

WELCOME TO FORESIGHT 2019 NORTH AMERICA VERSION!

WHAT this is:

The Design Lab (dlab) spent all year collecting information about emerging trends in economics, society, technology, and politics. We analyzed these "signs" to create a set of paradigm shifts we imagined for the world of 2029. There are 27 cards – 24 correspond to 24 existential themes of modern human life – everything from transportation to learning and mortality; 3 reflect dark trends with imminent implications.

Foresight cards are NOT supposed to be predictive of the future; rather, they are designed to provoke conversations about how your customers might interact with your products and services in the future, and how your business may need to respond to those changing needs.

WHO made this:

dlab is a design team in CSI North America. We are a group of designers and social scientists. We understand that people are complicated, as is their relationship to technologies. Our mission is to improve peoples productivity, efficiency, and confidence with design. We encourage others to think about technologies from the user's perspective.

HOW to play (for 4 people):

1. Select 4 foresight cards. You can choose ones that you feel are more or least relevant to your business or draw at random.
2. Select a specific product or service you want to focus on. If you own a restaurant, for example, you might focus on students who come to your restaurant for lunch. Assign a card to each person for individual ideation.
3. Keeping these foresight cards in mind, imagine your future customers. What is the difference in the future compared to today? What would your future users find delightful?
4. Share your ideas with the group. How did different cards inspire different ideas?
5. Discuss with your group how your business may have to evolve to meet changing customer needs.
6. Discuss with your group how prepared you feel for the future. Create a list of skill sets, equipment, and tools you need to be better prepared.

BONUS FEATURE: To further enhance your discussions pick one or all dark cards to assess the results of your ideation.

NOW what?

Your foresight discussion is the starting point for designing a new product or service for the future. If you think of other foresight trends that you would like to add, use the blank cards and create them!

Curious about the next step or what other tools dlab uses in innovation? Visit us at our lab in Santa Clara, California! You can find us at www.hitachi-america.us

TRANSPORTATION



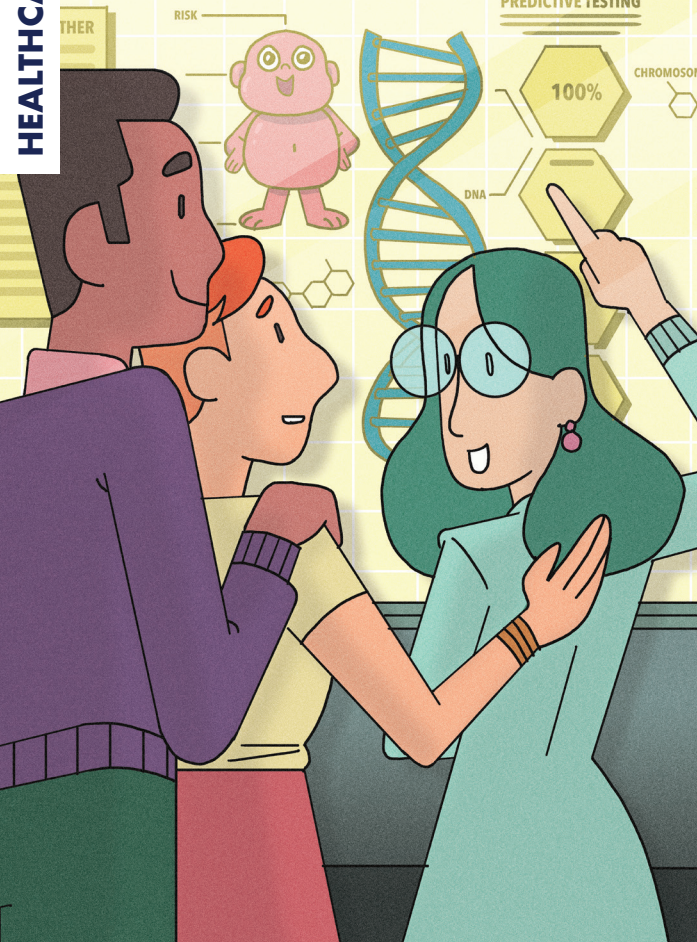
ADAPTIVE MOBILITY

Transportation is safe, versatile and personally satisfactory.

Automation dramatically improves transportation safety, efficiency (in both time and energy resources), and coordination – resulting in a diversification that meets every need and niche. Novel infrastructure and vehicle design push the boundaries of where we can go, how fast we can get there and what we can do en route. The cabins of personal and public transport configure for the tasks of the day - work, lounge, or entertainment space.

Trends to consider:

- Urbanization
- Autonomous transportation
- IOT, sensors, telematics, analytics
- Personal transportation devices
- Connected infrastructure
- Alternative fuels
- Sharing-economy



PREDICTIVE TESTING

RISK

100%

DNA

CHROMOSOMES

PROACTIVE ENGINEERING

Pre-eminent prediction and genetic editing maximizes human potential.

Healthcare is no longer reactive or about prevention but instead employs predictive testing, nanobots and bio-hacking technologies to eradicate diseases, allowing for non-invasive procedures, high survival rates, and longer life expectancy. Health decisions move beyond the hospital and physician - into the hands of individuals. They may augment themselves and pick their children based on genetic traits that ensure the highest quality of health and advances their human potential.

Trends to consider:

- Nanobots and sensors
- Predictive testing and screening
- Gene editing and therapy
- Personalized care and treatment
- 3D Printed medication and organs
- Polygenic risk scores
- Microbes and alternative medicines

HEALTH & SAFETY

HEALTH DATA TRACKER

Nutrients:

75%



NUTRIGENOMICS



HAPPINESS



INTEGRATED WELL-BEING

Omnipresent tech supports decision making for optimal comfort, health, and happiness.

Our sensor saturated environments and personal devices are continually collecting and analyzing our data in order to guide us through our day effectively. Integrated sensors interact with our biometrics, microbiology and environmental factors to predict dips in mental and physical conditions, prompting our ambient devices to encourage us to make timely decisions that are personally and societally beneficial.

Trends to consider:

- Health data tracker
- Nano-technology
- Wearable devices and sensors
- Personalized medicine
- IOT and Big Data
- Predictive screening
- DNA-based diet

LEARNING



MULTI-MODAL LEARNING

Education breaks free of traditional boundaries, making it accessible to all.

Learning is a lifelong endeavor. It's engaging, personalized, and on-demand, so that individuals can learn anytime, anywhere, at their own pace and budget. The apprenticeship model returns with technologies like digital doubles and 3D learning. Learners have more tools and options to flexibly learn new skills that are relevant to any facet of their lives from higher education and work to entertainment and everything in between.

Trends to consider:

- Online learning & apps
- College tuition rise
- Life-long learning and 2nd careers
- VR, AR, and hologram technologies
- Blockchain
- Adapting learning platform
- Digital doubles
- Crowdsourced education



FACIAL RECOGNITION
FAILURE << NO MATCH



CALCULATED CLOAKING

People increasingly reject tech saturated environments.

Individuals continuously develop ways to disentangle themselves from the normative hyper-digital urban lifestyle through means such as escape dwellings, internet-less geofences, digital safe havens (esp. for vulnerable populations that need anonymity) and anti-surveillance makeup. Disengagement is a common practice and response to vulnerabilities and negative symptoms associated with constant tech engagement (e.g., anxiety, depression, insomnia). Periodic withdrawal is a means to build physiological and mental resilience.

Trends to consider:

- Technological dependency
- Escape dwellings
- Unplugging device addiction
- Dazzle camouflage
- Tech induced ailments
- Facial recognition
- Artificial intelligence

ZONING DISTRICTS

Cambridge, Massachusetts



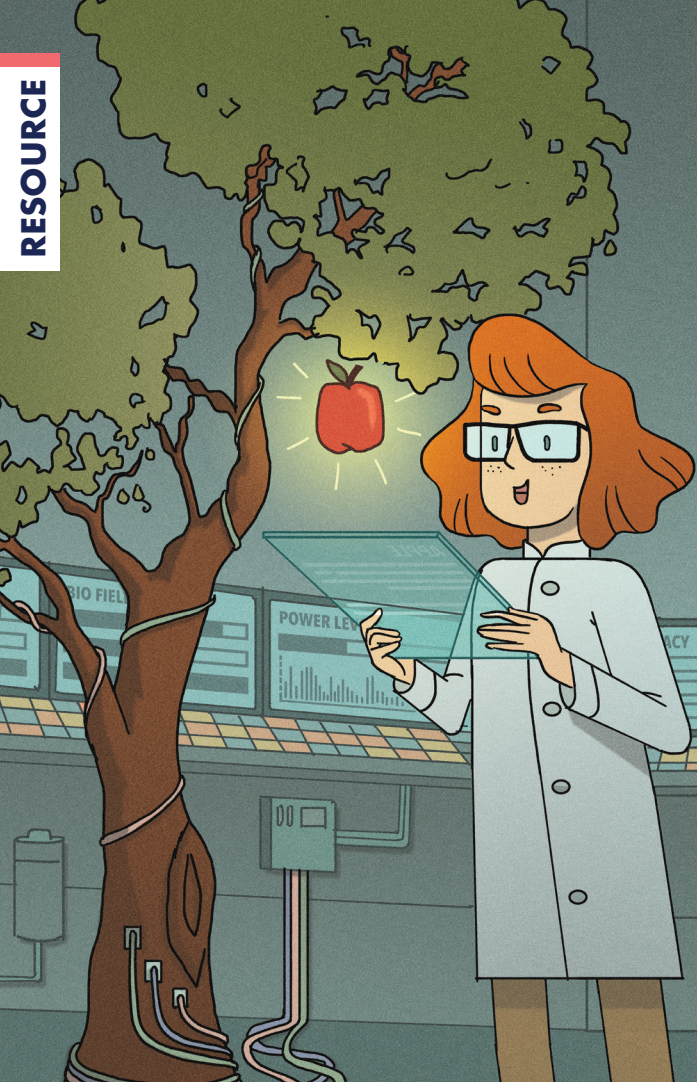
DIVERSE INCLUSION

The workforce embraces all life forms:
biological and mechanical.

The modern workforce includes individuals and entities that have been traditionally left out, aged out or simply hadn't existed before. Our co-workers include living people, the revamped digital remnants of humans of the past, mechanical partners like personal A.I.s and co-robots, and even highly trained and genetically modified critters. The shift from labor to wisdom work thrives on diversity, inviting people from all backgrounds and life experiences to contribute across fields and disciplines.

Trends to consider:

- Job automation
- Telecommuting and tele-robotics
- Gig economy
- Global workforce
- Artificial Intelligence
- VR and AR
- 2nd careers



GENERATIVE MATTER

Resource revolution drives materials to do more, sustainably.

Materials continue to be discovered, redefined, edited, designed, programmed and combined in new and unusual ways. Substances are made to actively and passively respond and adjust to environmental factors like light, moisture, and pressure, and at times self-assembly, which significantly reduces energy consumption. When power is needed, sustainable and renewable alternatives, including bioengineered bacteria, body heat, and algae, are used to power cityscapes, personal devices and our bodies.

Trends to consider:

- 3D and 4D printing
- Alternative energy
- Bio-engineering
- Microbiome revolution
- Glow in the dark trees and pavement
- Biomimicry Innovation

HUMAN RELATIONSHIP



DIGITAL MEDIATION

Technology helps facilitate human relationships both online and in person.

In a hyper-globalized world, relationships are increasingly sought out, developed and maintained through online, virtual, and mechanical means. Technologies including VR, AR, sensors, robots, and avatars open up possibilities for human relationships. Our close relationships (friends, family, romantic) benefit from their enhanced ability to achieve intimacy, while strangers are algorithmically matched for compatibility (e.g., contract work, team building, play dates, community composition, etc.).

Trends to consider:

- Holograms, AR, VR
- Multi-generational households
- Co-Living Communities
- Long-term relationship algorithms
- Companion robots and long distance foreplay
- Telecommunications
- Sensors
- Implantable technologies

HUMAN COMPUTER INTERACTION



PROGRAMMED TEAMWORK

Emotionally intelligent robots, AI's and chatbots fluidly work with humans.

Our computer based assets are no longer autonomous brutes but are designed to be emotionally responsive to our needs. Emotionally intelligent co-bots understand natural written language and verbal tone helping identify human intent, enabling effortless cooperation and coordination between themselves, their highly skilled human partners and everyday customers. This highly integrated collaboration model improves the accuracy and efficiency of professional work (e.g., surgery) and the work required of daily life.

Trends to consider:

- Hyper customized service
- Emotionally intelligent AI
- Trust economy
- Job automation
- RAAS (Robots as a Service)
- Face as interface
- Customer service chat bots



Astronaut lands on Europa!

TO THE GREAT PR...

DRINK

VOTE!
TODAY ON
GUN REFORM



YES

NO

VOTE!
TODAY ON
GUN REFORM

YES
 NO



RESOLUTE YOUTH

Gen Z consciously rejects antiquated archetypes, forging their path as change agents.

Shaped by change and uncertainty; known for their political interjection and activist spirit - Gen Z both welcomes and drives change in their individual lives and society at large. They are not passive or reactive recipients of change but the proponents for institutions that are just, diverse, inclusive, and eco-conscious. When something is not right, they use their tech-savvy skills to solve problems in the workplace and beyond. Their ideals and work style shape employer culture and drastically change market expectations.

Trends to consider:

- Youth driving national debate
- Youth activism and organization
- Generational emphasis on philanthropy
- Mass shootings
- Universal basic Income

COFFEE

SELL YOUR PERSONAL
DATA, IN EXCHANGE FOR
ONE "FREE" COFFEE.*

...
Personal data
collected.

Thank You!



VALUE-BASED TRANSACTIONS

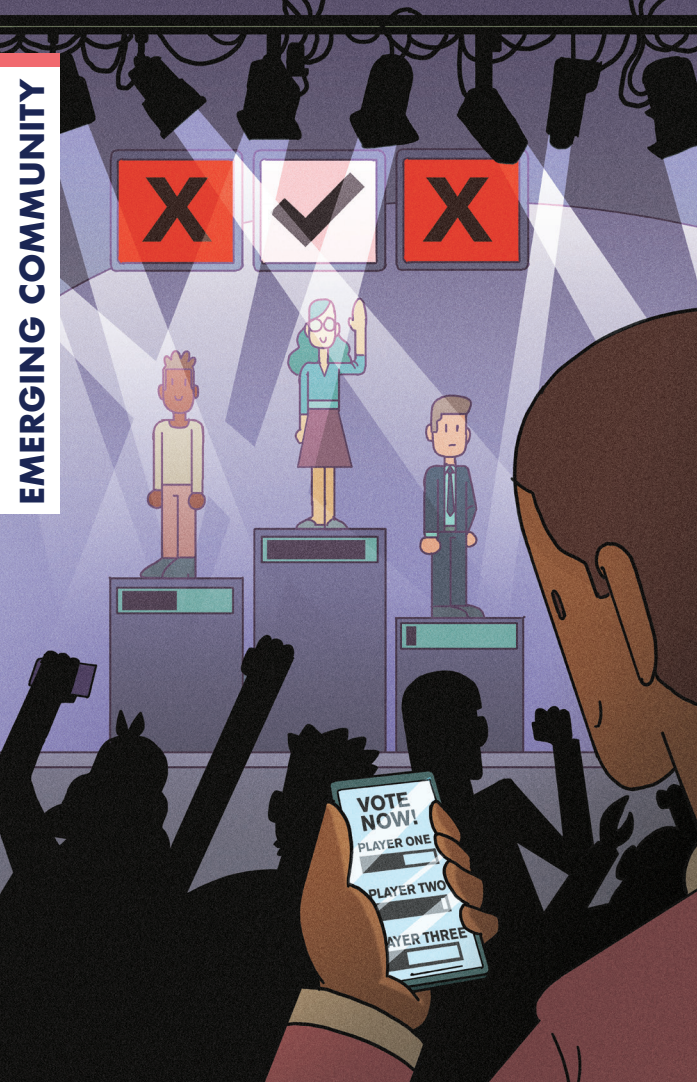
Anything with value is transactable, opening up opportunities for everyone.

Our assets and what we value are no longer solely mediated through formal institutions but directly exchanged between parties through alternatives like the hyper-ledger or grassroots conventions. Alternative forms of currency like cryptocurrencies, social credits, and service are commonly traded, redefining how value is represented and transferred. The service and sharing economy broaden the scope of trade, while the trust economy provides security, enabling a wider range of participation.

Trends to consider:

- Sharing Economy
- Trust Economy
- Alternative currencies (e.g., service, data, goods, credit, social credit)
- Universal Basic Income
- Service Economy
- Distributed ledger

EMERGING COMMUNITY



COMMUNAL MOBILIZATION

Community based alternatives offer untraditional paths towards upward mobility.

The institutions we have traditionally relied on to provide complex and/or expensive products and services compete with newly coordinated and peer-based communities. These communities are often cause-driven, rely on trust and organize via P2P platforms, where anyone can rent, borrow, lend, and create contracts that work around the conventional barriers to resources. These alternatives open access and opportunities to more people, particularly those who are marginalized by traditional means.

Trends to consider:

- P2P services
- Crowd sourcing
- Community-based app
- Sharing economy
- Blockchain
- Guap coin
- #MeToo Movement

COMMERCE

PERSONAL
OPPER



TAILORED SERVICES

Commercial success depends on speed, personalization, and the overall experience.

Commerce relies on personal data to predict customer requirements and meet their expectations, including quick production, delivery, and hyper-customization. Both online and offline shopping is experience driven and customized to include varying degrees of human interaction and automation. Shopping is effortless; purchase almost anything by looking at it and have it waiting for you before you get home. By learning users habits and preferences, AI helps with decision making and predictive ordering, especially when we're busy.

Trends to consider:

- 3D and 4D printing
- Digital prototypes
- Digitally scanned measurements
- In-person customer service
- Digital doubles
- Autonomous drones and vehicles
- Personal data trading and use

FUTURE OF WORK



WORK-LIFE COHESION

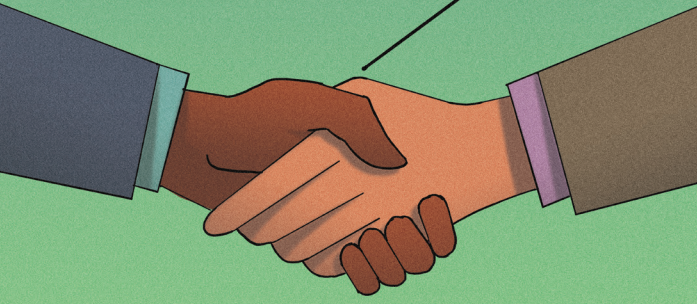
Work is digitally facilitated, less physically bound, and flexible.

Alternative work structures and practices, telecommunications, and augmentation devices (e.g., AR, sensor suits, exoskeletons) equip employees to work whenever, wherever and however suits them. Organizations become increasingly virtually connected, enabling them to employ from a global pool. However, they still retain small physical hubs in strategic locations for vital human interaction (e.g., collaboration, team building, conferences). Work is retrofitted and designed to facilitate a flexible yet sustainable lifestyle.

Trends to consider:

- Global workforce
- Gig economy
- 4 day work week and unlimited vacation days
- Telecommuting
- Workplace villages and swarm societies
- Millennials and Gen Z

FOUNDATIONAL TECHNOLOGY



UBIQUITOUS LEDGER

The distributed network powers new ways of tracing all kinds of transaction.

Digital, decentralized bookkeeping allows a network of computers to maintain unmodifiable records. These platforms vary in use from supply chain management to varying value exchanges, monetary transactions, health record management, formalized unions, and voting, dramatically reducing the need for intermediary agents to support, manage, and intervene user-generated transactions. Peer-to-peer platforms are powered by the ledger, and people feel secure and comfortable with different kinds of transactions.

Trends to consider:

- Internet of Things
- Smart devices
- Deep learning
- Real time monitoring

CONCEPT OF SELF



ALGORITHMIC EXPRESSION

Tinkering with machinery and biology is common practice.

With gene-editing, advancements in prosthetics, digitization, and AI, individuals can mechanically, digitally, and biologically edit and augment anything, including their physiology, emotions, memories, and cognition to perform better, be the healthiest version of themselves, enhance their experiences, or as a means of self-expression. We push the boundaries of our natural abilities in order to create the best version of ourselves, whether that is self-defined or objectively calculated by our computers.

Trends to consider:

- Quantified self movement
- Performance monitoring
- Gene editing and bio-hacking
- Smart prosthetics
- IOT
- AR/VR
- Fembots

URBAN LIFE



ADAPTIVE CITIES

City infrastructure is responsive to residents needs and changing conditions.

Urban centers adopt environment changes in modular and resilient ways, reorganizing itself whenever it wants or needs. These centers are designed from the internet up, enabling city planning to connect inhabitants with the resources and services they need to thrive economically, socially, physiologically and ecologically. City infrastructure is built to respond and conform to the reality of change; seasons, unpredictable weather, fluctuating population, disasters, and changing markets.

Trends to consider:

- Internet of Things
- Urban vertical farming
- Co-living and multi-generational homes
- Swarm societies
- WELL Certification
- Facial recognition technology
- Visualization technology

GOVERNANCE



CIVIC EMPOWERMENT

States and cities take the stage for localized civic engagement.

Political uncertainty at the federal and international level shifts public attention toward state and local government. Mayors and governors stand at the forefront of implementing regulations and policies that help them compete. Citizens are motivated to support and seek support from their networks, mobilizing themselves based on their physical locality. They use social platforms and digital tools to support collective mobilization.

Trends to consider:

- Crowd-sourcing
- Open data
- Open government initiative
- Electronic voting
- Blockchain security
- Large scale hacking



SHOULD I
BUY THIS
PRODUCT?



PRODUCTION: **FAILED**
HANDLING: **FAILED**
SOURCING: **FAILED**
CRUISE FREE

ETHICS ECONOMY

Citizens and private entities leverage their assets to drive societal change.

Consumers are no longer blindly loyal to brands, but make their purchase decisions based on what a product or service is made of and what it stands for. They seek transparency throughout the production process and demand goods that are ethically produced, sustainably sourced, and made of non-toxic materials and ingredients. Companies and consumers use their monetary and social assets as currency for advocacy, activism, and social change. Companies must align their brands or crumble.

Trends to consider:

- Social media
- Review culture
- Nike's Kaepernick Ad vs Ivanka Trump brand
- Crowd-sourcing
- Transparency Apps
- Opt for brandless

FAMILY



SELECTIVE KINSHIP

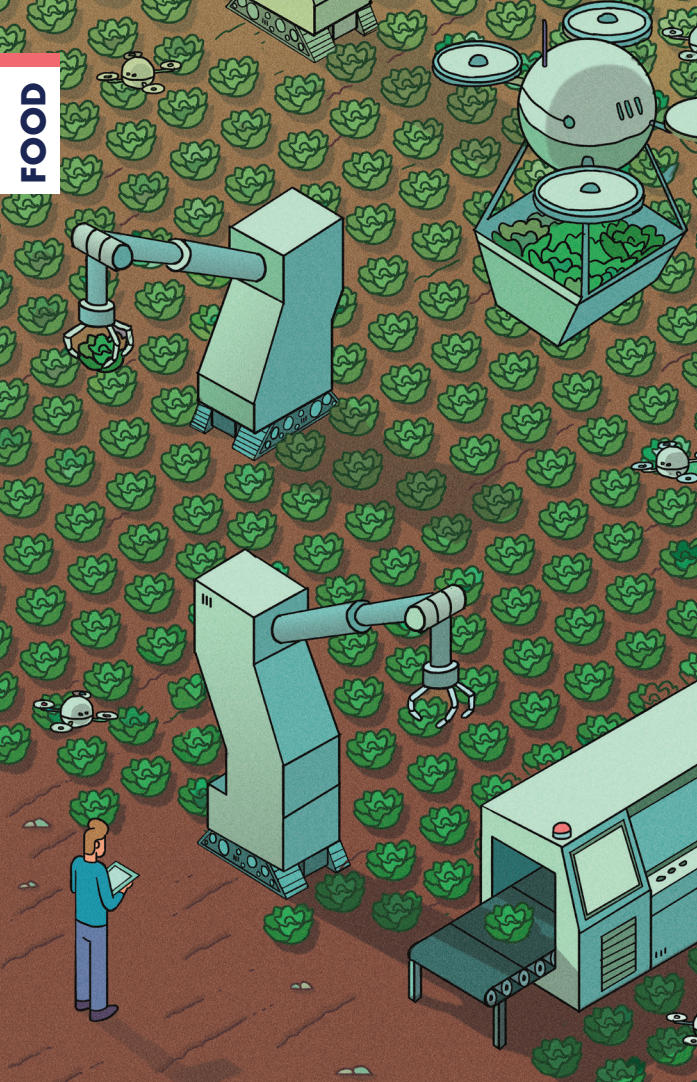
Family goes beyond traditional human combinations to include digital and mechanical

The concept of family diversifies, and society adapts to support these new family structures. Children may have more than two biological parents, couples form polyamorous families, while others decide to include non-human family members such as robots and digital avatars. Digital doubles allow past generations to continue to have a presence, enabling intergenerational interactions with their descendants.

Trends to consider:

- Same sex and polyamorous marriages
- Multi-generational family households
- Reproductive technologies
- Digital doubles
- Sex / companionship robots and robot rights
- Fluid gender identities

FOOD



SMART FOOD

Food is tech supported for optimal production, nutrition and sustainability.

As food demand exponentially grows, production efficiently takes place at home with 3D printers and in inner-city vertical farms and coastal underwater farms that incorporate robotics and automation for labor. Food is engineered for optimal nutritional value and minimal environmental impact, introducing a smorgasbord of consumable alternatives. AI helps us develop hyper-personalized food options by learning our dietary restrictions, needs, and genetic preferences.

Trends to consider:

- DNA-based diet
- Nano technology
- Hands free farming
- Artificial meat
- Climate change
- Supply chain transparency and consciousness
- AI personalized nutrition



DISTANCE RUN:
7 KM

PLAYER:
1

CURRENT SCORE:
10,000,000 PTS.

LEADERBOARD

RANK	PLAYER	POINTS
1	DARLEEN LOVISA	75,409,408,000
2	AUGUSTA ART	35,409,408,000
3	BURGUNDY AUGUSTINE	25,409,408,000
4	IKBAL PAULA	4,409,408,000



VISCERAL INPUT

People seek visceral, emotional, sensory, and foreign experiences.

Entertainment emulates intimate human experiences, emotional connections, and epic sensory filled journeys. Using biometric data and highly interactive AR and VR technologies, users move beyond the visual and auditory to physical and almost realistic experiences by themselves or with others. Users engage with these systems to participate in social activities, to enjoy gamified systems, and to have larger than life, often unattainable experiences (like downloading a memory), regardless of their physical boundaries.

Trends to consider:

- VR, augmented and artificial reality
- Emotional video games
- Life streaming
- Social media
- Social robots
- Artificial intelligence
- Invisible/ integrated tech

LIMITATION OF TECHNOLOGY



EMPATHIC WORK

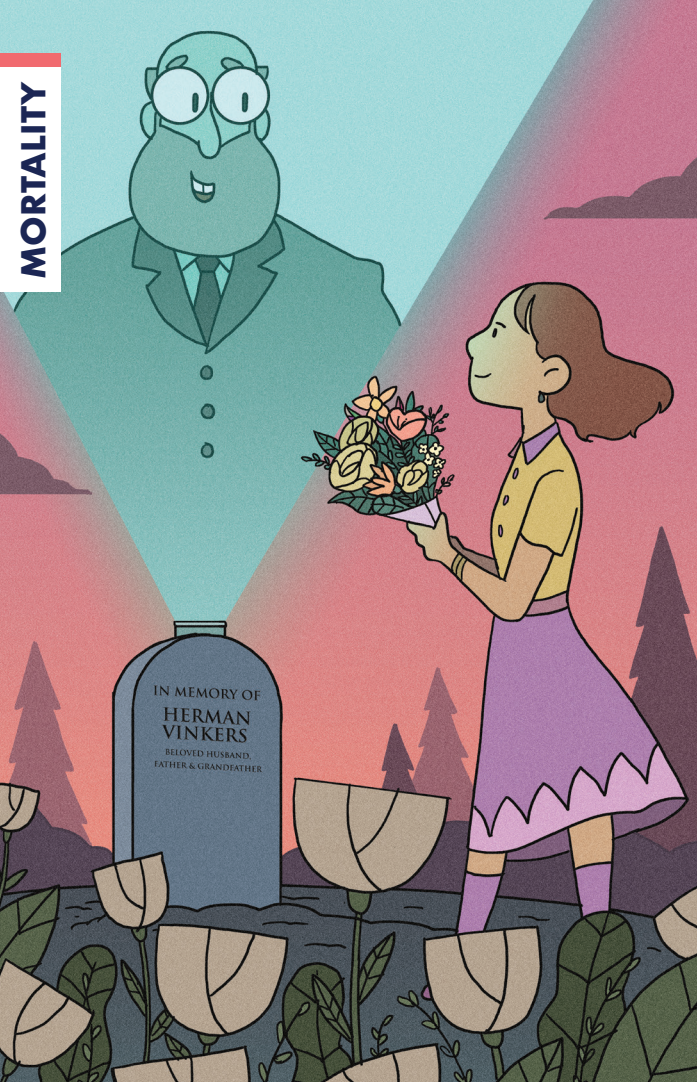
Uniquely human abilities and practices are regarded with high esteem.

Robotics, machine learning, automation, and other advancements are changing the landscape of the labor market. While some jobs are reduced or eliminated with automation technologies, professionals in the "care economy" whose success depends on their abilities to connect with people will thrive. The social and monetary value of one's profession changes based on new criteria of "automatability," and the traditional hierarchy of professions are challenged.

Trends to consider:

- Un-automatable jobs
- Deep learning
- Social robots
- Human Robot Interaction (HRI)
- Artificial intelligence

MORTALITY



IN MEMORY OF
**HERMAN
VINKERS**
BELOVED HUSBAND,
FATHER & GRANDFATHER

TRANSHUMANISM

Physical and digital transformations help redefine humanity and the notion of death.

The post-mortem practices – everything from burials to body preservation and mourning rituals – are changing. People opt to preserve their bodies through cryonics or extend parts of themselves through organ transplants and stem cell technologies. We can live on through digital platforms, where our archives are mined to create digital avatars that “think,” talk, and look like ourselves, allowing our loved ones to maintain relationships with us, long after our bodies cease to exist.

Trends to consider:

- Anti-aging technologies
- Cryonics
- Digital legacy, inheritance, and resurrection
- Artificial Intelligence
- Burial alternatives
- DNA derived portraits
- Digital doubles
- Smart contracts

DARK CARD: ENVIRONMENTAL MAYHEM



ENVIRONMENTAL MAYHEM

Failing to reverse the clock on global climate change, the climate is increasingly unpredictable, weather more severe, and disasters grow in intensity and frequency, leading to catastrophic ecological and biodiversity loss. The environment is our primary resource, and climate change impacts all areas of life including nutrition, transportation, economic costs, the market, utilities, and urban services.

Implications

- Changing climate patterns, especially increasing average number of hot days, leads to weather shocks, heat stress, and food and water insecurity.
- Areas on the planet will become uninhabitable, leading to mass migrations.
- Flora and fauna unable to adapt will vanish, leading to massive biodiversity loss and ecological imbalances.
- Increased disasters frequent and intensity (e.g., hurricanes and fires), create more natural disaster zones and challenges our ability to bounce back.
- 2-degree temp rise melts land ice, raises sea level, increases flooding, and warmer oceans, altering oceanic and atmospheric processes, limiting land availability and food availability.

DARK CARD: DEVASTATING INEQUALITY



DEVASTATING INEQUALITY

Left unregulated, the inequality between the poorest and richest continues to widen, resulting in disproportionate access to goods, services, and resources. The wealthy minority sustains the advantage to overcome any obstacle - as they opt into state of the art solutions (e.g., gene editing) - while the poor majority struggle to meet their basic needs and access to vital resources (e.g., education, healthcare, food, etc.), furthering the disparity.

Implications

- Unequal access creates competition, facilitates displacement, and produces all around disparity.
- Rising tensions lead to resource wars and increased crime.
- Increased number of immigrants, refugees, unhealthy populations, and many others that are in critical need.
- Economically unequal societies have decreased health which increases the economic public health burden. This stifles economic growth in the long term.
- Increased political inequality, decreased public education, decreased health, increased exploitation, and reinforcing of institutionalized racism.

DARK CARD: WEAPONIZED DATA



WEAPONIZED DATA

Increasing overreliance and integration of data creates a deep vulnerability for ourselves and our tech-saturated societies. The prominence of disinformation, biased algorithms, and the frequency of hacking (even of our highest institutions), results in a loss of privacy, distrust of technology, and sloughs of tech-driven issues. Left unregulated, our machine-driven society and bodies are one hack away from enslaving or destroying us.

Implications

- The persistent demand for interconnectedness across systems increases the risk of contagion and large-scale mass hacking.
- Data breaches increase the possibility of rouge machinery and the manipulation of information.
- As physiology and cognition merge with devices people are vulnerable to bio-hacking and bio-manipulation.
- Bias AI, detailed profiling, and social credit scores encourage marginalization, among other issues.
- The spread of disinformation and modifiable data has the potential to polarize global communities, especially as competition develops.