Investigating the Futures of Community Driven by Emerging Digital Technology

A MAJOR RESEARCH PROJECT SUBMITTED TO OCAD UNIVERSITY BY ELIZABETH LANE, 2023

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01 Introduction

CONTEXT

Humans have an innate desire to belong (Baumeister & Leary, 1995). In 1943, Abraham Maslow published *A Theory of Human Motivation*, introducing a psychology for understanding human behaviour. This theory includes five basic needs: [1] Physiological needs, [2] Safety needs, [3] Belongingness and love needs, [4] Self-esteem needs, and [5] Self-Actualization needs, ranked in order of hierarchy (Maslow, 1943). Maslow suggests that not until one need is satisfied, such as a physiological need, does another need emerge, such as a safety need, caveating that there may be some exceptions in the order's rigidity. Under this logic, belongingness needs are ranked third, achievable only after physiological and safety needs are met. However, it can be argued that belongingness greatly influences and contributes to satisfying physiological and safety needs, and the same argument can be made for achieving self-esteem and self-actualization needs (Lieberman, 2013). Thus, belongingness is actually a foundational need, and if belonging goes unmet, there are significant mental, emotional, and physical effects on humans (Kloos et al., 2012), encompassing the other four needs.

For centuries, belonging has manifested in the formation of communities; humans connecting with one another to build protection and collective power (Nature Human Behaviour, 2018). Communities can be defined as relational or geographic groups of people, not inclusive of family, who share a sense of belonging (McMillan & Chavis, 1986; Kloos et al., 2012), and are structured by a sense of space, participation, communication, and organization. Throughout history, communities have evolved, expanding the initial design of physical, geographically-determined groups to include interest-based groups, and in the digital revolution, online and hybrid (a mix of physical and digital) communities (Kloos et al., 2012). In modern day, communities remain the backbone of society, a vital construct that satisfies human beings' evolutional wiring to strive for social connection (Gruber, 2020). However, the future of communities is at a turning point, with key system drivers influencing the health of communities. For the purposes of this research study, healthy communities are informed by characteristics of shared intent, meaningful social ties, mutuality, trust and belonging, and openness.

This research study focuses on emerging digital technology – specifically digital technologies that impact the ways in which humans interact and connect with each other – as a system driver with immense influence on community health. Digital technology has spurred connection, fostering support and relationships on a global scale and redefining the notion of geo-specific and bordered communities (Lingel, 2017). However, how digital technology is designed and used also has numerous unintended consequences and externalities including contributing to social fragmentation – groups of people separating from society – and social polarization – groups of people with extreme opposing views (World Economic Forum, 2023a; All Tech Is Human, n.d.; European Forum for Urban Security [Efus], 2021). This is resulting in an erosion of a cohesive, democratic society where wellbeing towards, and inclusion of all members exists, marginalization is fought, and trust and belonging are promoted (OECD, 2011; World Economic Forum 2023a). Healthy communities influence social cohesion (*Social Cohesion - Healthy People 2030,* n.d.).

With continuous advancements to digital technologies, such as Artificial Intelligence (AI) and Extended Reality (XR), comes greater risk and/or benefit to the individual (Bowles, 2018). Building on established theories such as sociotechnology, the study of the intersections and processes between technology and society (Bunge, 1999), emerging fields in technology are exploring how to mitigate risks to the individual via ethical and responsible practices. The current gap in research is the ripple effect those individual impacts could have on the larger community in the possible futures to come. The full extent of digital technology's impacts may not be evident or accepted until decades later, similar to the pattern of climate change. This is why there is an urgency to explore possible futures and interventions now, creating awareness of potential impacts of emerging digital technologies on healthy communities.

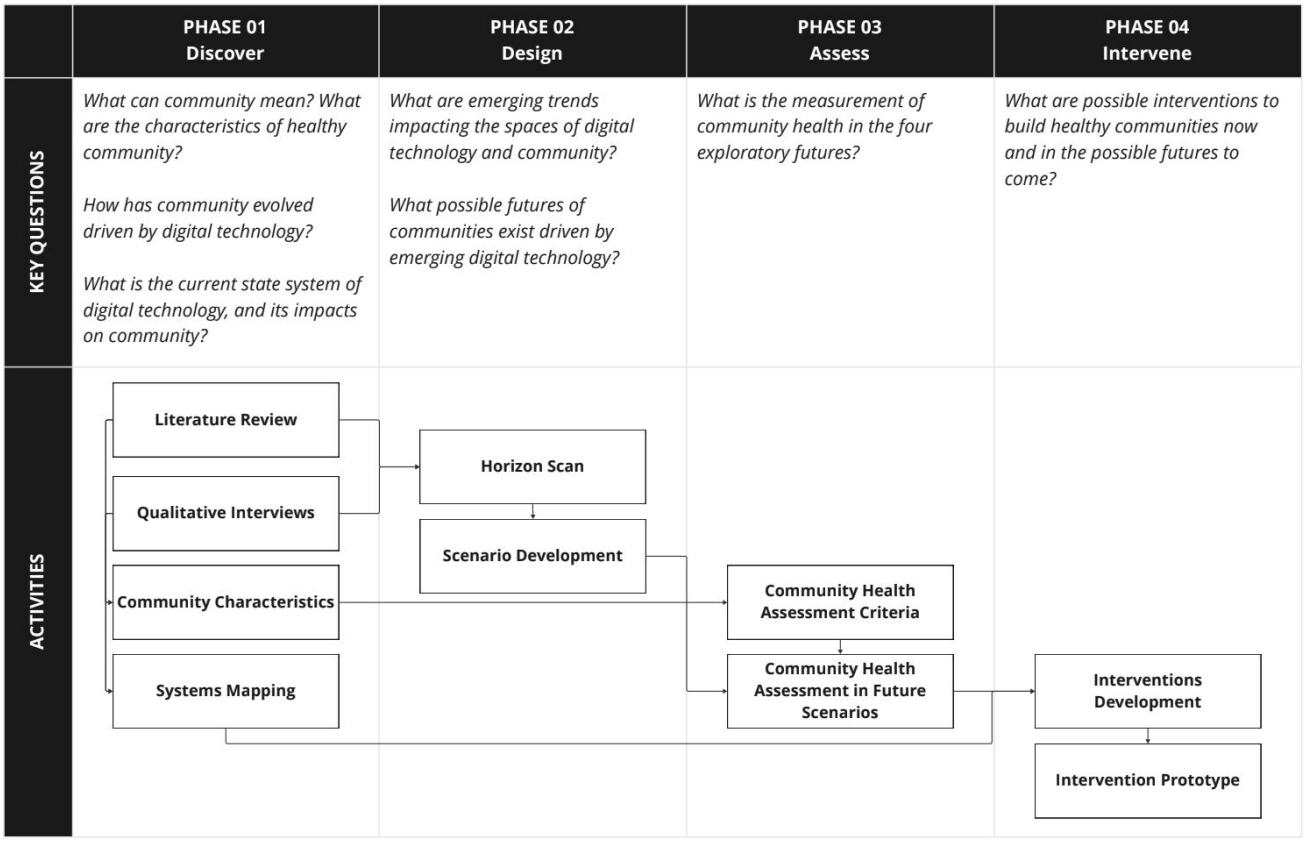
With healthy communities vital to a cohesive democratic society, how might the impacts of digital technology on communities – not just individuals – be considered when designing digital technology? This research investigates how digital technology can be designed to build healthy communities for futures to come, transcending human-centred design and evolving into community-centred design.

RESEARCH QUESTION

What is **community**, how is **emerging digital technology** evolving community, and how might **digital technology be designed** to build **healthy community**?

02 Methodology

To answer the primary research question, a combination of methods and tools from the disciplines of systems thinking and strategic foresight were employed. The exploration was framed leveraging an adaptation of the design thinking methodology and followed the following phases: [1] Discover, [2] Design, [3] Assess, and [4] Intervene. Each phase includes secondary key research questions that help break down and support the primary research question. A visual summary of the project methodology can be found below.



03 Discover I: Understanding healthy community

In this section of Phase 01: Discover, an understanding of community informed by primary and secondary research is created, outlining structural components of community, and community characteristics that inform the health of community. Communities are a determinant of the health of the larger system and of the individual, and therefore, there is an importance to preserve healthy communities amidst drivers of change, such as rapid technological advancement.

Understanding community: perspectives from the study of psychology

Literature written by psychologists and community psychologists acknowledges that defining community as a concept is challenging due to its emotional nature and because community is constantly evolving (Kloos et al., 2012).

Historically, community as a term has two key usages: [1] Community used to describe a geographic area where humans live, such as a settlement or region; [2] Community in reference to the relationships of humans, without needing to specify a geographic location, such as online interest-based groups, cultures, and religions (McMillan & Chavis, 1986).

When defining the group of people who form communities, literature specifies that there is a distinction between family members or close friends and communities. Family members and close friends are requirements of social networks and social support systems, versus a group of people in a community that could include people who do not know each other, or do not have regular contact (Hill, 1996). However, these relationships are further distinguished by a sense of personal affection, value, and an obligation that exists between individuals in community with one another.

This is a concept called “Gemeinschaft” relationships, developed by German sociologist Ferdinand Tönnies in 1887, which translates to “community.” In contrast, Gesellschaft or “society” are relationships that are more transactional, a means to an end, and do not form community (Kloos et al., 2012).

Diving deeper into the concept of community, in 1986, McMillan and Chavis developed a theory of sense of community, building on decades of previous research and responding to research gaps. The theory of sense of community focuses on the emotional response individuals have in relation with a group, defined by belonging to the group, mattering to the group, and trusting that their needs will be satisfied through the shared commitment of the group. There are four elements to sense of community: [1] membership: belonging and personal relatedness, [2] influence: a reciprocal relationship of mattering between members and the group, [3] integration and fulfillment of needs: members’ belief that needs will be met through received group resources, and [4] shared emotional connection: sharing of commitment, experiences, and time together.

Based on literature research conducted to date, and in the broadest of terms, community can be defined as a relational or geographic group of people, not inclusive of family, who share a sense of belonging (McMillan & Chavis, 1986; Kloos et al., 2012).

Establishing structural community components, and healthy characteristics of community

Through the analysis and synthesis of literature and participant perspectives of community, four structural components and five characteristics of community were identified. These components and characteristics further expand the understanding of community, and introduce the definition of a healthy community for the purposes of this research study.

Community components that are defined as structural to a community’s existence:

SPACE: Community has a defined space with boundaries. This can include digital space, physical space, a mixed space (digital and physical), and/or a mindset.
PARTICIPATION: Community has participants - individuals who identify as part of the community.
COMMUNICATION: Community has both verbal and non-verbal (e.g., symbols) communication.
ORGANIZATION: Community has leadership, established norms and standards, and governance to protect and retain a sense of control.

Community characteristics that are high impact items, influencing the health of a community for community members and society:

SHARED INTENT: There are defined values, commonalities, and an identity that members are aligned with.
MUTUALITY: There is reciprocity: cooperation, collaboration, and togetherness, mutual care, and members feel a sense of responsibility and accountability for actions.
MEANINGFUL SOCIAL TIES: Mutually beneficial and trusting connections and relationships are established within the community and between other diverse communities.
TRUST AND BELONGING: Trust is built and maintained amongst members and other actors, a sense of belonging can develop, and emotional, mental, and physical safety is provided to members.
OPENNESS: The sharing of experiences and resources, including time and knowledge.

Therefore, for the purposes of this research study, healthy community is a relational or geographic group of people, not inclusive of family, that possesses characteristics of shared intent, mutuality, meaningful social ties in the community and between other communities, trust and a sense of belonging, and openness. For healthy communities to form, the structural components of space, participation, communication, and organization must exist.

While structural community components are fixed, community characteristics are variable, heavily influenced by external forces. These characteristics determine the health of a community for members and society at large. With major drivers like emerging digital technology at play, there is a need to anticipate how community characteristics may perform in possible futures to come. The characteristics are assessed in exploratory scenarios (05 - Design and Assess) to understand possible future impacts of communities and to develop interventions in the short-, mid-, and long-term to preserve healthy communities.

Importance of preserving healthy community

An individual’s sense of belonging, identified as one of Maslow’s foundational needs in his 1943 Theory of Human Motivation, influences all other basic needs: physiological, safety, self-esteem and self-actualization. While Maslow does suggest a ranking for the needs - with physiological needs the first to be satisfied prior to other needs being achievable - based on literature analyzed, sense of belonging is the most foundational need (Lieberman, 2013).

Sense of belonging is a key defining factor of community. An individual influences a community and vice versa – it is an interdependent relationship. Communities are a determinant of the health of the larger system and ecology and are a determinant of individual health (Chavis & Newbrough, 1986).

While human biases may interpret the definition of community to be inherently positive, and even if the majority of the characteristics of healthy communities are present, communities can have negative effects on individuals and society. Communities can be homogenous entities, comprised of like-minded individuals who have easily found a sense of belonging because of their similarities. These homogenous community groups can trigger and increase polarization with other groups (McMillan & Chavis, 1986; Kloos et al., 2012).

It is how communities act towards other communities that must be examined; it is important to look at the wider systemic impact: does sense of belonging positively reinforce a just society? Does it contribute to the preservation or strengthening of democracy? Differences within communities can strengthen communities, and differences between communities can strengthen society, only if diversity is truly valued and accepted (Kloos et al., 2012).

Therefore, a healthy community, also known as a competent community (Iscoe, 1974), is not only resilient, sustaining itself through problem solving when met with external factors, but it also enables individuals and the wider collective society to achieve its full potential (Chavis & Newbrough, 1986).

Healthy communities are vital to individuals and society due to humans' innate desire to belong (Baumeister and Leary, 1995). As external system drivers continue to change the world, such as the continuation of rapid advancements of digital technology, it is important to understand how healthy communities will be impacted and evolve to develop interventions that preserve the health of communities, and therefore, the wider society.

04 Discover II: The evolution of community driven by emerging technologies

Phase 01: Discover continues in this section, focusing on community and its relationship with digital technology over time. From a socio-technological perspective, the historical evolution of community during the Hunter-Gatherers period to the Fourth Industrial Revolution is examined. This leads to an understanding of emerging digital technology today, the current system and impacts on community, and potential system disruptors attempting to mitigate unintended consequences of digital technology.

Expediting Community Evolution via Emerging Technology

Community has been evolving for centuries, and it continues to evolve (Kloos et al., 2012). One of the major drivers throughout history contributing to community's evolution is technology, from the introduction of agriculture in the Neolithic period, to the mechanization of machinery in the industrial revolution, to the mass adoption of the internet in the Digital Revolution technology has been impacting the way humans socially organize and connect (Kloos et al., 2012).

A noticeable shift in the Fourth Industrial Revolution is the speed at which change is occurring. In earlier time periods change was happening and transitions were occurring, but it was gradual. Spurred by the capitalist economy, free markets, and technological advancements in the First and Second Industrial Revolutions, efficiency and productivity emerged, and the "faster the better" and "time is money" mindsets were adopted. Society has never had to adapt to change this rapidly before, and the effects, driven by emerging digital technology are widely felt.

The emerging digital technology innovations in the Fourth Industrial Revolution, which society exists within today, are key indicators to understanding and anticipating what future revolutions might be, and what each level of the socio-technical system, including communities, might become.

For the purposes of this research study, emerging digital technology is intentionally referred to in broad terms. This is to produce recommendations that can be applied widely and are not specifically based on the type of digital technology. The research, specifically the horizon scan, focused on two key areas of emerging digital technology: artificial intelligence (AI) and extended reality (XR). Artificial intelligence is described as "the science and engineering of making intelligent machines, especially intelligent computer programs" (McCarthy, 2007). Extended reality, inclusive of augmented reality, mixed reality, and virtual reality, is the layering of digital technology onto the physical environment, producing new spaces where individuals can access and interact (The Future of the Metaverse Will Be Shaped by These 3 Technologies, 2022; BITKRAFT, 2021). These areas are identified as high influence drivers, impacting how humans interact and connect with one another, and therefore, directing the future trajectories of communities.

Impacts of Emerging Digital Technology

Present day, 2023, is part of the Fourth Industrial Revolution, but focus is beginning to shift to subsequent (Fifth and Six) Revolutions. The speed of technological advancement, rate of change, and rate of adoption are greater than ever, increasing the level of impact on communities. Understanding potential impacts of digital technology is necessary to mitigate unintended consequences of emerging digital technology innovation. Consequences from past revolutions are embedded in the current revolution, including climate change, and a similar pattern may follow if awareness of impact is not considered in the possible futures to come.

Current State System of Digital Technology

TECH AS SAVIOUR: From worldwide adoption of the internet in the mid-1990s, to the first period of high-growth in the technology sector ("dot-com bubble") in the late-1990s, followed by the second technology boom in the 2010s, there has been immense belief placed in technology and its potential for solving all problems that span humanity, the environment, and ecology (Lee, 2015; A Short History of the Internet, 2020). This is called technology solutionism (Lenhart & Owens, 2020). In large part, this stems from technology's success driving the economy – despite periods of crashes – propelling an orthodoxy that technology can solve everything (Lesnes, 2022).

Therefore, more money is invested into technology, leading to more innovation, and the perpetual growth cycle of technology innovation continues (Qureshi, 2022).

Understanding the current state of system factors

CAPITALIST ECONOMY: The current capitalist economy propels ideals of perpetual growth, thriving in a state of freedom, and rewards efficiency and productivity (Weinstein, et al., 2021).

GOVERNMENT POLICIES: Government policies and regulations are lacking or slow to implement in the digital technology industry. There can be reluctance to intervene with growth as digital technology leads innovation, therefore contributing to economic growth (Weinstein, et al., 2021).

In addition, the speed at which the government operates cannot keep pace with rapid technological advancements, limiting the policies in place pertaining to how digital technology is built, and how digital technology is used.

INFRASTRUCTURE: Hardware to access the internet and wireless networking either enables or hinders digital technology growth. Investment in infrastructure by Government has historically been prioritized for areas of high growth potential and high contribution to the capitalist economy, and lacks in more rural areas with marginalized communities (2022 Tech Trends Report, 2022).

INDUSTRY REGULATIONS: Some companies in the technology industry have adopted self-regulation approaches in lieu of robust policies and regulations provided by the government (Quest & Charrie, 2019). However, self-regulation is influenced by companies' business models, heightening risks of bias in the regulations enacted and followed if business models centre around profit and data (Farthing & Sooriyakumaran, 2021). Industry regulation in its current state is fragmented, and siloed, without enforceable standards and guidelines for oversight of industry activity (PricewaterhouseCoopers, 2019).

BUSINESS MODEL: Profit-driven business models are outputs of both the capitalist economy and government which measures Gross Domestic Product (money) as success. As in most for-profit industries, there is a focus on generating revenue from consumers. In the digital technology sector, there is a strong focus on monetizing consumers' attention and engagement (data) when using a product (Lenhart & Owens, 2020).

COMPANY GOALS/METRICS: Adhering to business models derived from the capitalist economy and Government policies, companies' goals and metrics are tied to profitability. Goals and metrics are focused on short-term gains, including scaling, and target consumer groups with the highest probability of monetization (Weinstein, et al., 2021).

TECHNOLOGISTS' DECISION MAKING: Performance is measured by the ability to achieve goals and metrics determined by the company, influencing the decisions technologists make. A focus on increasing individual consumer engagement drives designs, in addition to optimization (Lenhart & Owens, 2020; Weinstein, et al., 2021).

COMMERCIAL PRODUCT: A structure of the system is a digital technology product that has been designed and optimized for individual consumer attention and engagement (Weinstein, et al., 2021).

END CONSUMER: Consumers are incentivized to engage with a digital product via personalized and individualized experiences in exchange for their personal data. Data collection and a push for engagement are outcomes of technologists' decision making, informed by company goals, driven by the business model, and influenced by the government and capitalist economy (Weinstein, et al., 2021). With limited regulations, consumers have the freedom to use and misuse digital technology to generate harm in society.

The current digital technology system design, while enabling innovation at an expedited rate of change and contributing to geopolitical power and economic growth, produces social externalities and unintended consequences, impacting individuals and communities. A tradeoff of values is occurring, with different actors and factors of the system determining the values that should be included or excluded from the commercial product used and consumed by humans. The values that are compromised are often those that contribute to social cohesion and wellbeing, therefore impacting individuals and the collective (Weinstein, et al., 2021).

How digital technology is impacting community

The positive impacts of digital technology are widely found in public discourse. Digital technology has enabled social connection between humans at a global level (Lingel, 2017). It has enabled marginalized individuals to feel a sense of belonging online, when physical communities fail them (Russell, 2020).

However, as digital technology continues its rapid advancement, its unintended consequences and externalities – the costs and benefits of the digital technology industry's activity – are becoming more apparent and harder to ignore. Social fragmentation is spurred by a growing digital divide – a gap in digital literacy and/or infrastructure to access digital technology – and increasing rates of loneliness and isolation driven by an over-connected world (Jenkins, 2022; Overcoming Digital Divides, 2021; Eisen & Emes, 2022).

Fragmentation puts vulnerable populations at risk of being disenfranchised in a digital-first world. Increasing social polarization is fueled by pervasive misinformation and disinformation spread on digital technology, capable of generating echo chambers and groupthink mentality, and heightening risks of extremist group formation. Polarization is necessary to exist in a democratic society, however, increased and extreme polarization can fracture the social contracts that exist for society to function (World Economic Forum, 2023a; Efus, 2021). A society that is fragmented and polarized destabilizes trust amongst citizens, institutions, and governments, and erodes social cohesion, impacting societal, community, and individual health (World Economic Forum, 2023a).

In the Limits to Growth system archetype, whereby the reinforcing loop of Tech as Saviour orthodoxy is balanced by the impacts of the unintended consequences of digital technology without intervention in the balancing loop. A positive perception of digital technology's benefits can increase the usage of digital technology. This can lead to an increase in the potential for unintended consequences from usage to occur – such as social polarization and fragmentation – therefore, heightening the negative risk of impacts to individuals, communities, and overall societal health. With an awareness and/or acknowledgement of impacts to societal health of certain technology, the perception of technology benefits may decrease. Interventions to protect society against unintended consequences of technology, while also supporting technology innovation and the benefits it offers society should be explored.

A more in-depth analysis of emerging trends at the intersection of digital technology and community, and the implications for healthy communities, can be found in the horizon scan in 05 - Design and Assess.

System factors and system actors at every level in the system have participated in facilitating the current state of digital technology through decisions made in the design, development, and public access of digital technology. Responsibility and accountability at all levels in the system must be taken to change the trajectory of the effects of digital technology, disrupting the status quo and transitioning to a new way of governing digital technology, designing digital technology, and interacting with digital technology (Weinstein, et al., 2021).

Changing the System

There are actors in the system challenging the status quo of the implications of digital technology. Emerging fields of public interest technology, responsible technology, Values Sensitive Design, and design justice, are working to bring awareness to the unintended consequences of digital technology and chart new paths forward, aiming to shift the system. A growing number of technology companies, non-profit technology organizations, and entrepreneurs are also actively working in this transition space. In addition, there is a growing urgency and demand from all levels of the system for stricter digital technology governance and industry regulations.

The rise in emerging players aiming to disrupt the current digital technology system, and demand for increased governance and regulations, are indicators that a system shift may be underway. There are opportunities at every level to influence the trajectory of the system state (Meadows, 1999), potentially lessening the unintended consequences caused by digital technology. As communities are vital to humans' innate need to belong, ultimately impacting individual and societal health, the risks of rapidly advancing digital technology on communities are heightened and should be understood and mitigated. This is a systemic problem, and singular solutions at one level in the system may not create lasting change. Interventions developed must be designed to support a transition state, from the current digital technology paradigm to a new paradigm that considers the impacts of community when designing.

05 Design & Assess: Exploring possible futures of healthy communities

This section includes Phase 02: Design, and Phase 03: Assess, of the project methodology. High impact emerging trends at the intersection of digital technology and community set the foundation for four exploratory future scenarios of healthy communities in the year 2043.

A community characteristics health assessment in each future scenario is conducted identifying key opportunity areas for intervention to preserve healthy communities.

OVERVIEW

Investigating the current system state of digital technology, its impacts on community, and identifying possible leverage points for change set the foundation to begin exploring the possible futures of community, following the historical pattern of consistent community evolution. While predicting the future is an impossible task, foresight methods were employed to extrapolate identified trends and drivers in the spaces of emerging digital technology and community to inform possible futures of healthy community in 2043.

Anticipating a wide range of possible futures was an identified gap in the initial literature review. So often with digital technology, a utopian or dystopian future scenario is built, and a desired future is selected as a guiding force for supportive or mitigative strategies.

nstead, because of the speed of change that is occurring due to digital technological advancements, four exploratory futures have been intentionally created leveraging Jim Dator's Four Generic Images of the Future.

HORIZON SCAN

A horizon scan was conducted to identify weak signals of change in the current landscape that could possibly become dominant in the future. Trends were then developed by affinity diagramming the weak signals, and the STEEP+V framework was used to structure a holistic scan across Society, Technology, Environment, Economy, Politics, and Values areas that could influence the futures of digital technology and community spaces.

There were 13 trends identified that could impact the futures of communities. This is not an exhaustive inventory of trends in the spaces of digital technology and communities – many more were identified – however, these trends were prioritized based on the potential for high impact and influence. The trends include a summary, as well as implications for community, and possible extrapolations of the trend given the timeline of 2043.

1/ Digitally Divided

Unequal access to digital literacy and/or infrastructure necessary to support digital technology (hardware and wireless networks) has created a divide between social groups determined by economic status, geography, age, and historic systemic oppression (United Nations, 2016; State of Digital Inequity Report, 2023). In 2016, access to the internet was deemed a human right by the United Nations (United Nations, 2016), yet it is projected that the majority of the global population (90%) will not have access until 2050 (Sample, 2019). Amidst rapid advancement of digital technology, the digital divide is growing, with more vulnerable populations, such as the aging population, at risk of being left behind in a digital-first world (Overcoming Digital Divides, 2021; Eisen & Emes, 2022).

IMPLICATIONS FOR COMMUNITY: There is an economic incentive to close the digital divide gap, as there is a direct correlation between the digital divide and income inequality. Having more people in society contributing to the economy will grow the economy (Ochillo, 2022). As the world continues its digital-first path, there is a real risk of communities on the fringes of society being completely excluded and erased in digital technology spaces (Costanza-Chock, 2020), as was seen during the recent global pandemic when communities pivoted online, resulting in high levels of social isolation and loneliness (Sweet, 2020).

EXTRAPOLATIONS: An increasing digital divide could lead to digital classism and generational digital wealth, perpetuating the cycle of unequal access. Entire populations of communities may be negatively affected by the digital divide, and may be erased in online environments, impacting erasure in the physical environment. In response to a digital-first world, some people may extract themselves from the digital economy and spaces, intentionally participating in the digital divide and growing the divide even further.

2/ Connected Disconnectedness

In a world that has never been more connected, the feeling of disconnectedness continues to rise, with 1 in 10 Canadians having experienced loneliness, stating they are often or are always lonely (Government of Canada, 2021a) and approximately 33% of adults globally reporting loneliness (Statista, 2022). Mental health issues related to loneliness and isolation are increasing, putting a strain on resources and the economy (Kelland, 2018). This has been triggered by the COVID-19 pandemic which increased social reclusion (United Nations, 2022; The Japan Times, 2023) and the rising cost of living (World Economic Forum, 2023a) which forces people, often elderly, to stay home and alone (Stephenson, 2022). Fueled by digital technology, Generation Z has been deemed the loneliness generation because of constant overstimulation and online presence resulting in less time for physical human connection (Jenkins, 2022).

IMPLICATIONS FOR COMMUNITY: The increase in disconnectedness and isolation may result in the lack of development of social skills and mass behaviour change, altering how humans interact with each other. Participation is a structural community component as defined by this research study, and this trend could result in decreased participation, therefore compromising the existence of communities. The economy may also suffer due to impacts of increased mental health issues, such as strains on social services and resources (Kelland, 2018).

EXTRAPOLATIONS: To capitalize on increasing mental health issues, wellness and technology industries may explore alternative forms of wellness treatments, including coopting “community” as a treatment, resulting in immense growth for the industry. Technology addiction may be recognized as a disease, heightening government regulations and protections, and sparking an exodus from digital technology. Relationships may blossom between human and machine, in lieu of human social contact, and entire generations may be lost by staying inside without any face-to-face interactions with other people.

3/ Hyperlocal

A shift to a local-first mindset occurs where smaller communities become self-sufficient, no longer relying on national and international supply chains that were continuously disrupted by the COVID-19 pandemic and increasing natural disasters caused by climate change (Supply Chain Issues?, 2022). Local agriculture, production, and economic systems advance helping limit reliance on external players (“Local Food,” n.d.). In addition, neighbourhoods are redesigned to optimize proximity to support health and wellbeing and limit negative contributions to climate change via commuting (Sibbald, 2022), and socializing is prescribed as healthcare treatments (Nowak & Mulligan, 2021).

IMPLICATIONS FOR COMMUNITY: Wealth and resources, including infrastructure, across hyper-localities may not be equally distributed, causing new inequities to form, especially in more suburban and rural areas where infrastructure may already be lacking. Cities are said to be a major influence to combating climate change and with a focus on local, real change may happen, creating resilient, climate-ready communities.

EXTRAPOLATIONS: Intense competition between hyper-localities can arise, creating silos, but cooperation flourishes within localities. Each community develops its own governance model, ideologies, and identity. Community waitlists form for preferred municipalities creating housing shortages, and dead zones and abandoned communities emerge.

4/ Exodus From Big Tech to Authen-tech

Due to growing distrust with Big Tech and exhaustion from the online performative nature of social media, people are choosing to leave Big Tech platforms in favour of alternative means of connection and community. People gravitate towards smaller communities that foster a sense of belonging built around niche interests on decentralized platforms powered by emerging digital technology (Accenture Life Trends 2023, 2023). Online, the influencing culture is replaced with authenticity, people are choosing to prioritize protecting identities versus oversharing (Pauly, 2023; Trends 2023: Collide, Connect, Care, 2023), and there is a nascent luddite movement of smartphone technology being replaced with simpler flip phones to protect mental health that has been damaged by Big Tech (Maruf, 2023).

IMPLICATIONS FOR COMMUNITY: With a rise in diverse niche communities and smaller-sized communities, there is a higher risk of silos developing and the formation of echo chambers, affecting the open dialogue necessary for a strong democracy. Brands and companies recognize the shift of humans searching for a sense of belonging in alternate online spaces away from social media and capitalize on it, developing a community-as-a-service model. This community-first, product-later approach to business engages active participation from members to build product offerings (Accenture Life Trends 2023, 2023).

EXTRAPOLATIONS: A fragmented and divided cyberspace with isolated dialogue between niche communities may arise, but a sense of belonging may increase globally. In person, physical communities strengthen with an analog technology movement that counters Big Tech dominance.

Big Tech may collapse and along with it, data spills from abandoned storage centres flood the internet, and an international cybersecurity threat may unfold.

5/ Artificial Identities

As artificial intelligence continues advancing in sophistication, the line between human identity and digital technology becomes blurred whereby complete artificial identities emerge. Digital selves begin to operate independently from physical selves (Ngayi, 2023; Human Digital Twins, n.d.), and the concept of digital afterlives is introduced, as digital data exists beyond the human body and mind (Robitzski, 2018; Johnson, 2020; Sauer, 2022).

IMPLICATIONS FOR COMMUNITY: Artificial identities may create more efficiencies, allowing humans to complete the necessary transactional tasks online with a digital identity, while creating time and space to participate in geographic and relational communities. Community trust and belonging may decline by the rise of deepfakes leading to copied or stolen digital identities, and confusion around content on the internet produced by human vs. machine.

EXTRAPOLATIONS: Disclaimer messages are now included on content shared online to discern between human and machine. Marginalized communities are exploited via artificial identities as avatars owned by white men, and multiple identities lead to distrust, catfishing, and deepfakes. Consciousnesses can be publicly shared and massive life changing science and medical breakthroughs made possible via the collectiveness of minds. Humans are pronounced dead once their digital data is taken offline, not when their physical body fails.

6/ Existing in the Fourth Place

The continuous evolution of the internet has spurred momentum around virtual and augmented spaces, and proliferation of access to tools that bring these spaces to life grows (Gurman, 2023). During the COVID-19 pandemic, the shift to online was drastic, and the amount of time spent online increased (Government of Canada, 2021b). The virtual world now offers nearly all aspects of the physical world – seemingly intangibles like scent and touch (Tech Trends 2023, 2022), digital fashion (Macdowell & Schulz, 2023; Zwieglinska, 2023), real estate (Cyr, 2022), V-commerce (Wiggers, 2023), and wellness retreats led by VR shamans (Vogl, 2016) – blurring the lines between the two. The fourth place is born, a virtual place, transcending the first place: home, the second place: office, and the third place: coffee shop as defined by Ray Oldenburg in The Great Good Place (Oldenburg, 1989).

IMPLICATIONS FOR COMMUNITY: While virtual reality is becoming more accessible and inches closer to mass adoption, it is still restrictive to those impacted by the digital divide, potentially creating homogenous virtual communities. With more people spending time online, this impacts the physical world, including limiting participation in local geographic communities, causing community support to suffer. Tension and psychological ramifications could be created between virtual identities that do not match physical identities.

EXTRAPOLATIONS: “Staying in” may take on a new meaning, with people favouring being their digital selves over leaving home, wearing digital clothing, and living in digital homes. The physical environment may heal with the rewilding of green spaces due to lack of outside activity, and digital fashion may replace the physical fashion industry, one of the biggest contributors to climate change. Intangibles in the physical world may become lost, like an old language, including shared meals and scent memories.

7/ On The Move

Environmental and economic changes are driving people to leave their geographic areas and homes, voluntarily and involuntarily, resulting in increased movement of populations. The COVID-19 pandemic has shifted the way work is conducted, with companies adopting a digital-first model of Work From Anywhere (WFA) (2022 Tech Trends Report, 2022; Tech Trends 2023, 2022). Climate change is continuing to wreak havoc on the environment with natural disasters increasing in frequency and intensity (2022 Tech Trends Report 2022; World Economic Forum, 2023a), and to combat an aging population and to ensure a stable workforce, immigration rates are increasing (Government of Canada, 2022; Government of Canada, 2023a).

IMPLICATIONS FOR COMMUNITY: Existing physical communities may be flooded with mass immigration, spurring the need for more housing and resulting in the demolition of protected green spaces for real estate development. Tension may develop between community impermanence and instability due to constant movement of people, and the need for connection, support, and care during dire times of climate change. A growing divide between who can move and who cannot move will become apparent, with the majority of white-collar workers having the flexibility to move (2022 Tech Trends Report, 2023).

EXTRAPOLATIONS: Dead zones may emerge from geographic regions that have been abandoned by those on the move. Small rural communities may be overtaken by Work From Anywhere workers, resulting in home prices rising, and displacement of local populations. Digital space may become the only available space that remains in some communities; existing and building connections in the physical is nearly impossible in a world of finite resources.

8/ Sharing is Caring

Operating in the current capitalist economic system is becoming more challenging for many people across many social groups. Astronomical cost of living, paired with a growing population, erosion of mental health, and limited resources is demanding a new economic model, one that prioritizes sharing of resources. The sharing economy is not a new phenomenon, going back to time immemorial with Indigenous economic practices (Hilton, 2021). Now new ways of sharing are gaining traction, including co-ownership of property (Middleton, 2023), cohousing (Novotney, 2019; McCord, 2021), and fractional investments and community fundraising powered by digital technologies (Simerman, 2020; Best, et al., 2023; Smallchange, n.d.). There is a return to a collective approach in order to withstand and adapt to the immense changes occurring in society.

IMPLICATIONS FOR COMMUNITY: The sharing economy may create access points into the economic system for people who may traditionally not have been able to participate in investing, building trust and belonging and mutuality in and between communities. The aging population strain on the economy may be relieved by including multi-generational households in co-investment and living opportunities, creating more diverse communities. The sharing model may transform the Western economy from individualistic to collective, which could have ramifications on perceived freedom for individuals.

EXTRAPOLATIONS: With a new sharing economy model created, the dollar may decrease in worth and be replaced by alternative forms of values. The co-operative model could have a strong resurgence, with its evolution being Decentralized Autonomous Organizations (DAOs) powered by blockchain technologies. Community resilience grows and a community of care is built, with care labour being properly recognized and compensated.

9/ Shared Governance

With reconciliation and climate change as major drivers, the Western world is turning to Indigenous populations, their leaders,and values and practices to establish a way forward for the future that is inclusive of Indigenous worldviews. Through shared governance (David Suzuki Foundation, 2023), the climate crisis could be addressed with Indigenous land stewardship which has kept one-third of the Earth in good or fair ecological condition (World Economic Forum, 2023b), and the capitalist economy would evolve from a model of perpetual growth to one that is inclusive and supportive of Indigenous economic contributions (Hilton, 2021; Indigenomics Institute, n.d.).

IMPLICATIONS FOR COMMUNITY: There is a huge opportunity for society, including the economy and communities, to become more resilient in the future with the inclusion and equality of Indigenous peoples, however, major infrastructure investment is required to ensure the closing of the digital divide, especially for Indigenous youth (Shrumm, et al., 2021). Nature may become a stakeholder, recognized by Western society, with Indigenous-led climate action, therefore stabilizing the effects of climate change, and in turn, communities and the wider economy.

EXTRAPOLATIONS: A paradigm shift may occur whereby the Western perspective and Indigenous perspective co-exist and are in partnership. The fear of assimilation and appropriation of Indigenous practices may be mitigated by enacting a shared governance model between Western and Indigenous leaders.

10/ The Fight for Tech Regulation

Growing concerns of the spread of disinformation and misinformation on Big Technology platforms, and the rapid advancements of – and ease of access to – Artificial Intelligence technologies, are increasing demand for digital technology governing laws, rules, and regulations. Citizens, the digital technology companies themselves, and industry advocacy groups are calling for guardrails to be developed to protect society from intentional or unintentional harm caused by digital technology tools and usage (McNamee, 2020; Wadhwa & Wadhwa, 2021; “Pause Giant AI Experiments,” 2023). The European Union released its Artificial Intelligence Act in March 2023 (European Commission, 2021; The EU’s Artificial Intelligence Act, Explained, 2023), and Italy placed a temporary ban on ChatGPT due to ethical data collection concerns (Thomas Reuters, 2023).

IMPLICATIONS FOR COMMUNITY: The extent of the impacts of emerging digital technology are not fully known or understood; technology regulation can potentially control or limit negative impacts such as biases against marginalized and racialized communities. Technology regulation may also slow down innovation, impacting the competitiveness of the economy, science and research developments, and geopolitical strength against international powers.

EXTRAPOLATIONS: A global tech regulation body may be enacted to monitor activities and ethics of governments and companies, similar to the United Nations or the Intergovernmental Panel on Climate Change (IPCC). However, tech regulation may be implemented too late, and the impacts of digital technology only become apparent decades later, similar to the pattern of climate change.

11/ The Splinternet

The Splinternet shifts the open, global internet to a more fragmented and closed internet, driven by political, geographical, economic, or interest motivations. This could look like blocking, censoring, or restricting access to content and connection such as China’s Great Firewall (Bloomberg News, 2018) and Russia’s Sovereign Internet (Stokel-Walker, 2022), internet shutdowns (Vincent, 2021; Cheng, et al., 2023), and/or one-sided ideological rhetoric (Fletcher, et al., 2022). The UN has declared that access to the internet is a human right. The Splinternet, especially in the context of government shutdowns, infringes on that human right (United Nations, 2016).

IMPLICATIONS FOR COMMUNITY: The Splinternet results in polarization, social division and fragmentation caused by confirmation bias in personalization algorithms implemented by Big Tech social platforms (Seneca, 2020). This may negatively impact the creation of meaningful social ties, spurring extremist communities that are harmful to society. The digital divide widens with unequal access to the internet based on geography, backsliding on globalization. Internet shutdowns have significant impacts on communication in communities, and on economies, costing hundreds of millions to billions of dollars (Cheng, et al., 2023).

EXTRAPOLATIONS: The weaponization of the internet becomes the go-to weapon of war for governments. Governments use the Splinternet to protect against cybersecurity attacks and carbon emission control for climate change action, conducting regular blackout periods. The internet may become more fragmented with communities establishing their own iterations of the internet, blocking information from other community internets. The internet may become individualized and unique for each person using it, catered to personal preferences and interests driven by harvested data-powered algorithms.

12/ Decentralizing Power

Power and control are transferred from one dominant body and dispersed across networks of actors and entities, employing community-driven practices of equal authority, countering a top-down approach (United Nations, 1996). Decentralization is emerging as an alternative approach to historically centralized political governance with increasing empowerment of local governance (The Future of Local Government, 2021; Cities, local and regional governments and human rights, n.d.). Hierarchical organizational structures are being disrupted with Decentralized Autonomous Organizations (DAOs); a democratic member-owned organization powered by blockchain (World Economic Forum, 2022). Digital infrastructure, such as WiFi networks, are decentralizing via community-owned internet provider services (DiBenedetto, 2021; Knight, 2021).

IMPLICATIONS FOR COMMUNITY: Loss of trust of centralized bodies may grow, resulting in the dissolving or fracturing of traditional hierarchical structures. Cooperation strengthens in communities, supporting citizen health and wellbeing, however, silos are created between smaller organizations and communities, leading to heightened competition.

EXTRAPOLATION: Geographic borders may be redrawn at smaller scales, and cities and communities may become recognized as independent nations (Stucki & Tran, n.d.; Big Think, 2023). Traditionally marginalized communities under a new decentralized power model may become an equal player in the new system, whereby they have accountability and agency. However, while seemingly democratic at the beginning, it may become clear that there are power members in communities who still hold control, and micro-hierarchies may form in the decentralized world.

13/ Trust No-One

Modern society has been built on trust existing between citizens, governments, and institutions, facilitated through the concept of social contracts. These social contracts are crumbling in large part due to the spread of misinformation and disinformation, attacks on human rights (World Economic Forum, 2023a), compromised privacy and safety because of the pervasiveness of digital data (Trends 2023: Collide, Connect, Care, 2023), and lack of transparency and traceability in existing manipulative systems (Accenture Life Trends 2023, 2023). Trust is eroding in society, and civilians are advocating for and protecting themselves.

IMPLICATIONS FOR COMMUNITY: Trust is the backbone of cooperation, and without it, democracy is at stake. Lack of trust in traditional institutions, like governments, may spur a new wave of individuals, communities, and organizations to innovate and disrupt existing systems, fueling a societal revolution. Eroding trust may impact openness and trust and belonging in communities, with some communities unravelling.

EXTRAPOLATION: Lower social capital due to broken social contracts and lack of trust may impact the economy as businesses and governments falter without societal support. As rebuilding trust takes time, this could force the entire social system to slow allowing for success to be redefined with new values. Community members may take agency and control, combatting distrustful institutions, to lead the process of developing net new social contracts.

FUTURES OF COMMUNITIES

Scenarios

Scenario building to envision not just a desired future, but many possible alternate futures, was used as a technique to understand where these trends could lead. Leveraging Jim Dator's Four Generic Images of the Future, four exploratory scenarios were created. Each scenario aims to explore the possible future evolutions of community impacted by digital technology in the year 2043.

Jim Dator's Four Generic Images of the Future is a foresight framework that allows for creating four different and distinct versions of the future (Dator, 2009). The four worlds are titled Growth, Collapse, Discipline, and Transform. The methodology frames each world through dimensions such as Population, Economy, Environment, Society, Technology, Governance, and Health, thereby building a holistic future world.

Each scenario has a different makeup of these dimensions, that when paired with storytelling, allow for an immersive exploration of four future alternative worlds. To create plausible scenarios, information rooted in the literature review, participant interviews, and the horizon scan are used as inputs, and a timeline of key milestones leading up to 2043 is provided.

Assessing community characteristics

To generate an understanding of the impacts on the health of communities that these worlds could have, the community characteristics that were formed from the literature review and primary research were then assessed across each scenario. The assessment results uncover risks and opportunities for preserving community characteristics.

Assessment Criteria

The assessment criteria used in this report is based on Cantril's Self-Anchoring Striving Scale (1965), with a scale of suffering, struggling, and thriving. A description of the criteria for each community characteristic is provided in the assessment rubric. It is important to note that this assessment was conducted individually by the researcher. To limit bias, an assessment should be conducted with a group of individuals with varied lived experiences.

CHARACTERISTIC	SUFFERING (1-2)	STRUGGLING (3)	THRIVING (4-5)
SHARED INTENT • There are defined values in the community that members are aligned with • There is a community identity and members identify with the community	Shared intent is lost and replaced with divisiveness	Shared intent is experiencing fragmentation and misalignment	Shared intent is understood and followed and rarely wavers
MUTUALITY • There is reciprocity: cooperation, collaboration, and togetherness • There is genuine care for each other and for the community as a whole • Community members feel a sense of responsibility and accountability for actions	Mutuality is lost; lack of respect and concern for solely the individual prevails, creating an extractive culture, with no self-accountability for actions	Mutuality becomes fractured, struggling with lack of cooperation, diminishing respect, and mounting polarization	Mutuality is intact, with genuine care, mutual exchange, and responsibility being delivered by the community
MEANINGFUL SOCIAL TIES • Ability to establish meaningful connections within the community and with other communities • Quality of mutually beneficial and trusting relationships developed	Meaningful social ties are non-existent, siloes within the community and between other communities occur	Meaningful social ties are weakened, heightening fragmentation within and between communities	Meaningful social ties are strengthened, with connections and relationships between members and other communities being mutually beneficial
TRUST & BELONGING • Ability to build and maintain trust amongst community members, institutions, and other actors of influence • Develop a sense of belonging in the community • Provides emotional, mental, physical, safety to community members	Trust and belonging are easily lost and/or cannot be formed in an environment that does not foster safety and belonging	Trust and belonging are compromised and not easily built in an environment that inconsistently provides safety	Trust and belonging are easily built and maintained in an environment that is consistently safe, emotionally, physically, and mentally
OPENNESS • Shared experiences (joyful life milestones, suffering) • Shared resources (time, knowledge)	Openness turns to closedness, with resources being privatized and increased isolation replacing shared experiences	Openness is disrupted and conditional, resources and experiences are inconsistently shared	Openness of sharing resources and experiences amongst community members thrives

Prior to engaging in future scenarios, it is important to align on the current conditions from which these alternate futures stem.

PRESENT: 2023

- Emerging digital technology accelerates with Chat-GPT4 (Chat Generative Pre-Trained Transformer) released in March 2023 (OpenAI, 2023) just 4 months after Chat-GPT 3.5's initial release, and Apple is rumoured to release its virtual reality headset in June 2023 at its Worldwide Developers Conference (Gurman, 2023).
- International Panel on Climate Change (IPCC)'s final report released in March 2023 states that by 2030 GHG emissions must be cut in half in order to limit warming to 1.5 degrees Celsius by end of century (International Panel on Climate Change [IPCC], 2023).
- Canada's population grew by over 1 million people in 2022, primarily due to immigration (Government of Canada, 2023a).
- The Liberal Minority Federal Government of Canada has tabled the Digital Charter Implementation Act to bolster regulations around digital technology, such as Artificial Intelligence, but it has not yet passed (Government of Canada, 2023b).
- Triggered by the COVID-19 pandemic, mental health issues significantly increased, struggling to be met by the overwhelmed traditional healthcare system (United Nations, 2022), and in February 2023 Amazon closed a deal and acquired a virtual health provider, OneMedical, expanding its presence in the healthcare space (One Medical Joins Amazon to Make It Easier for People to Get and Stay Healthier, 2023).
- Social divisiveness is growing, influenced by polarizing political and human rights views (Ragan & Sarlieve, 2022; Brewster, 2023).

An overview of the four futures of community and emerging digital technology is provided below. More information on each world can be found in the subsequent pages.

WORLDS	GROWTH	COLLAPSE	DISCIPLINED	TRANSFORM
DIMENSIONS:				
POPULATION	GROWING	DECLINING	TAXED	AUGMENTED
ECONOMY	DOMINANT	SHARED	CONTROLLED	ALTERNATIVE
ENVIRONMENT	SACRIFICED	REBUILT	PROTECTED	HYBRID
SOCIETY	DIVIDED	COLLECTIVE	FAMILY	INTER CONNECTED
TECHNOLOGY	PERVASIVE	REUSED	REGULATED	REFORMED
GOVERNANCE	CORPORATE	LOCAL	STRICT	SHARED
HEALTH	DECLINING	REPAIRING	PRESCRIBED	HOLISTIC

GROWTH: 2023

Communities are digital and transactional.

WORLDS	GROWTH
DIMENSIONS:	
POPULATION	GROWING
ECONOMY	DOMINANT
ENVIRONMENT	SACRIFICED
SOCIETY	DIVIDED
TECHNOLOGY	PERVASIVE
GOVERNANCE	CORPORATE
HEALTH	DECLINING

Milestones leading to GROWTH in 2023:

2023 to 2030:

- Technology companies become a key partner of the government, embedded across all levels, as the government struggles to fight climate change alone.
- A 2029 survey reports 1 in 5 people experience loneliness. A significant rise of inauthenticity and distrust is reported.

2030 to 2036:

- The value of money as currency decreases as there is a rise in personal data being exchanged in goods and services; the economy is booming in new ways.
- To combat the ever-growing digital divide, the government implements a tax rebate on VR headsets; VR headset sales increase.

2036 to 2043:

- With over 23% of the population over 65 years old, the digital afterlife business is skyrocketing.
- The population of Canada exceeds 50 million in 2043 due to immigration, and the last green space is developed to accommodate more housing.

COMMUNITY STRUCTUAL COMPONENT	GROWTH
SPACE	VIRTUAL
PARTICIPANTS	HUMANS, AVATARS / FRAGMENTED
COMMUNICATION	AUTOMATED
ORGANIZATION	ALGORITHM

Technology is viewed as the solution to tackle rising environmental and societal issues. Digital innovation becomes deeply entrenched in all aspects of society including health, education, culture, and governance. Technology entrepreneurs are elected to power.

Heavy investment into digital infrastructure leads to more people online than ever before, democratizing access to emerging technologies. A digital free-for-all ensues, exponentially increasing wealth for those who can navigate multiple virtual worlds via digital twins.

Yet, loneliness is at an all time high in this always-connected state. Personal data is actively traded, like stocks, and human relationships become equally transactional under the adage that time is money. Distrust grows as online identity theft skyrockets. There is a social norm of “avoid eye contact at all costs” when venturing outdoors.

To counter these social problems, the digital technology industry creates Virtual Support Workers for companionship and VR Senses Packages to recreate lost physical intangibles, like scent and touch. Community-As-A-Service emerges as a lucrative business model, capitalizing on a need for connection.

GROWTH’S IMPACT ON COMMUNITIES

CHARACTERISTIC	SUFFERING (1-2)	STRUGGLING (3)	THRIVING (4-5)
SHARED INTENT		3	
MUTUALITY		3	
MEANINGFUL SOCIAL TIES		3	
TRUST & BELONGING	2		
OPENNESS		3	

COLLAPSE: 2023

Communities are physical, defined by proximity.

WORLDS	COLLAPSE
DIMENSIONS:	
POPULATION	DECLINING
ECONOMY	SHARED
ENVIRONMENT	REBUILT
SOCIETY	COLLECTIVE
TECHNOLOGY	REUSED
GOVERNANCE	LOCAL
HEALTH	REPAIRING

Milestones leading to COLLAPSE in 2023:
2023 to 2030:

- The government misses environmental target goals needed to be met by 2030 in order to limit global warming to 1.5 degrees Celsius by the end of the century, putting the population at risk and triggering political distrust.

2030 to 2036:

- Technology dominance falls due to all-time high interest rates reducing investments into innovation. The slowdown exposes the unintended consequences of digital technology, including addiction and isolation.
- Local governments restrict the creation of new digital technologies; the reuse and repair movement grows.

2036 to 2043:

- Hyperlocal communities begin taking on identities, ideologies, and governance of their own, creating safe enclaves from - and support systems for - the growing disasters around them.

COMMUNITY STRUCTUAL COMPONENT	COLLAPSE
SPACE	PHYSICAL
PARTICIPANTS	HUMANS / ACTIVE
COMMUNICATION	IN PERSON
ORGANIZATION	GRASSROOTS

Humanity enters survival mode after a major tech-onomic recession. Growing climate instability and decades of exorbitant living costs have contributed to a declining population. Out of necessity, a new economic model based on localness and multi-generational sharing emerges.

Geographic boundaries are redrawn around hyperlocal physical communities which act as unique nations with independent governance.

After years of digital isolation, humans are removing their VR headsets and emerging in the streets. Trust is being rebuilt through communities reclaiming ownership from the private sector's capitalist ways, and discarded digital technology is refactored and reused to foster physical togetherness and environmental protection.

Achieving cooperation in each community is successful, but competition grows between communities, fueled by differences of identity and resource comparisons. While more connected geographically than ever before, there is a complete disconnect globally, and community silos form.

COLLAPSE’S IMPACTS ON COMMUNITY

CHARACTERISTIC	SUFFERING (1-2)	STRUGGLING (3)	THRIVING (4-5)
SHARED INTENT			4
MUTUALITY			5
MEANINGFUL SOCIAL TIES		3	
TRUST & BELONGING		3	
OPENNESS			4

DISCIPLINE: 2023

Communities are manufactured and controlled.

WORLDS	GROWTH
DIMENSIONS:	
POPULATION	TAXED
ECONOMY	CONTROLLED
ENVIRONMENT	PROTECTED
SOCIETY	FAMILY
TECHNOLOGY	REGULATED
GOVERNANCE	STRICT
HEALTH	PRESCRIBED

Milestones leading to DISCIPLINE in 2023:
2023 to 2030:

- The government takes strict action on fighting climate change, implementing significant taxes and restrictions.
- Cyberwarfare significantly rises, with major cyber attacks impacting Big Technology companies.

2030 to 2036:

- The government seizes control of the Internet in the interest of national security and the first government-initiated Internet safety blackout is piloted in Canada.
- The government releases a campaign promoting a return to the nuclear family ideals for safety, health, and human longevity.

2036 to 2043:

- A buy-back program for all non-government sanctioned digital technologies launches.
- Billionaires as a concept are extinct as the government redirects their money towards the economy, climate change initiatives, and insurance for future generations..

COMMUNITY STRUCTUAL COMPONENT	DISCIPLINE
SPACE	PHYSICAL
PARTICIPANTS	HUMANS / ASSIGNED
COMMUNICATION	FACILITATED
ORGANIZATION	TOP DOWN

Responding to public fear and crumbling societal health, a new government is elected with the mandate to reduce the speed of technology and its reckless advancements. To combat distrust and misinformation running rampant in society, the government filters content, adding automatically generated disclaimers stating if it was produced by technology, a human, or other. Warning labels are added to software and hardware.

A Ministry of Community is developed by the government to promote a wellbeing agenda. Time and activity is monitored via data tracking, with allotments for carbon usage, facilitated engagement and connection, tech-free periods for health and wellness, and indoor-only periods for engineered rewilding.

A return to familial values is encouraged, and a government program assigning families to hazard-proof designed communities is implemented.

While data shows that the population is "healthy," unmeasurable attributes such as feelings of loss of self, loss of privacy, and disconnection grow.

DISCIPLINE'S IMPACTS ON COMMUNITY

CHARACTERISTIC	SUFFERING (1-2)	STRUGGLING (3)	THRIVING (4-5)
SHARED INTENT			4
MUTUALITY		3	
MEANINGFUL SOCIAL TIES		3	
TRUST & BELONGING		3	
OPENNESS		3	

TRANSFORM: 2023

Communities are multispatial and cohesive.

WORLDS	TRANSFORM
DIMENSIONS:	
POPULATION	AUGMENTED
ECONOMY	ALTERNATIVE
ENVIRONMENT	HYBRID
SOCIETY	INTERCONNECTED
TECHNOLOGY	REFORMED
GOVERNANCE	SHARED
HEALTH	HOLISTIC

Milestones leading to TRANSFORM in 2023:
2023 to 2030:

- Technology Ethicists successfully advocate for stricter regulations for technological advancements. The Ministry of Technology Ethics is formed, along with the Independent International Ethics Board (IIEB).
- The government begins closer partnerships with Indigenous leaders to tackle climate change after missed climate targets in 2030 trigger an urgent change of leadership and action.

2030 to 2036:

- A community fund is created to transition digital Internet spaces from private to public-owned, sharing ownership with corporations and government.

2036 to 2043:

- Legislation is proposed to include sentient beings and plants, in addition to humans, as part of official population numbers.
- The first human consciousness is downloaded, filtered for bias, and uploaded to the open consciousness to advance research and collective knowledge.

COMMUNITY STRUCTUAL COMPONENT	TRANSFORM
SPACE	PHYSICAL/DIGITAL
PARTICIPANTS	HUMANS, NATURE, SENTIENT BEINGS
COMMUNICATION	OPEN
ORGANIZATION	CO-CREATED

Indigenous and non-Indigenous leaders share governance to right the wrongs that have prevailed for centuries in the economy, against humanity, and the environment. Technology is open-source yet regulated and creates the utmost efficiency, performing the transactional tasks humans were once responsible for, and freeing up time for humans to be relational together.

Some people experience job loss due to technology, and begin questioning their usefulness, but the government establishes paid community creator positions for displaced workers. Care is recognized as an alternative value exchange.

Digital and physical public spaces are designed to foster connection, trust, and relationships with humans, sentient beings, machines, and the environment. Community is prescibed by healthcare professionals as a form of medical treatment.

While social cohesion is strong, those with extreme views are excluded from the discourse. Individuals who need time alone to refuel suffer from exhaustion and overstimulation; a new wave of reclusiveness grows.

TRANSFORM'S IMPACTS ON COMMUNITY

CHARACTERISTIC	SUFFERING (1-2)	STRUGGLING (3)	THRIVING (4-5)
SHARED INTENT		3	
MUTUALITY			4
MEANINGFUL SOCIAL TIES			4
TRUST & BELONGING			4
OPENNESS			4

OBSERVATIONS

A summary of the structural components of community and community characteristic health assessment in each scenario.

WORLDS	GROWTH	COLLAPSE	DISCIPLINED	TRANSFORM
COMPONENT:				
SPACE	VIRTUAL	PHYSICAL	PHYSICAL	PHYSICAL/ DIGITAL
PARTICIPATION	HUMANS, AVATARS/ FRAGMENTED	HUMANS/ ACTIVE	HUMANS/ ASSIGNED	HUMANS, NATURE, SENTIENT BEINGS/ UNITED
COMMUNICATION	AUTOMATED	IN PERSON	FACILITATED	OPEN
ORGANIZATION	ALGORITHM	GRASSROOTS	TOP DOWN	CO-CREATED
CHARACTERISTIC:				
SHARED INTENT	Struggling (3)	Thriving (4)	Thriving (4)	Struggling (3)
MUTUALITY	Struggling (3)	Thriving (5)	Struggling (3)	Thriving (4)
MEANINGFUL SOCIAL TIES	Struggling (3)	Struggling (3)	Struggling (3)	Thriving (4)
TRUST & BELONGING	Suffering (2)	Struggling (3)	Struggling (3)	Thriving (4)
OPENNESS	Struggling (3)	Thriving (4)	Struggling (3)	Thriving (4)
TOTAL HEALTH	14	19	16	19

INSIGHTS

The Transform and Collapse scenarios rank highest on the community characteristics assessment, with Discipline ranking third, and the Growth scenario ranking the lowest.

SHARED INTENT is ranked highest in Collapse and Discipline, and both follow a pattern of collectivism driving success. There are very defined values that are embraced by community members, for different reasons: in Collapse, members come together for survival, in Discipline, members come together under the direction of the government.

MUTUALITY is struggling in Growth because of individualism and inconsistency of care and accountability. In contrast, Collapse and Transform provide environments where other values are recognized, including care, and in order to sustain and remain resilient, cooperation, respect, and accountability must exist.

MEANINGFUL SOCIAL TIES are strongest in the Transform scenario because both connections and relationships within the community and between other communities exist and are maintained. There is strong social cohesion for those who share the same values.

TRUST AND BELONGING is lowest in Growth due to the barrier of an all-virtual community space impacting some populations. Whereas in Transform, Trust & Belonging ranks highest because of the inclusion of historically marginalized community members sharing in co-ownership and governance.

OPENNESS is influenced by investment of time, resources, and energy into community – when that does not reap economic benefits, it is not made a priority in a capitalist world, like in the Growth scenario. In the Discipline scenario, when sharing is forced, there is lesser need, desire, or effort placed on openness; there is a restriction or limit.

Communities that possess all characteristics: shared intent, mutuality, meaningful social ties, trust and belonging, and openness can be both harmful and positive. The differentiating characteristic is meaningful social ties between communities. How does a community build bridges with other communities? How does a community influence or impact another community? Are actions harmful to others? If they are, that community may not be a healthy community based on this research study's analysis.

There is not one scenario explored where community characteristics are all thriving. This reinforces that community health characteristics are heavily influenced by external factors. Therefore, embedding a consideration for community health in decision making at every level of the system is necessary to preserve the health of communities now and in the possible futures to come.

The key areas of opportunity that emerged during the assessment are:

1. Recognizing and supporting diverse value exchanges
2. Building bridges between communities
3. Inclusion in communities and community co-ownership models
4. Increased investment of time in communities

These opportunity areas have informed the creation of interventions to help preserve community health amidst rapid digital technological advancement.

06 Intervene: An ecosystem of interventions for community preservation

This section includes Phase 04: Intervene of the project methodology. Eight interventions, forming an ecosystem of interventions, are proposed to preserve healthy communities. The interventions span multiple levels of the system, requiring participation from multiple systems actors. No one intervention alone will enact lasting change. Ultimately, a paradigm shift is necessary in digital technology to move beyond human-centred design towards community-centred design, thereby preserving healthy communities. Conceptual prototypes are explored as tangible research outputs, to be tested and co-created with stakeholders.

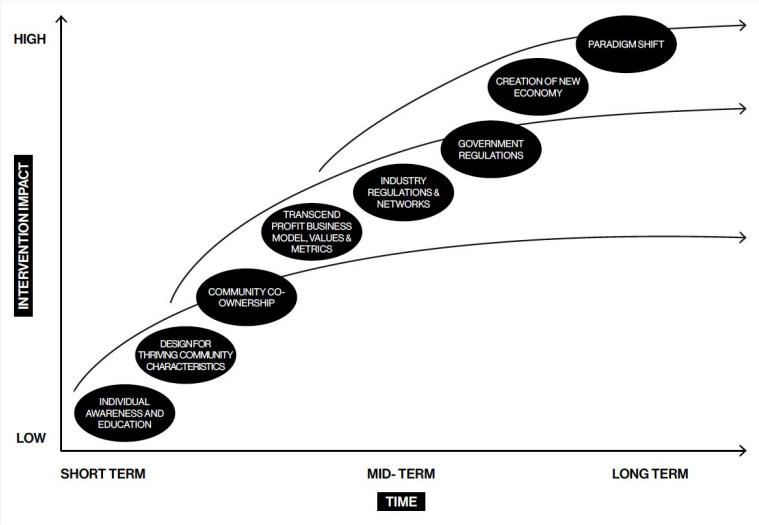
Overview

From the community characteristics assessment, areas of opportunity for preserving communities for future scenarios were identified. The key themes are [1] recognizing and supporting diverse value exchanges [2] building bridges between communities [3] inclusion in communities and community co-ownership models, and [4] increased investment of time in communities. The futures of communities' health assessments and patterns derived from primary and secondary research have made clear that siloed interventions will not be effective in building healthy communities amidst rapid emerging digital technology. An ecosystem of interventions is proposed; composed of interventions at multiple levels of the system, engaging multiple actors, and are implemented over multiple timeframes to effect holistic systems change. This section outlines the ecosystem of interventions to support transitioning the system of digital technology to preserve community health for the possible futures to come.

Ecosystem of Interventions: Building a System of Change

Eight interventions are proposed to shift towards designing digital technology to build healthy communities. The interventions were developed with inputs from qualitative participant interviews, mapping the current digital technology system to identify potential leverage points, and assessing the health of communities in four exploratory futures driven by emerging digital technology. The interventions create an ecosystem of change. While interventions implemented independently at various levels in the system by various actors in the system can propel change forward, when the interventions are implemented together, as an ecosystem, significant change can occur.

Shifting a system does not occur quickly; these interventions should be applied consistently, analyzed, and adjusted as necessary over a long-term timeframe. There are actions that can be initiated over the short- and mid-term that will build towards the longer-term interventions. A phased timeline is presented visualizing the interventions' impact over time.



SHORT-TERM

[1] Increasing education of digital technology impacts on communities

SYSTEM LEVEL: Individual
SYSTEM ACTORS LEADING THE INTERVENTION: Government, industry, business, communities
SYSTEM ACTORS PARTICIPATING IN THE INTERVENTION: End consumer, digital technologist

Across all levels of the system, all actors can develop an awareness of the impacts of digital technology on individuals and communities through digital technology learning. This may improve a more holistic understanding of digital technology and increase advocacy for ethical practices. Governments, the industry network, and communities can implement awareness campaigns, trainings, regulations, and industry standards and licensing to increase education of digital technology impacts. Through this, end consumers can be empowered with more knowledge – and therefore increase agency – to choose to engage with digital technology in ways that support ethical social values. Businesses can improve access to education and resources for digital technologists, end consumers, and the wider industry network to build a shared understanding of designing while considering impacts to communities. All system actors can participate in increasing education of the impacts of digital technology.

[2] Designing for thriving community characteristics

SYSTEM LEVEL: Individual
SYSTEM ACTORS LEADING THE INTERVENTION: Digital technologist
SYSTEM ACTORS PARTICIPATING IN THE INTERVENTION: End consumer, communities, business, industry, government

Digital technologists can develop an awareness of impacts that transcend just the individual or target group that is being designed for, to include the wider communities, designing for both the individual and the collective. Decisions made throughout the digital technology design process can be assessed for present and future impacts – intended and unintended – on community characteristics. In order to move at the speed of trust, understanding and creating awareness of the impacts of design decisions, the digital technology process should slow down; trust is at stake between humans and technology, and trust takes time to build. Understanding who is designing and how the digital technology is being designed should be embedded in the process, taking the time to share ownership and partner with communities, transcending consultation. Design for thriving community characteristics as an intervention can be led by digital technologists but will require participation of end consumers and communities to co-design, and business, industry, and government actors to enable through regulations and new business models.

MID-TERM

[3] Diverse communities in the design process as community co-owners

SYSTEM LEVEL: Individual, Organization
SYSTEM ACTORS LEADING THE INTERVENTION: Digital technologist, business, communities
SYSTEM ACTORS PARTICIPATING IN THE INTERVENTION: End consumer, industry, government

The digital technology design process could change models of community involvement from consultation to co-ownership, increasing the agency of communities to control outputs, and impacts of outputs, and limiting practices of community extraction. The design process could shift from designing for "power users" or "power communities" to designing with diverse communities (Costanza-Chock, 2020). Not only does this mitigate erasure of historically underrepresented groups in digital technology experiences, but it also increases the market opportunity and impact of the technology for companies. This intervention requires dedicated learning to understand marginalized communities, and mindsets of reconciliation and decolonization to disrupt existing oppressive systems impacting communities and access to or interactions with technology.

Businesses need to support diverse communities in the design process by providing resources – including time – to digital technologists, and by building trust with and empowering agency in communities to participate. Industry standards that support and advocate for ethical design practices, and government regulation and policies focused on building digital infrastructure to ensure communities have access to and understand digital technology will enable this intervention.

[4] Evolving business models: goals, values, and metrics

SYSTEM LEVEL: Organization
SYSTEM ACTORS LEADING THE INTERVENTION: Business
SYSTEM ACTORS PARTICIPATING IN THE INTERVENTION: Industry, government, communities, end consumer, digital technologist

Changing the metrics of measurement from solely profit-based to include other values would allow for different business models to emerge, moving away from the attention driven model to a holistic model that considers collective wellbeing and community health. Community cannot always be measured – especially in a hybrid world of both physical and digital existence – and if collecting quantitative data from the end consumer is the highest priority, this limits the ability to design and deliver real value to support communities. Businesses should engage with diverse communities and end consumers to co-create new metrics and business models that support individual consumer health and healthy communities.

Transitioning the business mindset from short-term gains to long-term gains to assess opportunities for potential impacts may mitigate unintended consequences on individuals and communities created by short-sighted monetary targets. Businesses can introduce ethical and inclusive design values into the overarching business strategy, to ensure values are followed and embedded in goal creation and throughout the design process by digital technologists.

For businesses to enact this intervention and transition to a new way of thinking and working, commercial cases need to be proven that indicate viability in the current state capitalist system. In addition, businesses should build capacity and skills to embed strategic foresight for resiliency planning. Enabling this intervention are industry and government actors, providing industry standard guidelines and governance regulations that should be incorporated into business strategies (PricewaterhouseCoopers, 2019).

[5] Building industry networks, standards, and tools of ethical digital technology

SYSTEM LEVEL: Ecosystem
SYSTEM ACTORS LEADING THE INTERVENTION: Industry, business, digital technologist
SYSTEM ACTORS PARTICIPATING IN THE INTERVENTION: Government, communities, end consumers

Participants, specifically those working in emerging fields of digital technology such as responsible technology, when asked about the future of their industry shared a hope that there would be a larger network of stakeholders – a collective – participating in changing the system. From the secondary research, it is evident that there are many practices focused on challenging the status quo of digital technology by implementing ethical approaches. These practices and organizations can explore working together to propel the paradigm shift forward, building bridges between them, and sharing replicable resources and tools that prove the importance of change (PricewaterhouseCoopers, 2019). Ethical industry norms, regulations, and professional licensing could be explored to create a sense of accountability and responsibility amongst digital technologists and businesses to produce ethical technologies and better discern the technologies that should not be built at all (Weinstein, et al., 2021). This could require the creation of independent industry regulators that are enacted to collaborate with businesses, governments, communities, and digital technologists to create regulations, and be responsible for enforcement and licensing (Quest & Charrie, 2019).

End consumers can be empowered to participate in the regulatory of digital technology ethics through the creation of reporting systems to notify regulators – whether government or industry – of potential digital technology violations or potentially harmful designs (Susarla, 2021).

[6] Implementing ethical digital technology regulations and policies to preserve healthy communities

SYSTEM LEVEL: Society, Ecosystem
SYSTEM ACTORS LEADING THE INTERVENTION: Government
SYSTEM ACTORS PARTICIPATING IN THE INTERVENTION: Industry, business, communities, digital technologist, end consumers

At the society and ecosystem levels in the system, there could continue to be heightened emphasis placed on developing government regulations to support digital technological innovation while ensuring ethical and responsible practices are followed by companies and entrepreneurs. Additional focus could be placed on creating regulations that support the preservation of community characteristics that inform healthy communities, supporting a healthy society. This should include policies that prioritize investment in building resilient digital infrastructure to include, support, and increase agency of all communities amidst heightened external factors (World Economic Forum, 2022a). Regulations and policies should be developed in partnership with system actors, including the technology industry, businesses, communities, digital technologists, and end consumers and should not be done in isolation (PricewaterhouseCoopers, 2019; Quest & Charrie, 2019). In Taiwan, this is facilitated via a digital minister who was appointed by government to build a closer relationship between the technology industry and government (Weinstein, et al., 2021).

LONG-TERM

[7] Shifting the economic model to recognize alternative forms of value

SYSTEM LEVEL: Society
SYSTEM ACTORS LEADING THE INTERVENTION: Government
SYSTEM ACTORS PARTICIPATING IN THE INTERVENTION: Industry, business, communities, end consumers

The economic capitalist system requires restructuring to recognize other values as meaningful forms of exchange in the system, transcending profit. The capitalist economy powers the current digital technology system, prioritizing profit and productivity with limited regard to consequences of perpetual growth in a world of finite resources. To enable a resilient new way of designing that preserves healthy communities, capitalism should evolve to a new economy that measures success differently. To facilitate the transition from capitalism to the next economy, governments can lead the intervention by acknowledging the unsustainable state of perpetual growth on societal and environmental health and finite resources, and implementing policies to support innovation while reducing harm.

A new way of working and operating should be established, with businesses and industry participating in the creation of regulations and business models to support a new economy that recognizes alternative forms of value, transcending profit, and supporting healthy communities. End consumers and communities, through advocating for change and through agency of purchasing and engagement behaviour, can put pressure on government, industry, and business, aiding in the shift of the economic model.

[8] Shifting the mindset and paradigm to build healthy communities

SYSTEM LEVEL: Society, Ecosystem, Organization, Individual
SYSTEM ACTORS LEADING AND PARTICIPATING IN THE INTERVENTION: Government, industry, business, communities, digital technologist, and end consumers

A mindset shift – one of the most impactful leverage points in the system to create change as described by Donella Meadows (1999) – is needed to actively consider the impacts of digital technology on communities when designing. A shift in posturing is needed from solely solving for individual needs and driving profit as motivation, towards designing technology through a systems lens, considering impacts on healthy communities. A mindset shift can have a ripple effect across the entire system, and influences and enables all interventions. Across all actors – governments, industry, businesses, communities, digital technologists, and end consumers – a mindset shift is necessary to create a lasting systemic shift of designing digital technology to build healthy communities.

The proposed ecosystem of eight interventions has been informed by primary and secondary research and was developed in an effort to better design digital technology to preserve and build healthy communities for the possible futures to come. As findings from this research study indicate, there is not one intervention that with certainty can preserve the health of communities.

However, these interventions can serve as a foundation for continued awareness building of the importance of considering the impacts on communities while designing and building digital technology. As evident in the evolution of community – depicted through the Multi-Level Perspective – and in the four future scenarios of community – Growth, Collapse, Discipline, and Transform – community health is influenced by external forces and is constantly changing. Therefore, interventions may adjust as new data is gathered, and as environments and technology innovations continue to shift and influence communities. As a research study next step, interventions can be tested, or windtunneled (Van der Heijden, 2005), in future scenarios to understand how the community characteristics health assessment may change with interventions applied. This process can also inform areas of opportunity for intervention refinements to create more robust interventions.

Community-centred design

The ecosystem of interventions creates a new design methodology: community-centred design.

The eight interventions are visualized below as components of community-centred design: [1] Ethical Digital Technology Education , [2] Design for Thriving Community Characteristics, [3] Community Co-ownership, [4] Holistic Wellbeing Business Models and Metrics, [5] Ethical Industry Networks, Standards, and Tools, [6] Ethical Government Regulations, [7] Transcending Profit as Measurement, and [8] Shared Mindset to Build Health Community.

Designing for thriving community characteristics

For the purposes of this research study, a conceptual prototype supporting the short-term intervention [02]: Designing for Thriving Community Characteristics has been created. This prototype exists to support digital technology stakeholders who can create immediate change by considering the impacts of decisions on characteristics that inform healthy community, therefore applying pressure to higher system levels to propel the shift forward.

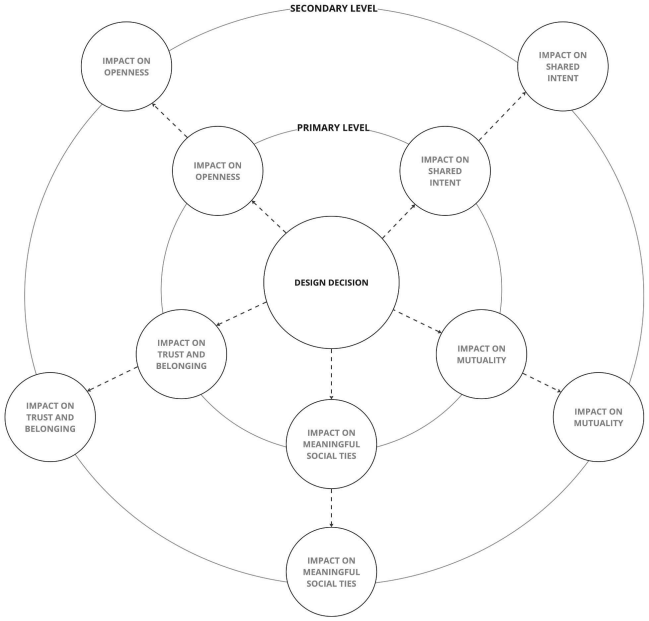
The design, development, and release to the public of digital technology has an immense impact on society, and as evident from the research gathered and presented, on communities. Digital technologists, even at a lower level in the system, hold power in decision making during the design process that in turn impact communities.

A pattern from participant research was that digital technologists interviewed do not currently consider the wider impact on communities, but it would be valuable to do so. Therefore, the prototype developed aims to empower technologists to generate awareness of decisions on communities via Designing for Thriving Community Characteristics. As government, economy, and industry interventions shift at a slower pace over time, technologists can begin to create change from the bottom up.

Designing for Thriving Community Characteristics is a systems thinking and foresight tool to prompt thinking of the impacts of decisions on communities beyond the individual “user.” The framework is an adaptation of the Futures Wheel, created by Jerome Glenn in 1971 (Glenn, 2021), which was developed to understand future implications of a trend or event. In this iteration, the primary level of impact considers how the design decision may impact the community, using the community characteristics as impact prompts.

The secondary level of impact illustrates how the design decision may impact other communities, bringing the defining healthy community characteristic of creating meaningful social ties between other communities into consideration. For example, after completing the primary level of impact, if it is decided that a design decision does not harm the community characteristics, but in the secondary level of impact, it is anticipated that the design decision is harmful towards another community, awareness has been created of all possible consequences, and a decision to move forward must be made.

Any timeline can be set to use this tool: a technologist can explore and anticipate impacts of design decisions on communities in the present and in the future(s). It is recommended that this exercise is applied at the beginning of the design process to inform strategies, and all throughout the design process, co-designed directly with communities. Designing for Thriving Community Characteristics is meant to be adaptable; the community characteristics are crafted based on the research conducted during this study and may shift as more data is gathered, and/or are interchangeable to satisfy unique communities.



Community-centred design, and the Designing for Thriving Community Characteristics tool, are proposed concepts, and outputs of this research study which has limitations. As the next steps, these concepts should be tested – and the next iteration co-created – with stakeholders.

07 Conclusion

Communities are vital to individuals and to the wider society as they facilitate humans' innate desire to belong and connect, a foundational need. The emergence of digital technology has spurred connections; however, unintended consequences, such as social fragmentation and polarization leading to the erosion of social cohesion, are occurring because of its rapid advancement. Community health – defined in this research study by characteristics of social intent, mutuality, meaningful ties, trust and belonging, and openness – is impacted by emerging digital technology, which affects societal wellbeing.

The research aimed to answer how digital technology might be better designed to build healthy communities. The research methodology followed a four-phased approach – [1] Discover, [2] Design, [3] Assess, and [4] Intervene – to investigate how community has evolved driven by technology, the impacts of emerging digital technology on communities, and how healthy communities may evolve in exploratory futures. Informed by data from primary and secondary research, and through systems thinking, foresight methodologies, and future health of communities' assessment, intervention opportunities were identified.

An ecosystem of interventions, composed of eight multi-level, multi-actor interventions, proposed a paradigm shift from human-centred design towards community-centred design. Involvement from top-down actors, such as government, and bottom-up actors, such as end consumers and digital technologists, will enact systemic change necessary to build and preserve healthy communities for the possible futures to come.

This research study is not without limitations, and there are recommendations to continue this investigation and bolster results and outcomes. Further research opportunities include conducting workshops with multi-level systems actors – end consumers, communities, digital technologists, businesses, industries, and governments – to generate co-created alternative futures of communities. Preferred futures could be selected to work towards, and further interventions to support building healthy communities could be generated and windtunneled in future scenarios to assess for robustness and resiliency.

Concept testing of community-centred design with system actors is a necessary next step to inform the validity of the concept and to produce further iterations that have been co-created with stakeholders. There are a growing number of emerging fields, companies, organizations, and entrepreneurs in the digital technology space actively challenging conventions of digital technology to support the public good. Collaboration with actors is a recommendation to share knowledge and build networks to create sustainable change. Ultimately, community-centred design should aim to be a scalable and repeatable methodology that empowers system actors in digital technology to consider how to build and preserve healthy communities. As existing research and methodologies informed this research study, this research study may now serve as an additional input into the collective knowledge and resources necessary to shift to new paradigms of ethically designing digital technology.

There is a larger opportunity to empower individual communities – relational or geographic based – to apply the methodology used in this research study to understand their own community health, envision possible futures with digital technology and/or other drivers of change, and develop interventions to preserve health.

This research is being made accessible via an exhibit by Elizabeth Lane, "*Future Stories of Community"* (Appendix). The exhibit increases awareness of the impacts of digital technology on communities, allowing audiences to explore future scenarios, therefore contributing to the mindset shift that is necessary for change.

08 Appendix

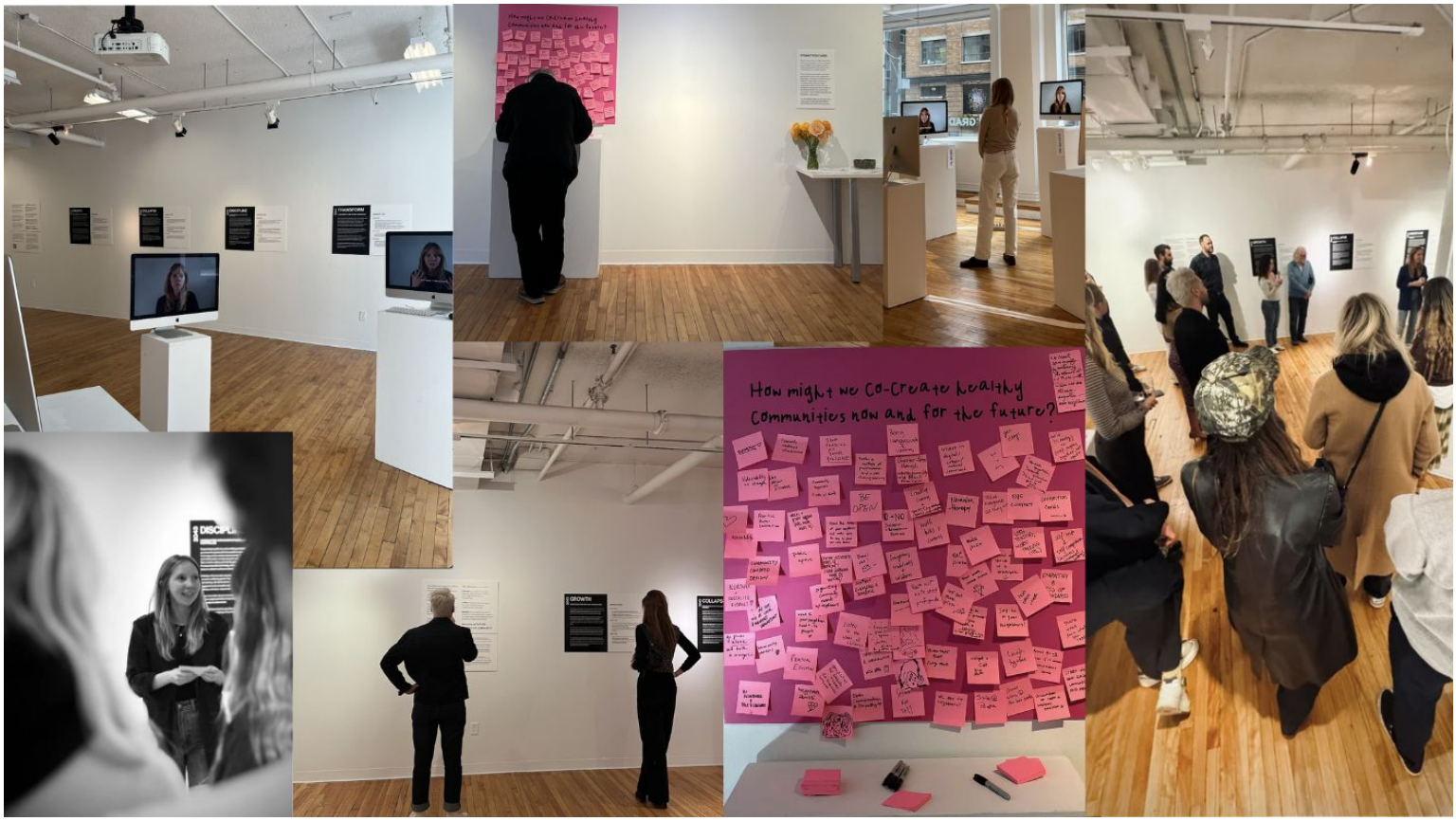
FUTURE STORIES OF COMMUNITY

Future Stories of Community is an interactive physical adaptation of Elizabeth Lane's graduate research conducted during her Master of Design studies at OCAD University. Elizabeth investigated: What is community, how has community evolved driven by emerging digital technology, and how might digital technology be designed to build healthy community?

Future Stories of Community was first exhibited at the Graduate Gallery, OCAD University, Toronto, Canada, in November 2023.

The exhibit will be exhibited at the 2024 BLEND design + business conference at the University of Waterloo Stratford School, Stratford, Canada on March 2, 2024.

A digital version of the exhibit can be accessed here: https://www.elizabethlane.ca/projects/future-stories-of-community.



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