials-are-willing-to-spend-more-money-on-this-1-type-of-product.html

8 Growing Tomorrow

Conti, M. [TED]. (2017, February 28). The incredible Inventions of Intuitive AI [Video]. YouTube.

Kelly, E. (2019, February 18). How the Animals of Chernobyl Thrive in the Radioactive Red Forest. All That's Interesting. https://allthatsinteresting.com/chernobyl-animals-red-forest

Robitzski, D. (2020, January 16). NASA Wants to grow a Moon Base Out of Mushrooms. Futurism. https://futurism.com/the-byte/nasa-grow-moon-base-mushrooms

Taranola, A. (2018, October 3). The future of indoor agriculture is vertical farms run by robots. Engadget. https://www.engadget.com/2018/10/03/future-indoor-agricul ture-vertical-farms-robots/

Trafton, A. (2017, December 12). Engineers Create Plants That Glow. MIT News. http://news.mit.edu/2017/engineers-create-nanobionic-plants-that-glow-1213

Wired. (2019, August 9). Machine Learning Takes the Guesswork Out of Design Optimization. https://www.wired.com/brandlab/2019/08/machine-learning-takes-guess work-design-optimization/

9 Reversed Polarities Towards Nature

Shepard, W. (2018, May 2). Cities from the sea: the true cost of reclaimed land. Retrieved February 6, 2020, from https://www.theguardian.com/cities/2018/may/02/cities-from-the-sea-the-true-cost-of-reclaimed-
land-asia-malaysia-penang-dubai

Karki, M., & Sellamuttu, S. S. (2018, May 23). Asia's Environment Is at a Tipping Point. Retrieved February 6, 2020, from https://thediplomat.com/2018/05/asias-environment-is-at-a-tipping-point/

Welz, A. (2019, April 24). How Kenya's Push for Development Is Threatening Its Famed Wild Lands. Retrieved February 6, 2020, from https://e360.yale.edu/features/how-kenyas-push-for-development-is-threatening-its-prized-wild-landst

Simon, F. (2019, December 11). EU Commission unveils 'European Green Deal': The key points. Retrieved February 6, 2020, from https://www.euractiv.com/section/energy-environment/news/eu-commission-
unveils-european-green-deal-the-key-points

Carrington, D. (2019, November 16). Reforesting the UK: 'Trees are the ultimate long-term project'. Retrieved February 6, 2020, from https://www.theguardian.com/environment/2019/nov/16/
reforesting-the-uk-trees-are-the-ultimate-long-term-project

Devarajan, K. (2020, January 17). How 'Namaste' Flew Away From Us. Retrieved February 6, 2020, from https://www.npr.org/sections/codeswitch/2020/01/17/406246770/
how-namaste-flew-away-from-us

10 Privatization of the Wild

Earth’s most biodiverse ecosystems face a perfect storm. (2020, January 27). Retrieved February 6, 2020, from https://www.lancaster.ac.uk/news/earths-most-biodiverse-ecosystems-face-a-perfect-storm

Service, W. (2019, April 10). The privatization of BC's wildlife. Retrieved February 6, 2020, from https://www.houston-today.com/news/the-privatization-of-bcs-wildlife/

Glamping Market Size Worth $4.8 Billion by 2025 | CAGR: 12.5%: Grand View Research, Inc. (2019, September 19). Retrieved February 6, 2020, from https://www.bloomberg.com/press-releases/2019-09-19/glamping-market-size-worth-4-8-billion-by
-2025-cagr-12-5-grand-view-research-inc

Privatizing Wildlife: Dangerous Trend or Economic Necessity? (2019, May 31). Retrieved February 6, 2020, from https://www.nathab.com/blog/privatizing-wildlife-dangerous-trend-or-economic-necessity/

Wood, C. (2020, January 8). Ecotherapy aims to tap into nature to improve your wellbeing. Retrieved February 6, 2020, from https://theconversation.com/ecotherapy-aims-to-tap-into-nature-to-improve-your-wellbeing-128433

11 The New Urban Ecosystem

Wright, G. (2019 April 7). Floating cities -fantasy or the future? BBC News. Retrieved fromhttps://www.bbc.com/news/world-47827136

Kazior, P. J. (2020 January 8). Finally, A Place To Compost Your Body When You'reDone With It. Core 77.Retrieved from https://www.core77.com/posts/92040/Finally-A-Place-To-Compost-Your-Body -When-Youre-Done-With-It

Cesco-Resia, Y. (2019 july 29). Monsieur Plant: The Urban Gardener. Juxtapoz. Retrieved fromhttps://www.juxtapoz.com/news/sculpture/monsieur-plant-the-urban-gardener/

Wood, C. (2020 january 2). Ecotherapy aims to tap into nature to improve your wellbeing. TheConversation. Retrieved from https://theconversation.com/ecotherapy-aimsto-tap-into-nature -to-improve-your-wellbeing-128433

Dewar, G. (2019). Outdoor learning and green time: How kids benefit from learning and playing in nature. ParentingScience. Retrieved from https://www.parentingscience.com/outdoorlearning.html

Taylor, V. (2020 January 19). Title: RESET Home: Design for the Senses. IDS 2020 Concept Space. Retrieved from https://vtla.ca/project/ids-2020/

Cruickshank, A. (2018 July 25). Vancouver to develop green roof policy. The Star. Retrieved fromhttps://www.thestar.com/vancouver/2018/07/25/vancouver-to-develop-green-roof-policy.html

Dewar, G. (2019). Outdoor learning and green time: How kids benefit from learning and playing in nature. ParentingScience. Retrieved from https://www.parentingscience.com/outdoor-learning.html

Oli, S. (2015 October 24). Moss-growing concrete absorbs CO2, insulates and is also a vertical garden. THE PLAID ZEBRA. Retrieved from https://www.theplaidzebra.com/moss-growing-concrete-absorbs-co2-insulates-and-is-also-a-vertical-garden/?fbclid=IwAR2kpVJiMevHKXuKfMd4yrOZ0R84oIMuHSfgu5BKxjoxcah-ktrownVqAd8

12 The Plastic War

Katz, C. (2019 March 07). Piling Up: How China's Ban on Importing Waste Has Stalled Global Recycling.Yale School of Forestry & Environmental Studies. Retrieved from https://e360.yale.edu/features/piling-up-how- chinas-ban-on-importing-waste-has-stalled-global-recycling

Guy, J. (2019 May 22). The final straw: England bans plastic items from April 2020. CNN. Retrieved from https://www.cnn.com/2019/05/22/uk/uk-straw-ban-scli- intl-gbr/index.html

Knapton, S. (2018 February 11). The Queen declares war on plastic after David Attenborough documentary. The Telegraph. Retrieved from: https://www.telegraph.co.uk/news/2018/02/11/queen-declares-war-plastic-david-attenborough-documentary/

Harvey, F. & Watts, J. (2018 October 22). Microplastics found in human stools for the first time.The Guardian. Retrieved from: https://www.theguardian.com/environment/2018/oct/22/microplastics-found-in-human-stools-for-he-first-time

Field, A. (2019 August 31). Reusable Packaging Startup Loop Makes Headway On Store Shelves. Forbes. Retrieved from: https://www.forbes.com/sites/annefield/2019/08/31/reusable-packaging-startup-loop-makes-headway-on-store-shelves/#2974633209a9

City of Toronto. (2018 March 22). State of Toronto's Blue Bin Recycling Program. City of Toronto. Retrieved from: https://www.toronto.ca/legdocs/mmis/2018/pw/bgrd/backgroundfile-113576.pdf

Lewis, J. (2019 June 10). Single-use plastics
ban poses challenge for Canada's fossil fuel sector. The Globe and Mail. Retrieved from https://www.theglobeandmail.com/canada/article- single-use-plastics-ban-poses-challenge-for-canadas- fossil-fuel/

Coles, J. (2016, April 20). Earth - How nature is good for our health and happiness. Retrieved March 16, 2020, from http://www.bbc.com/earth/story/20160420-how-nature-is-good-for-our-health-and-happiness

Veeresham C. Natural products derived from plants as a source of drugs. J Adv Pharm Technol Res. 2012;3(4):200–201. doi:10.4103/2231-4040.104709

University of East Anglia. "It's official -- spending time outside is good for you." ScienceDaily. ScienceDaily,
6 July 2018. <www.sciencedaily.com/releases/2018/07/18070610284>.

SCENARIO GROWTH

Bleyer, J. (2013). Trip to the Doctor: Once Taboo, Psychedelics are Making an Enlightening Medical Comeback. NYU Alumni Magazine, (Issue 20).
https://www.nyu.edu/alumnimagazine/issue20/FEA_1.html

Eagleman, D. [Talks at Google]. (2018, July 6). Can We Create New Senses for Humans? [Video]. YouTube. https://www.youtube.com/watch?v=3epJuzVfvgc

Frearson, A. (2019, December 31). Superflux Shows How Future Homes Might Face Realities of Climate Change in 2219. Dezeen. https://www.dezeen.com/2019/12/31/superflux-mitigation-of-shock-climate-change-future-imagined/

Hasemyer, D. (2020, January 17). Fossil Fuels on Trial: Where the Major Climate Change Lawsuits Stand Today. Inside Climate News. https://insideclimatenews.org/news/04042018/climate-change-fossil-fuel-company-lawsuits-timeline-exxon-children-california-cities-attorney-general

Jefferson, R. S. (2019, August 26). 'Extraordinary' Breakthroughs In Anti-Aging Research 'Will Happen Faster Than People Think'. Forbes
https://www.forbes.com/sites/robinseatonjefferson/2019/08/26/how-extraordinary-breakthroughs-in-anti-aging-research-will-happen-faster-than-people-think/#4177f82833dd

Lubick, N. (2019). Q&A: Keeping antivirals viable. Nature Research Journal
https://www.nature.com/articles/d41586-019-02752-9

Manaugh, G. (2009). Cities Gone Wild. Architectural Design, 79(5), 56-61.
https://doi.org/10.1002/ad.950

Sorrel. (2019, June 5). Sorrel Medical's Wearable Drug Delivery Platform Wins 2019 MedTech Breakthrough Award. https://www.prnewswire.com/news-releases/sorrel-medicals-wearable-drug-delivery-platform-wins-2019-medtech-breakthrough-award -300862323.html

Suttie, J. (20116, September 15). How to Protect Kids from Nature-Deficit Disorder.Greater Good Magazine. https://greatergood.berkeley.edu/article/item/how_to_protect
kids_from_nature_deficit_disorder

The Most Advanced Bionic Leg on the Planet & the Team Bringing it to Life. (2019, August 28). Freethink https://www.freethink.com/shows/superhuman/season-5/most-advanced-bionic-leg

Urry, A. (2019). Scientists are putting antibiotics into the ocean - on purpose. And it’s our only hope.: A Mysterious new coral epidemic is raveging reefs across the Florida Keys.Popular Science.
https://www.popsci.com/coral-antibiotics-science/

White, M. P., Yeo, N. L., Vassiljev, P., Lundstedt, R., Wallergård, M., Albin, M., & Lõhmus, M. (2018). A prescription for “nature”–the potential of using virtual nature in therapeutics. Neuropsychiatric disease and treatment, 14, 3001.

Wired. (2019, August 9). Machine Learning Takes the Guesswork Out of Design Optimization. https://www.wired.com/brandlab/2019/08/machine-learning-takes-guesswork-design-optimization/

Wood, C. (2020, January 2). Ecotherapy Aims to Tap Into Nature to Improve Your Wellbeing. The Conversation http://theconversation.com/ecotherapy-aims-to-tap-into-nature-to-improve-your-wellbeing-128433

Wright, G. (2019, April 7). Floating cities - fantasy or the future. BBC News. https://www.bbc.com/news/world-47827136

SCENARIO COLLAPSE

Carrington, D. (2017 July 10). Earth's sixth mass extinction event under way, scientist warn. The Guardian. Retrieved from https://www.theguardian.com/environment/2017/jul/10/earths-sixth-mass-extinction-event-already-underway-scientists-warn

Ferdowsian, H. R., & Beck, N. (2011). Ethical and scientific considerations regarding animal testing and research. PloS one, 6(9). Retrieved from https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0024059

McSweeney, R. (2019 August 6). Explainer:'Desertification' and the role of climate change. Carbon Brief. Retrieved from https://www.carbonbrief.org/explainer-desertification-and-the-role-of-climate-change

Pascal, A. & Hwang, T. (2019 August 26). War is as War Does: World Order and the Future of Conflict. Just Security. Retrieved from https://www.justsecurity.org/65959/war-is-as-war-does-world-order-and-the-future-of-conflict/

Stone, L. (2020 January 9). The Global Fertility Crisis. National Review. Retrieved from https://www.nationalreview.com/magazine/2020/01/27/the-global-fertility-crisis/

SCENARIO DISPLINE

Appleby, J. (2020, March 16). Self-Quarantine? Isolation? Social Distancing? What They Mean And When To Do Them. Retrieved March 16, 2020, from https://www.npr.org/sections/healthshots/2020/03/16/816490025/quarantine-self-isolation-social-distancing-what-they-mean-and-when-to-do-them

Carrington, D. (2014, October 12). Drugs flushed into the environment could be cause of wildlife decline. Retrieved March 16, 2020, from https://www.theguardian.com/environment/2014/oct/13/drugs-flushed-into-the-environment-could-be-cause-of-wildlife-decline

Cohut, M. (2019, November 18). What is the state of the antibiotic resistance crisis? Retrieved March 16, 2020, from https://www.medicalnewstoday.com/articles/327050

Harrabin, R. (2019, September 23). Greta Thunberg: 'Leaders failed us on climate change'. Retrieved March 16, 2020, from https://www.bbc.com/news/world-49795270

Monbiot, G. (2020, January 8). Lab-grown food is about to destroy farming – and save the planet | George Monbiot. Retrieved February 6, 2020, from https://www.theguardian.com/commentisfree/2020/jan/08/lab-grown-food-destroy-farming-save-planet

Simon, F. (2019, December 11). EU Commission unveils 'European Green Deal': The key points. Retrieved February 6, 2020, from https://www.euractiv.com/section/energy-environment/news/eu-commission-unveils-european-green-deal-the-key-points

Thornhill, J. (2019, September 29). 'I gave away our stuff': the minimalists doing more with less. Retrieved March 16, 2020, from https://www.theguardian.com/money/2019/sep/29/i-sold-our-house-and-gave-away-our-stuff-the-minimalists-doing-more-with-less

Wee, S.-lee. (2019, December 30). Chinese Scientist Who Genetically Edited Babies Gets 3 Years in Prison. Retrieved February 6, 2020, from https://www.nytimes.com/2019/12/30/business/china-scientist-genetic-baby-prison.html

Wood, C. (2020, January 8). Ecotherapy aims to tap into nature to improve your wellbeing. Retrieved February 6, 2020, from https://theconversation.com/ecotherapy-aims-to-tap-into-nature-to-improve-your-wellbeing-128433

SCENARIO TRANSFORM

9 Weird Predictions About The Future of Healthcare. (2018, July 6). The Medical Futurist. https://medicalfuturist.com/weird-predictions-future-healthcare/

12 innovations that will revolutionize the future of medicine. (2018, December 13). National Geographic. https://www.nationalgeographic.com/magazine/2019/01/12-innovations-technology-revolutionize-future-medicine/

Goss, P. (2010, March 31). Google unveils Translate for Animals Android app. TechRadar. https://www.techradar.com/news/phone-and-communications/mobile-phones/google-unveils-translate-for-animals-android-app-680901

Healthy urban forests promote healthy futures. (2019, August 15). UBC Faculty of Forestry. https://forestry.ubc.ca/2015/03/healthy-urban-forests-promote-healthy-futures/

Mendis, D. (2020, January 10). 3D printing of body parts is coming fast – but regulations are not ready. The Conversation. https://theconversation.com/3d-printing-of-body-parts-is-coming-fast-but-regulations-are-not-ready-128691

Piper, R. (2017, January 27). Drugs from bugs: the next blockbuster medicine could be lurking inside an insect. The Conversation. https://theconversation.com/drugs-from-bugs-the-next-blockbuster-medicine-could-be-lurking-inside-an-insect-71831

Piper, R. (2018, December 13). Nature is a rich source of medicine – if we can protect it. The Conversation. https://theconversation.com/nature-is-a-rich-source-of-medicine-if-we-can-protect-it-107471

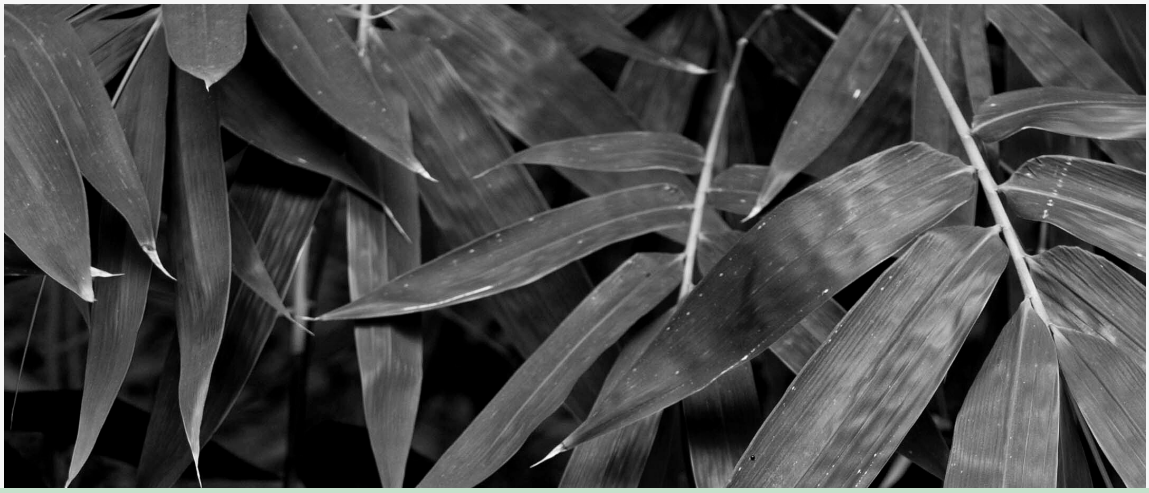
Spirulina in Health Care Management: Ingenta Connect. (n.d.). Home: Ingenta Connect. https://www.ingentaconnect.com/content/ben/cpb/2008/00000009/00000005/art00009

Top 20 Medical Technology Advances: Medicine in the Future. (2020, March 10). The Medical Futurist. https://medicalfuturist.com/20-potential-technological-advances-in-the-future-of-medicine-part-i/

The World in 2040: The Future of Living. (2019, October 29). WebWire. https://www.webwire.com/ViewPressRel.asp?aId=249182

https://www.discovermagazine.com/health/drugs-from-bugs-bioprospecting-insects-to-fight-superbugs

https://canva.com



APPENDIX

GENERIC IMAGES

	Growth	Collapse	Limit/Discipline	Transform
Energy	• Stabilizing	• Uncontrollable population growth	• Population growth policy • Social education to reduce population	• Singularity happens - AI is part of population • "Human" population decreases - depression etc
Economy	• Renewable Increase - clean energy • More Demand for energy (Data Farms)	• Fight over energy - not accessible • Global conflicts over resources - wars • From international war to civil wars over energy • Highly develop of reusable energy	• Rationed	• Creating energy grit • Multiple sources of energy
Environment	• Youth unemployment increases •Economy is strong - increased productivity	• Rapid volatility • Mass hysteria • Decline due to black swan	• More complex tax structures and regulations	• Wealth is spread • Philanthropy is required • Reallocation of taxes • Global economy (shared) not just local
Cultures	• Increased respect for environment • Removal - man is supreme • Harvesting enviro. for health gains	• Use what you can while you can	• Environmental passports • Controlled sanctuaries - reforesting • Reserves of wild - plants & animals • AI monitors/manages environment	• Rewilding urban spaces • People live with, not in the wild

	Growth	Collapse	Limit/Discipline	Transform
Technology	• Accelerating - Being used to solve, not to prevent problems • Tech helps us prepare for black swans • Omnipresent	• Tech in the hands of the powerful • Tech creates new problems • Tech is weaponized • Stops working effectively • Used to control, not solve problems/better humanity	• Use of tech is limited - manage singularity • Parameters on tech emergence • Fear of tech centered future limits acceptance • Regulations - tech pacts • Critical of tech: consider human factor	• Tech dominated • Transformative biotech emergence • Tech develops new tech • Tech develops new species
Governance	• Cooperate with focus to grow • Cooperation based on interest - "scratch my back" "Enemy of my enemy..."	• Interest in local	• Global governing body • Less free market - more governance • Stricter immigration/citizenship laws • Regulations and regiments • Carbon taxes etc	• border/territory changes • Restrictive environment policy • Citizen led - greater good of mankind
Healthcare	• Accelerating advancements in predictive + preventative tech • No lifestyle diseases • Focus on aging reduction tech	• Accessibility to basic healthcare and new treatments is limited to the wealthy	• Push for preventative healthcare • Controlled emergence • Banning animal testing • Assisted suicide	• CRISPR - no disease -designer babies / pets • "Forever young" • Transhumanism emerges • AI is your doctor - "A.D.M." -automated doctor machine
Education	• Unschooling or unlearning • Study for specific jobs • Depreciation for history/arts ect. • Increased accessibility through tech (remote) • Transforming away from standardization • Exposure to the wild	• Does not serve the needs of requirements • Conflicting sources of information	• Capsule courses • Upskilling • Compartmentalized teaching - learn what comes naturally	• Self learning - seek topics • A.I. does skilled jobs - learn in innovation spaces • School is not a building • Brain tech integration - bandwidth allows immersive learning • Direct learning through VR experiences • AI finds abilities and strengths

SCRIPT

AN IMMERSIVE AUDIO-VISUAL PRESENTATION

DELIVERED from four different locations VIA Microsoft TEAMS

Voice 1 (sets the context) :
[Face shows up on screen as he/she addresses the audience]

Good morning!

As a team, we set out to explore the interplay between health, wellbeing, and nature. Nature has been used as a source of healing for centuries...Even today, half of newly approved drugs have come from natural products. Exposure to nature is also associated with diverse health benefits including better sleep, reduced stress, and reduced risk of lifestyle diseases.

Our approach considers that changes in ecology translate to changes in the management of human health and wellbeing, and that these changes could either dismantle our world or transform it for the better.

Our worldbuilding and scenario building were conducted through the use of Causal Layered Analysis and Generic Images of the Future. Keeping health, wellbeing, and nature in mind, we landed on the metaphor of "survival of the fittest" for our current state. We believe that it exemplifies the push for productivity and the desire to be better, faster, and stronger.

We then used Generic Images as a framework for deriving new metaphors. Our experiential future is a dramatized approach on our Limit & Discipline scenario, characterized by the metaphor "Life is Suffering". This is a world on the verge of collapse, where an ounce of prevention is worth a pound of cure–where austerity and minimalism are the status quo.

Following a series of natural disasters and disease outbreaks, Overconsumption comes to a screeching halt...humans finally blame themselves for ecological degradation – and a sense of collective guilt prevails. The young are the lucky ones in this scenario as they've been genetically treated in utero to be more resistant to illness. Providing healthcare for those who have not had their genes edited at birth (us in this case) is a growing concern.

Our story follows Iman, a resident of this future interacting with a new service called VPD. We're about to start, please make sure your mics are muted, we'll be using the screen to take you through our world

He exits

[Notification sounds as if a mail has landed in an inbox!]

Blank screen and a background narration begins to a dark screen begins

April 14, 2040.

The official-looking communication arrived in the morning. Iman had just finished the half-hour of daily prescribed exercise. The message is an invitation… a suggestion… and also a prescription!

The world has changed much in the last two decades, she thinks… looking back at time when she was just 10. Self-isolation, physical distancing, elaborate cleansing rituals …. that defined the social behaviours that year, became a norm, and then intensified.

…that year shaped the years to come and the missive she has got today is just one of the series of chain reactions unleashed since 2020.

Scarcity of nature, limit on resources followed—favourite foods have had to be forgotten. Healthcare systems too were shaken up… medicines we had come to expect as our right, became elusive just like that… In some countries triage rules were rewritten every few hours… people were locked up in their homes, some forced by law, some out of fear… while wild animals roamed the streets …

Strict discipline, self-control… extreme self-control why some of us eat only once a day.

Prevention is better than cure perhaps because there is not enough cure going around, 'People can't be left to own devices', 'Say no to antibiotics', 'Life is full of suffering' —it is as if the rules of living have been rewritten. Where we once feared wars, we now fear outbreaks and natural disasters, sudden, deadly and more corrosive than any weapon.

Some lessons have had to be learnt the hard way! The earth is creaking, nine billion humans are too much for it (even though we are all on fertility blockers and living minimalist lifestyles, not always out of choice, but forced due to necessity). Wildlife has gotten constrained to smaller and smaller green spaces that you pay to enter and experience.

Five years ago, EU established indices for hygiene and prevention, but still many of us live on the fringes of a frayed healthcare system and must make tough choices everyday…

for the greater good,

for the good of our planet…

for there is honour in that,

For that is our moral duty.

[the inbox shows on the screen, new unread email from CRTL+DEL+ALT]

[Iman opens the email, a robotic voice over reads the mail]

Iman follows the link to the website. Scrolls down and sees a chatbot offering assistance. Customer asks for assistance and is connected with an AI agent.

[Web phone ringing...]

[The dialoge that follows is between AI and Iman, the screen navigation is the visual tool here and leads Iman to decision-making and ordering process]

[Scroll up to video]

- AI: “good morning, Thank you for connecting with Ctrl+Del+Alt, this is representative #931. May I have your name please?”

- C: “Hello, I am Iman.”

- AI: “Hello Iman, how may I assist you today?”

- C: “Hi, I received a message which mentions that you guys can help me with my problems. Can you tell me more about your service?"

- AI: "I see that we have contacted you about the inability to increase your insulin. You have come to the right place to handle this situation. Is this your first time hearing about VPD?"

- C: “No, I have some mutual friends who have opted for VPD.”

- AI: “Okay, in that case let me walk you through our website. As stated in our mission, we are a company that empowers those who want to make a difference for the planet, and even for the people they love. Click find out more to begin your journey.”

[Scroll down to button]
Clicks [Find Out More]

[Information Page]

- AI: “We were named “Most carbon Efficient business” three years in a row by the Melinda Gates Foundation. Gretta Thurnburg named us this year’s “Innovation Business of the future.” We were also the top choice for Millennials in 2037 and 2039.”

[Scroll down to image]

- AI: “As you can see, our service will empower you to help the planet. Every customer has the opportunity to remove their carbon footprint."

[Scroll down to packages]

- AI: “Additionally you can choose one of our packages to focus your contribution in reforestation, supporting world food supplies, and even the opportunity to give a new birth to the world.”
“Iman, would you like to do more to save the planet?”

- C: “Yes, I suppose I should. This service sounds interesting. So how does your service work?”

- AI: “It is very simple, you just need to follow these 3 steps."

[Scroll down]

- AI: “After placing an order, a human representative will contact you to walk you through the steps of the service."

[Scroll down]

- AI: “Then you will have our service package files sent to your 3d printer, so you can print them out."

[Scroll down]

- AI: “The final step is to schedule a pick up time. We will handle it from there.”

[Scroll down to image]

- C: “eh. Do you have any other users' feedback on your service?”

- AI: “Many people are happy with our service. If you would like to see, I have put together some testimonials for you on the next page.”

[Scroll down to button]

- C: “Okay, thank you.”

clicks [Testimonials]

[Testimonials Page]

(playing videos)

- C: “Wow, it sounds like this could be a good option for me. I’d like to give it a shot. What should I do to place the order?"

- AI: “Great! I’m glad you’re interested. First, let's create your profile.

[Scroll down to button]

(Customer clicks [CreateYour Profile]

[Biometrics Page]

- AI: “Please open your camera, align your face with the biometric scanner, and click it to create your profile.”

- C: “Okay.” click

[biometric scanner]

- AI: “Thank you Iman, your profile is created. Now you can choose your preferred service.”

[Scroll down to packages]

- C: “Could you tell me more about each service?”

- AI: “Definitely. Each option offers a different need that you can contribute to. You can choose to plant more trees to help reforestation in a region of your choice. You can share your rations with your family or the community. Or you can create an opportunity for a child, or grant a loved one the permission to have a baby of their own.”

- C: “I do care for my family, however I’m living alone right now. I would like to do more for the earth.”

Clicks [Purchase] under Reforestation

[Purchase Page]

- AI: “That sounds Great! Please enter your information and choose your payment type. You can pay through your digital bank account or you can choose to redeem your LimitCoins.”

- C: “Okay. I will use my LimitCoins.”

- AI: “In that case, I will need you to scan the finger you registered on your LimitCoin account.”
C: “Got it.”

(fill the info and choose redeem the LimitCoin)

Clicks [Submit]

[Terms and Conditions Page]

- AI: “Here are our terms and conditions. Please read through our policy carefully. I would like to stress that our company is not liable for any damages or loss of property incurred after the use of our product. I would also like to stress that no recovery of losses may be sought by a second party after the use of our product. If you understand, and agree to these terms and conditions, then we may proceed to place the order.”

(Customer skims and agrees to terms)

- C: I think I understand everything. Eh...

[Silence...no response]

- AI: “I have not heard from you, are you still online?”

[Silence...no response]

- AI: “Need I remind you, that an insufficient prescription of your insulin will mean that your quality of life will be severely impacted."

- C: “You are right.”

Clicks [Agree and Checkout]

[Schedule Order Page]

- AI: “To complete your order, let's sort out your affairs, and schedule your last day. Also, you can feel free to choose the following options to upgrade your package.”

- C: “Can you tell me about the Composting service?”

- AI: “Of course! After you are decommissioned Ctrl+Del+Alt will gather your remains and dispose of them. Since you chose our Reforestation package, we will use your ashes to plant a tree in the place of your choice.”

- C: “That sounds nice, but I don’t have enough LimitCoins for that. I think I can only afford the memorial video. How does it work?”

- AI: “We will create a personalized video highlighting your life to be displayed in the blockchain cemetery.”

C: “Okay, Let’s go ahead with it.”

[Chooses Video]

Clicks [Submit]

- AI: “Notice too that we have a new promotion right now, which allows you to choose your last meal for free! You can choose from our exclusive menu or request your own meal.”

[Scroll Down]

- C: “Well, I have been thinking about fried chicken for 20 years. At least that dream will come true! Let’s do it.”

[type fried chicken]

- AI : “I also need to know who will be handling your belongings. Please select one of the choices.”

- C: “Okay, I will choose your company since I am not living with my family."

[Enter date]

Click [Submit]

- C: “Okay. I placed the order.”

- AI: “Thank you so much for opting for Voluntary Personal Decommission through Ctrl+Del+Alt. Your personal consultant will contact you within 30 minutes. If you have any immediate questions, please contact me again through the website. We hope you enjoy the rest of your life, and have a great journey onward.”

- C: “Thank you!”

[Closing narration with End screen as a visual prop]

Voluntary Personal Decommission?

Why Should a company like CRTL+DEL+ALT exist at all?….

Possibly due to mismatch between supply and the demand for healthcare resources (like now), forcing doctors go in for a utilitarian approach; treat “those patients with the highest chance of therapeutic success”.

Or will it be a result of new technologies in healthcare that will make some of us ‘ageless’ and ‘free of disease’, while for others the access to good healthcare will remain elusive or come at a crushing cost-- raising questions of ethics and distributive justice.

In the future, how will we choose to treat the most vulnerable among us? Will we turn our eyes away from the sanctity of human life? What if we, you and me, become the most vulnerable then!

Many deep and troubling ethical issues have emerged out of the present-day scenario and we see an extrapolation of that in our Limit future.

What kind of health care access do you want in 2040? For yourself and your family…