THE PATH TO TECHQUITY

AN INTRODUCTION TO KEY ISSUES IMPACTING EQUITABLE DESIGN & DEPLOYMENT OF TECHNOLOGY IN THE US HEALTHCARE SYSTEM

Collaborative whitepaper developed by Ipsos & the HLTH Foundation

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Ipsos

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Executive summary

In recent years, the healthcare industry has witnessed a significant increase in its adoption of digital tools and technologies, and there is no doubt that technology will play an increasing role in healthcare moving forward. This is perhaps particularly true as technology access and digital literacy are now "super" determinants of health – impacting individual's abilities to access education, employment, and even food and/or transportation. However, while the promise of health technology is high – carrying with it an opportunity to revolutionize the healthcare industry – this shift also carries the risk of unintentionally perpetuating long-standing inequities among underserved, marginalized, and vulnerable populations.

While not new, the issue of technology-related health equity in the US healthcare system – or "techquity" – is now urgent. As the healthcare and technology industries continue along the path of partnership, it is essential to prioritize matters of health equity and take meaningful actions to close the digital divide, or else risk further widening the gap between underserved, vulnerable, and marginalized populations, and their ability to engage with the healthcare system. The path forward will require collaboration, transparency, inclusivity, and commitment to organizational transformation on the part of all healthcare industry stakeholders in order to meaningfully address equitable access, use, and sustained engagement with healthcare technologies ("healthtech").

Purpose of this paper

In 2021, Ipsos, a global market research and advisory firm, partnered with the HLTH Foundation, a non-profit organization that promotes equity, inclusion, and opportunity in healthcare. Together, we conducted industry and patient-level research for the purpose of bringing attention to healthtech-related inequities and identifying opportunities for the industry to collaborate on addressing techquity gaps.

Techquity is a complex topic, and therefore not everything can be covered in this report. Rather, our intentions are to introduce the concept of techquity, outline current perceptions and initiatives in the healthcare industry, and promote a dialogue among healthcare and technology stakeholders for the purpose of advancing our understanding and ability to act on this important issue. The resulting paper, "The Path to Techquity," includes expert perspectives from 10 healthcare and technology leaders along with input from healthcare experts at Ipsos and the HLTH Foundation. The report is intended to serve as a "call-to-action" for industry organizations and leaders. In addition to this report, there is a corresponding ethnography video which is intended to introduce the patient perspective & challenges at a high-level (available on the Ipsos website).

As an output from this work, Ipsos and the HLTH Foundation are pleased to announce the launch of an industry-wide benchmarking assessment, which is intended to support the development of new industry guidelines and best practices for achieving techquity as well as to monitor and evaluate industry progress over time.

INTRODUCTION TO TECHQUITY

The US healthcare industry has seen a rapid increase in its adoption and use of technology over the last decade. [i] Wearables, mobile health apps, and digital therapeutics have become progressively more common, along with increased implementation of digital- and data-forward approaches to care, such as telehealth, telemedicine, electronic health/medical records, patient portals, virtual reality (VR), and the integration of artificial intelligence (AI) and advanced analytics into healthcare devices. In fact, some estimates indicate that healthcare technology (healthtech) companies raised approximately $39.7 billion in 2021, more than double that of the previous year's $18.1 billion [ii], with others forecasting that this growth will continue unabated in future years. [iii] [iv] However, while this integration of healthcare technology is often celebrated, it is important to note that access and use of health technologies is inequitably distributed among the affluent. This includes both consumer-facing digital health devices as well as poor or incorrect representation in healthcare data or algorithms, which are used on an individual's behalf.

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> *"The interesting thing is that we are all entering largely uncharted territory… the healthcare system and the technology industry have never been more closely linked… we're truly at a pivotal point, which will require both a learning mindset and a recognition of the fact that there's much we still don't know."*
>
> **– Dr. Carlos Nunez,** Chief Medical Officer, ResMed

It is important to also note that technology's power to affect health outcomes has also become cemented; increasingly, technology access and literacy are have been solidified as social determinants of health, having an impact on an individual's health outcomes in the same way as their neighborhood or environment. In some settings, like during the COVID-19 pandemic, technology use/access became a "super" determinant of health, due to technology's critical role in helping individuals access employment, transportation, food, and healthcare, etc.

So, the question is: What does this union between healthcare and technology mean for the healthcare system, and for individuals interacting with the healthcare system? On the one hand, new technologies and data tools represent an immense opportunity to revolutionize healthcare by promoting greater efficiency and scale, and are often intended to expand access, help identify and address disparities in treatment or even mitigate unjust differences in disease incidence through early risk assessment and prevention. However, when technologies are not designed or implemented with health equity in mind, they also have the potential to diminish or harm prospects for optimal health across vulnerable, underserved, and marginalized communities.

It is for this reason that this report focuses on "techquity," which can be understood as the **strategic design, development, and deployment of technology to advance health equity. It encompasses the notion that technology can either support or inhibit advancements in health equity if not implemented in an intentional and inclusive manner. It is also important to note that techquity is not an "individual" or consumer-level problem. Rather, promoting or advancing techquity will require collaboration, transparency, inclusivity, and a commitment to ensure organizational transformation at a systemic level.** (See Exhibit 1, *Source: Ipsos Healthcare Advisory*).

Exhibit 1: Introduction to techquity

Techquity is the strategic **design, development, and deployment** of technology to advance health equity. It encompasses the notion that technology can either **support or inhibit** advancements in health equity if not implemented in an **intentional & inclusive manner**.

> "*Techquity is essential; it needs to be at the **heart of how and why** we leverage technology in healthcare systems. Otherwise, the health system is failing to do what it has intended to do – which is to protect and promote health for all. "*
>
> – **Dr. Rebecca Winokur**, Senior Physician Executive and Health Equity Service Line Leader, Cerner

> *"Techquity is the careful consideration in the design, development, and implementation of technology to ensure it does not increase inequities or cause harm to vulnerable and underserved populations."*
>
> **– Theresa Demeter**, Managing Director, Clinical Solutions, Tegria

Design → Development → Deployment

Technology can either support or inhibit health equity

> *"On a patient level, techquity is the experience of somebody who walks into a healthcare setting and feels that they are valued and cared for – by both the healthcare system itself and the technology; of course, we want things to be statistically equitable, but we also want individuals to have that confidence in healthtech because they believe, feel, and know that equity is there."*
>
> *– Dr. Esther Choo, Emergency Physician and Professor, Oregon Health & Science University*

Before proceeding, it is important to acknowledge the fact that the term "techquity" is not new. Others, including an organization by the same name, based in Minnesota, have used the word techquity, as well as the United Way, and more recently, UCLA with its new TechQuity startup accelerator. [v] Additionally, it is important to acknowledge that in the US, researchers have for decades accumulated evidence and developed policy recommendations to address inequities in traditional healthcare delivery and outcomes, with many sources having demonstrated a clear link between inequity in the healthcare infrastructure, social structures and policies, and worse health outcomes. [vi] [vii] However, the fact remains that systemic inequities persist, and not only that, but the health equity gap is potentially getting wider. Additionally, the situation is now more urgent than ever as healthcare becomes more reliant on technology; while the potential benefits of continuing to integrate technology into the healthcare system cannot be overstated, neither can the opportunity for potential harm, particularly as technology use increases and becomes more closely linked to health outcomes (see Exhibit 2).

Exhibit 2: The digital divide and the 'bridge' of healthtech

The healthtech "bridge"
– intended to connect individuals & the healthcare system.

Individuals

Increasingly, technology is intended to be the "bridge" or connector between individuals & the healthcare system. For those that are able and willing to use healthtech, "crossing the bridge" is seamless; if not, technology can become a barrier

The Healthcare System
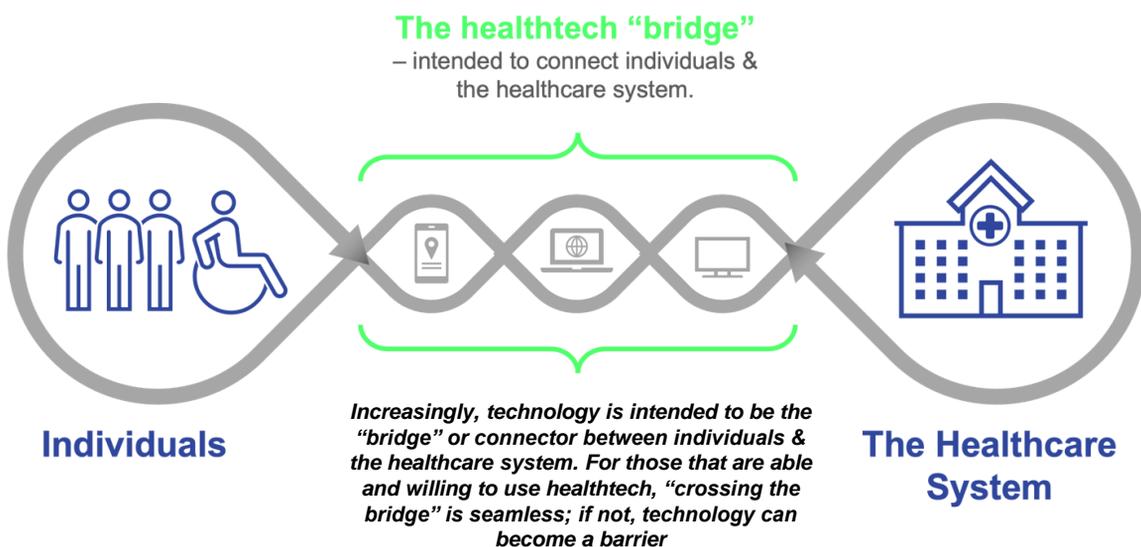
Currently, large groups and subsets of the US population lack either access, skills, or trust to engage with healthtech – which has and will continue to serve as a barrier to healthcare. Therefore, if the healthcare industry is to perform its duty of protecting and promoting wellness for all, it has a **responsibility to ensure healthcare data, tools, and technologies are designed and implemented inclusively, and accessible to all members of the population**. With the healthcare and technology industries now inextricably linked, access, uptake, and engagement with "healthtech" – including those technologies used in public health and safety as well as social care – should be scrutinized under the light of health justice.

THE CURRENT SITUATION, AND ITS CHALLENGES

There are many different groups of people affected by technology-related inequities in healthcare. Often, entire impacted populations or groups can be identified through the lens of social determinants of health. Although non-exhaustive, some of the key groups, populations, and communities impacted by issues of techquity may include: Black, Indigenous, and People of Color (BIPoC); the elderly; those living in rural communities; members of Medicare or Medicaid, along with uninsured or underinsured people; those for whom English is a second language (ESL); people who identify as LGBTQIA+; veterans; those with disabilities; and generally, individuals living in poverty. It is entirely possible that US residents impacted by issues of techquity represent a majority.

The following sections of this report will introduce some of the current challenges or barriers preventing the healthcare industry from achieving techquity. At a high-level, this will be focused on the three elements or "building blocks" of techquity, which include equitable access, use/uptake, and sustained engagement with healthtech (see Exhibit 3).

Exhibit 3: The three core elements of techquity
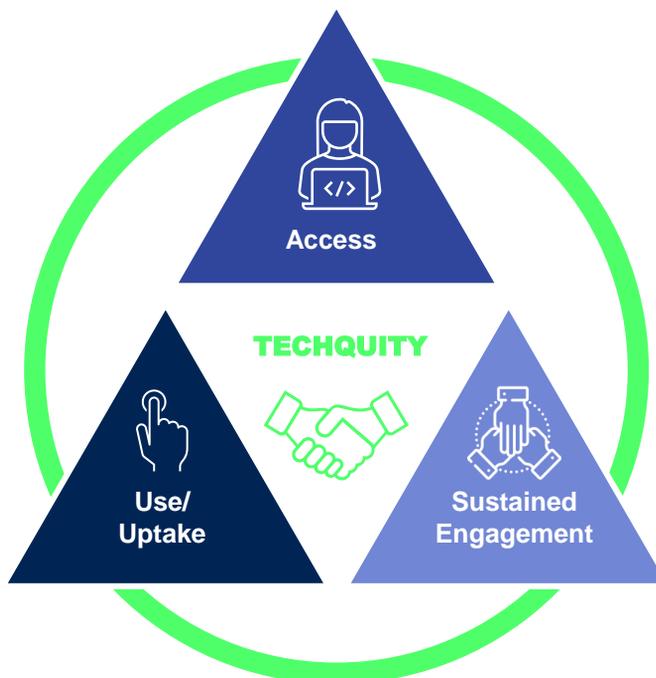
All 3 elements must be present in order to achieve **techquity**

Access to internet, broadband, & healthtech

Despite claims to the contrary, there are significant gaps in access to basic broadband internet, as well as technology solutions in the US. A recent study by the Brookings Institution found that 15-24% of Americans may lack any sort of broadband connection to the internet with which to implement mobile health technology. These differences increased when examined by income groups; for example, 38% of households earning less than $20,000 lack a broadband subscription. [viii] These challenges are not exclusive to rural areas. For example, a recent study demonstrated that in NYC (an area with 99.9% broadband internet infrastructure) nearly one-third of NYC households lack broadband internet subscription, with this group being primarily represented by low-income, racial/ethnic minorities, those over the age of 65, and people for whom English is a second language. In addition to lower digital literacy among these groups, the study demonstrated reduced access and challenges accessing the healthcare system via telemedicine and virtual visits during COVID-19. [ix]

> **"**_____
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> _"People often don't realize that the US has significant gaps when we think about basic internet access even in this day and age. Often, these are the people most impacted by issues of Techquity; not only do they have no way to access the internet, but they might experience language barriers, difficulty knowing how to use technology, or other challenges with accessing basic infrastructure needs like education and primary care."_
>
> **– Theresa Demeter,**
> _Managing Director, Clinical Solutions, Tegria_

Another component of accessibility is affordability, which incorporates both the cost of devices (e.g., laptops, computers, smartphones, tablets, etc.), along with the cost of accessing or obtaining healthtech platforms, subscriptions, apps, etc. (which in turn are influenced by insurance coverage, ability to afford out-of-pocket expenses, insurance deductibles, and other indirect costs). In this way, issues of techquity are inextricably linked with broader inequities, such as poverty, under-resourcing of health systems and neighborhoods, homelessness, and other factors which contribute to decreased access, use, and sustained engagement with healthtech.

Most recently, COVID-19 dramatically demonstrated the impact of accessibility of healthtech on health outcomes. While in some pockets of the healthcare industry, COVID-19 triggered a "sprint" in the uptake of digital technologies (with many healthcare and regulatory stakeholders moving faster than previously thought possible to adopt digital health solutions) [x] , the pandemic also highlighted and further exacerbated inequities that have long been embedded in the US health system. Through COVID-19, the digital divide was more clearly illuminated than ever before; while some parts of the population seamlessly transitioned to remote work, online education, and virtual care, those experiencing "tech poverty" were isolated from societal functions that "went digital". [xi xii] COVID-19 also resulted in disproportionate mortality and hospitalization rates among vulnerable, underserved, and marginalized populations – the same populations whose members are most likely to lack access to health technology. This means that, often, those who needed care the most were also more isolated from the healthcare system. [xiii xiv]

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"COVID-19 highlighted the differential health impacts between groups in our community, and the impact that inadequate access to healthcare can have…in that way, COVID acted as a "spotlight"; once the light was shone on these issues that have been around for a really long time, the healthcare system ethically and morally cannot look away. We have to do more to close the gap."

– Dr. Alex Billioux, Vice President of Social Determinants of Health, UnitedHealthcare

Initial use/uptake of healthtech

The challenge is that simply increasing access to the internet or healthtech alone would not address issues of techquity. Healthtech has long garnered a reputation for being more challenging than technologies that are used in other industries; one global systematic review confirmed widespread perceptions, with findings indicating that many consider healthtech as challenging to access, difficult to use, and impersonal or untrustworthy, among other concerns.[xv] Although this report will not extensively explore the array of challenges in healthtech design, it is important to note that healthcare is lagging behind other industries in user-friendliness, acceptability, personalization, interoperability, inclusion/accommodations (in the form of inclusive languages, photos, representative examples from a variety of diverse experiences and identities, and accommodations for disabilities), and privacy protections – all factors that significantly impact technology uptake. Healthcare is rife with examples of patient-facing technologies that are not available in the patient's first language, are inaccessible to those with disabilities, or are too complicated for a lay-person. To date, despite exponential growth in the number of available apps, wearables, etc., consumer uptake of healthtech remains generally low and has even stalled in some regards[xvi] – perhaps healthtech design methods are a culprit.

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"This is personal to me – my sister Tania and I crisscrossed the country to see two dozen oncologists, and everyone thought they had her medical records, but they only had 1/17th of the story. Because of how fragmented the healthcare system is, Tania was the only one who had a longitudinal view of her health history, which made it extremely difficult – even painstaking – every time we visited a new clinician. The current level of fragmentation and challenges in pricing transparency makes it exceedingly difficult for people."

– Anil Sethi, _Founder/President Ciitizen (an Invitae company)_

Aside from these challenges in the design of healthtech, another major gap in terms of techquity is lack of diversity, equity, and inclusion (DE&I) in the development, implementation, and evaluation of healthtech. For example, a recent study on DE&I on mental health apps found that only 58% of frameworks used to assess mobile health app performance had at least one DE&I criterion included, and most of these frameworks were developed after 2015. [xvii] While it is extremely important that all health apps are evaluated on performance, the lack of consideration for DE&I in assessment frameworks is troubling, particularly in considering their wide use in research and clinical settings. To date, the majority of health apps are evaluated based on use in majority populations, whose needs and use differ significantly from marginalized communities. [xviii] The current lack of attention to the unique experiences of marginalized communities has the potential for significant impacts; in addition to potentially alienating users from using mental health apps, this gap in DE&I may compromise the feasibility, acceptability, engagement, and ultimately, the effectiveness of mental health apps that are being promoted in the healthcare system. [xix]

Sustained engagement with healthtech

The final element to achieving techquity is long-term engagement and sustained adoption of healthtech. In order for this to occur, individuals have to be both able and willing to engage with these technologies. Unfortunately, in the US, centuries of systemic and structural racism, social injustice, and discrimination have resulted in feelings of mistrust and fear of the healthcare system. Ipsos Global Health Service Monitor annual data confirms this, indicating that the US lags significantly behind other comparable countries on both perceptions of both trust and equality in the healthcare system (see Exhibit 4).

> **"**
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> *"One must appreciate the ways in which the health system historically caused harm in order to make improvements…over time, trust has been eroded within marginalized and vulnerable groups, and there is too often a hesitancy and/or fear of engaging with the healthcare system. This is particularly true when we think about the use of tech in healthcare. Moving forward, rebuilding that trust and intentionally designing tech solutions in a way that enables the healthcare system to do better outreach to rebuild those relationships is essential."*
>
> **– U. Michael Currie**, *Chief Health Equity Officer, UnitedHealth Group*

Exhibit 4: Perceptions of trust & equality in the US vs comparable countries (Findings from the Ipsos Global Health Service Monitor 2021, an annual 30-country survey)

Trust In Healthcare

I trust the healthcare system in my country to provide me with the best treatment.

To what extent do you agree or disagree with this statement?

Base: 21,513 online adults in 30 countries, August 20th – September 3rd 2021.
Online samples in Brazil, Chile, mainland China, Colombia, India, Malaysia, Mexico, Peru, Romania, Russia, Saudi Arabia, Singapore, South Africa, and Turkey tend to be more urban, educated, and/or affluent than the general population.
The "Global Country Average" reflects the average result for all the countries where the survey was conducted.

|	% strongly/ tend to agree	% strongly/tend to disagree	Agree	Disagree
Global country average	51%	22%	+1	-2
Switzerland	74%	8%	N/A	N/A
Singapore	73%	6%	N/A	N/A
Saudi Arabia	71%	12%	+4	-2
China	70%	7%	-4	+3
Australia	69%	10%	-5	+2
Malaysia	68%	10%	-7	=
Netherlands	67%	11%	=	-1
Spain	65%	14%	+3	-2
Great Britain	65%	12%	-3	=
Canada	59%	14%	N/A	N/A
India	59%	16%	+5	-5
Belgium	59%	12%	=	-3
France	57%	14%	-1	-1
Sweden	56%	19%	-3	-5
South Korea	55%	10%	+1	-3
Argentina	55%	18%	+5	-3
Germany	55%	19%	N/A	+7
Italy	52%	19%	+7	-3
United States	49%	18%	-3	-2
Japan	49%	13%	+1	+2
Turkey	45%	34%	=	+3
South Africa	42%	32%	=	=
Mexico	40%	32%	+2	-1
Brazil	37%	40%	+4	-2
Colombia	36%	36%	N/A	N/A
Chile	33%	36%	+3	-5
Peru	28%	36%	=	-5
Poland	25%	39%	=	-9
Russia	18%	55%	+2	-4
Hungary	11%	65%	-5	+3

Change since 2020
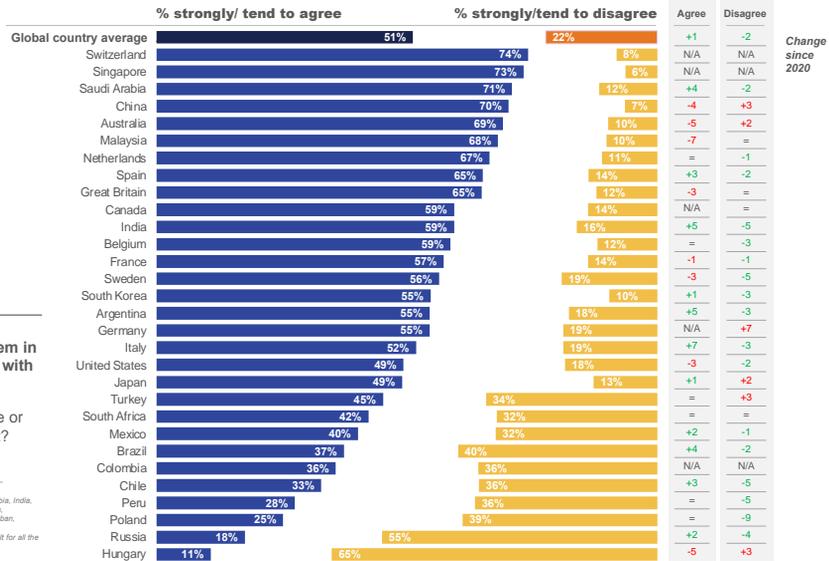
When it comes to ***trusting the healthcare system to provide them the best treatment***, 49% of US adults surveyed agreed with this statement. Although only slightly below the 30-country average, it falls short of the results achieved in countries like Switzerland (74%) and Singapore (73%).

Equality Of Care

The healthcare system in my country provides the same standard of care to everyone.

To what extent do you agree or disagree with this statement?

Base: 21,513 online adults in 30 countries, August 20th – September 3rd 2021.
Online samples in Brazil, Chile, mainland China, Colombia, India, Malaysia, Mexico, Peru, Romania, Russia, Saudi Arabia, Singapore, South Africa, and Turkey tend to be more urban, educated, and/or affluent than the general population.
The "Global Country Average" reflects the average result for all the countries where the survey was conducted.

	% strongly/ tend to agree	% strongly/tend to disagree	Agree	Disagree
Global country average	39%	36%	+2	-2
Saudi Arabia	65%	15%	+8	-7
Spain	61%	21%	+10	-3
Malaysia	59%	16%	-3	=
Singapore	59%	17%	N/A	N/A
Great Britain	56%	22%	-7	+1
China	54%	17%	-13	+8
Canada	53%	24%	-1	+2
Switzerland	51%	21%	N/A	N/A
Australia	50%	25%	-3	+1
Sweden	50%	27%	+10	-6
South Korea	49%	15%	=	=
Netherlands	47%	22%	-5	+4
India	45%	32%	+4	-5
Italy	44%	29%	+8	-3
France	42%	26%	+4	-10
Turkey	41%	44%	+5	-4
Japan	35%	26%	=	+2
Belgium	35%	31%	+1	-3
Argentina	34%	41%	+2	=
Germany	33%	42%	-4	+5
United States	27%	46%	+3	-6
Mexico	25%	48%	+3	-6
Russia	25%	49%	+2	+3
South Africa	23%	60%	+3	-3
Brazil	23%	60%	=	+2
Colombia	19%	62%	N/A	N/A
Poland	19%	56%	+6	-14
Peru	19%	53%	+1	-6
Chile	16%	65%	+3	-9
Hungary	14%	66%	-5	+4

Change since 2020
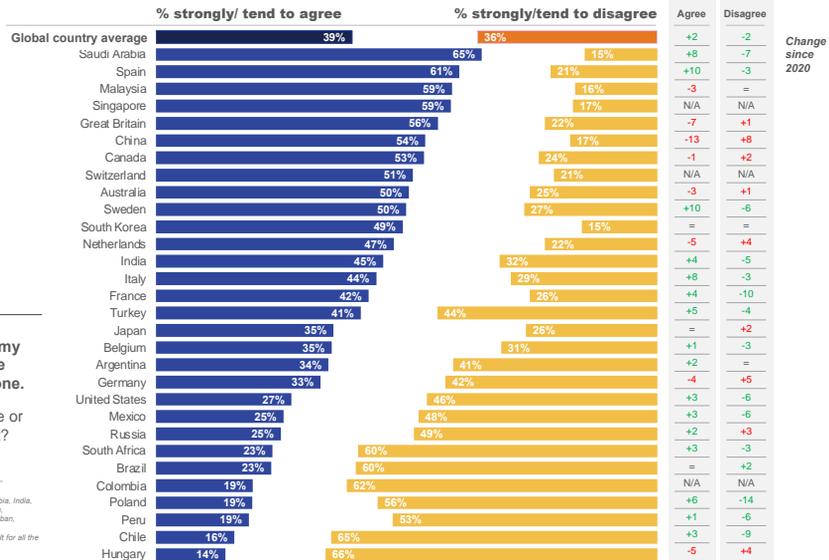
When asked whether ***their healthcare system provides the same level of care to everyone,*** only 27% of US respondents agreed, and almost 1 in 2 (46%) disagreed, thus ranking the US amongst the lowest countries (21 out of 30).

In terms of techquity, feelings of mistrust manifest in both fear of engaging with healthtech and fear of sharing personal health information or data with the system. One such example of how healthtech has potentially unintentionally exacerbated mistrust and fear in marginalized, vulnerable, and underserved communities is the use of "black-box" medical algorithms. Often, such algorithms are integrated into the healthcare system in the hopes of streamlining and standardizing care decisions. However, use of these algorithms, which are often developed based on homogeneous and macro-population-level data sets, have been shown to have unintended consequences. Further, the use of race in algorithms has also resulted in harm to patients. For example, even though Black patients are four times more likely than Caucasian patients to suffer kidney failure, a 2009 algorithm that used race as a factor to determine eligibility for kidney transplant resulted in Black patients being placed lower on the transplant list than Caucasian patients, even when all other factors remain identical. It took more than a decade for a national task force to recommend the removal of race from algorithms used in assessing kidney disease. [xx]

It is important to acknowledge that lack of access, inequitable use, and inequitable engagement has left some populations without the ability and tech skills needed to negotiate an increasingly digital world. Rather, the rapid expansion of technology is creating a sub-population of the "texcluded" – people who lack the trust, access, or knowledge to participate and are therefore at risk of being left behind. It is clear that without efforts to embed equity into technological advances and improve current perceptions, patients may continue to be stranded outside of the healthcare system, potentially exacerbating mistrust and perpetuating cycles of exclusion.
(See Exhibit 5 for a full overview of current factors impacting techquity)

Exhibit 5: Summary of factors impacting techquity (identified via interviews & secondary research – non-exhastive)

| Access | Use/Uptake | Sustained Engagement |
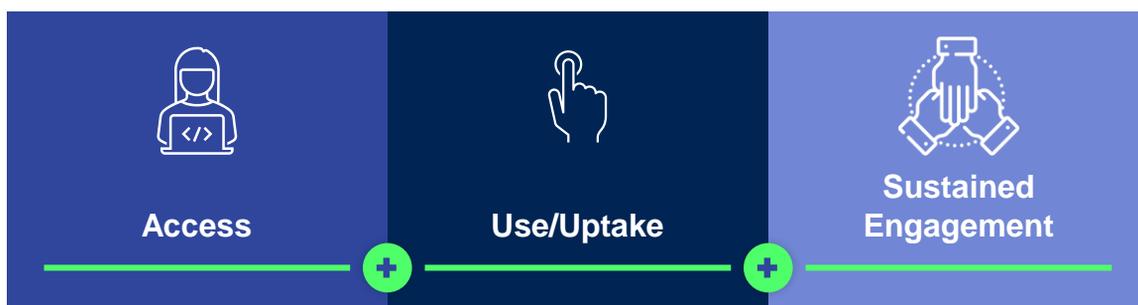
Factors Influencing Techquity

Basic access to internet, broadband, healthcare technologies, etc.	Personalization	Trust/mistrust in healthcare/ technology industries
Affordability (including out-of-pocket expenses, insurance coverage, insurance deductibles, and other indirect costs)	User-friendliness	Stigma/fear of stigma
	Acceptability	Health literacy
	Accommodations (e.g., language, accessibility features)	Digital literacy
	Implicit/unconscious bias in design of healthcare tech	Privacy
	Interoperability (e.g., fragmentation, making healthcare tech more challenging to use)	

CONCLUSION

Given what we know about techquity challenges today – it is clear that there is a lot of room for growth. Despite decades of evidence-gathering and policy recommendations, racial, gender, economic and other inequities still exist in US healthcare. Looking ahead, as healthcare and technology become more closely linked, it is imperative that health technologies are optimally designed and integrated into the healthcare system with health justice as a primary goal. It is time for all stakeholders – healthcare providers, health tech companies, payers, community leaders, community organizations, policy makers, and patient organizations alike – to come together to address healthtech access, uptake, and sustained engagement for marginalized, vulnerable and underserved populations. Achieving techquity will require strong leadership, long-term investment, organizational transformation, collaboration, inclusivity, transparency, and perhaps most importantly, the will to change (see Exhibit 6).

The final section of this report introduces, at a high level, some opportunities for improvement in both short- and long-term. This report acknowledges that focusing on inequities in light of healthtech is merely the "tip of the iceberg." In many regards, techquity cannot be addressed or discussed without an acknowledgment of the broader systemic inequities that have existed in the US itself since its founding and have been long-known to impact health outcomes. [xxi] The opportunities listed below are by no means exhaustive and will likely shift over time.
This initial "Path to Techquity" report aspires to spark discussion, awareness, and collaboration among healthcare and technology stakeholders in pursuit of techquity. To help further guide this path to techquity, Ipsos and the HLTH Foundation will be conducting an industry benchmarking survey to explore perceptions, investment, and initiatives in techquity with findings anticipated in the fall of 2023.

Exhibit 6: Guiding principles for improving techquity

Collaboration

"There is no one 'czar or king' when it comes to equity; collaboration across big and small organizations is essential…we need to work together to create conditions of equity."

– Adimika Arthur, Executive Director, HealthTech for Medicaid (HT4M)

Transparency

"When it comes to transparency – we sometimes say the truth will set you free. Together, as an industry, we need to approach transparency within the spirit of a safe harbor so that we can critically evaluate our offerings and monitor our outcomes to ensure equitable outcomes for all."

– Dick Flanigan, Senior Vice President, Cerner

Inclusivity

"Techquity is a multifaceted issue with many moving parts, and requires an inclusive approach above all; we know that people are programming tech and data, and all people have their own implicit biases; we need to be inclusive, maybe even most importantly when we are designing and programming tech, so we don't inadvertently carry those biases into the tech itself."

– Cletis Earle, Senior Vice President and Chief Information Officer, Penn State Health

Commitment

"Commitment is key to building and creating systems that solve the problem. Organizational culture matters, collaboration with other stakeholders matters…this is an intense, multi-stakeholder issue that requires dedication even when things aren't easy."

– Dr. Alex Billioux, Vice President of Social Determinants of Health, UnitedHealthcare

Initial industry recommendations

Before introducing some of the detailed recommendations across the three core building blocks of access, use, and engagement, it is critical to note that first and foremost, achieving techquity in the healthcare industry will require all organizations to establish and promote equity from within. Equity can only be achieved when members of all organizations – from key leaders to entry-level team members – are equipped to tap into a diverse set of views and experiences. Within that organization, there needs to be the right processes and procedures in place to regularly bring to the forefront a diverse set of experiences and viewpoints. Also, each of these organizations needs to have the right milestones, metrics, mitigation procedures, and data sets to allow for iterative improvement and course correction along the way. In this way, it is important to acknowledge that equity cannot be achieved as an "add-on" or an "after-the-fact" addition. Equity needs to be foundational, integrated at the ground level, and be present from the very onset in order for it to be present throughout both the healthcare system and technology development.

"

"Earlier in my career, quality improvement was a newer thing – but now, no one would ever question the importance of quality improvement measures in healthcare… it is part of everything we do. There must be a similar phenomenon with health equity measurement and attainment. This should be something that everybody sees as an integral part of their work. I'm hopeful we are on the right track."

*– **J. Nwando Olayiwola,** MD, MPH, Chief Health Equity Officer & Senior Vice President, Humana, Inc.*

Organized by the core techquity elements, the following are recommendations for the healthcare industry made by contributors to this report, either during stakeholder interviews or as a result of our research:
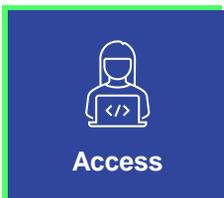
Access

- Expand (existing) coordinated policy and advocacy efforts to increase access and affordability of broadband/internet services and healthtech devices for all.

- Finance/fund continued investment in hands-on training to improve technology literacy in patients and providers.

- Collaborate with community-based organizations to increase access to technologies by donating gently-used devices & equipment, allowing for re-use.

- Know that in the long-term, a shift towards value-based care may support improved access to digital health tools and healthtech that have been shown to be effective.

Use

- Update healthtech evaluation and reimbursement frameworks to ensure integration of DE&I criteria in performance evaluation.

- Ensure intentional & inclusive involvement/collaboration with patients, patient advocacy groups, and members of marginalized, vulnerable, and underserved communities in order to develop a stronger understanding of unmet needs in product design and deployment and to ensure that healthtech is collecting the right data points.

- Emphasize continued integration of human-centric product development, to ensure that the healthtech tools that are being brought to market address the unmet needs of vulnerable, underserved, and marginalized communities.

- Maintain improved collection of stratified patient-level data (followed by thorough/clear/transparent rationale for needing data, protection of those among vulnerable populations, and transparent and inclusive data sharing so impacted communities can USE that data).

- Continue to tailor technology to ensure adaptability to people's needs – e.g., translation services, increased levels of automation/voice-controlled technology to help those with disabilities.

- In the long-term, guarantee continued emphasis on the development and integration of patient-reported outcomes research and clinical settings and continued adoption of real-world evidence (RWE) from healthtech in clinical and research decision-making.

Sustained Engagement

- Increase healthcare and technology workforce diversity.

- Effect transparency through the product development, funding, and marketing stages to clearly communicate why healthtech solutions are being developed, who they are being developed for, what the benefits and drawbacks are; supported by clear feedback loops which are taken seriously and acted upon.

- Foster long-term, sustainable partnerships with consumers and communities to enhance trust in healthcare/technology industries.

- Effectively communicate to patients and communities how their data can directly contribute to making healthtech solutions more safe, effective, and equitable.

- Adopt a continuous improvement mindset among all stakeholders (e.g., investors, strategists, health payers, providers, biopharma, and others must be willing to re-engineer their business models to achieve techquity).

- Healthcare and technology organizations need to dedicate long-term, transparent resources to achieving techquity and overcoming the challenges surrounding it.

(See Exhibit 7 for a high-level summary of key takeaways to achieving techquity)

Exhibit 7: Achieving techquity

1. Ensure equitable **access to healthcare technologies**

3. Support **equitable engagement with healthcare technologies**
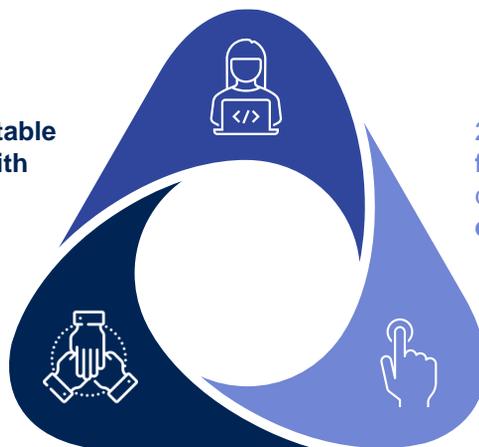
2. Necessitate **user-friendly &** inclusive design to promote **enhanced uptake**

APPENDIX

About the research

This research was designed and conducted collaboratively by a working group of Ipsos and the HLTH Foundation between November 23, 2021 and February 23, 2022.

Qualitative research details

Interviews were conducted in English with n=10 employees of healthcare and technology organizations. Participants were selected by the Ipsos/HLTH Foundation working group. Interviews were completed online for a duration of roughly 45 minutes each.

About the author

Alexis Anderson,
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Alexis Anderson is a Principal at Ipsos Healthcare Advisory whose work focuses on the intersection between digital transformation & patient centricity. On a day-to-day basis, she helps clients to better understand patients' needs and harness insights to meaningfully transform product development & design better digital tools. She fully believes that when organizations start with a 'patient-first' approach, they become better-equipped to bring the right solutions to the right people – all in a faster and more efficient manner.

Throughout her career, Alexis has partnered with global companies of all shapes and sizes and has worked across all major therapeutic areas to solve both strategic and operational challenges across the product development lifecycle. She has also co-authored several other thought leadership papers focused on improving the uptake and use of diabetes digital technologies.

Expert commentary

On completion of this study, the results were shared with members of healthcare and technology organizations and other key opinion leaders. Their comments are included here with permission.

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About Ipsos

In our world of rapid change, the need for reliable information to make confident decisions has never been greater. At Ipsos we believe our clients need more than a data supplier, they need a partner who can produce accurate and relevant information and turn it into actionable truth. This is why our passionately curious experts not only provide the most precise measurement, but shape it to provide a true understanding of society, markets and people. To do this, we use the best of science, technology and know-how and apply the principles of security, simplicity, speed and substance to everything we do. So that our clients can act faster, smarter and bolder. Ultimately, success comes down to a simple truth: You act better when you are sure.

About the HLTH Foundation

HLTH Foundation promotes equity, inclusion and opportunity in healthcare, focusing on underserved patients, healthcare professionals and innovators in digital health and health technology. HLTH Foundation is a 501(c)(3) non-profit owned and partially funded by HLTH LLC.

[i] Cohen, Daniel, Amy Hung, Eli Weinberg, and Dandi Zhu. "Healthtech in the Fast Lane: What Is Fueling Investor Excitement?" McKinsey & Company. McKinsey & Company, September 15, 2021. https://www.mckinsey.com/industries/life-sciences/our-insights/healthtech-in-the-fast-lane-what-is-fueling-investor-excitement.

[ii] Olsen , Emily. "Report: Health Tech Investment More than Doubles in 2021." MobiHealthNews, January 13, 2022. https://www.mobihealthnews.com/news/report-health-tech-investment-more-doubles-2021.

[iii] Micca, Peter, Simon Gisby, Christine Chang, and Maulesh Shukla. "Trends in Health Tech Investments." Deloitte Insights. Deloitte, October 22, 2021. https://www2.deloitte.com/us/en/insights/industry/health-care/health-tech-private-equity-venture-capital.html.

[iv] "Digital Health Market Insights on Share, Application and Forecast Assumptions 2022-2030." MarketWatch. MarketWatch, February 15, 2022. https://www.marketwatch.com/press-release/digital-health-market-insights-on-share-application-and-forecast-assumptions-2022-2030-2022-02 15?mod=search_headline#:~:text=The%20global%20digital%20health%20market%20size%20was%20US%24%20111.5%20billion,US%24%20393%20billion%20by%202030.

[v] "About." TECHQUITY. Accessed February 24, 2022. https://www.techquity.mn/about.

[vi] Chinn, Juannita J. "Health Equity among Black Women in the ... - Liebertpub.com," February 2, 2021. https://www.liebertpub.com/doi/abs/10.1089/jwh.2020.8868?ai=sb&mi=0&af=R.

[vii] Jensen, N. "Health Equity and Health System Strengthening – Time for a WHO RE-THINK." Taylor & Francis. Accessed February 24, 2022. https://www.tandfonline.com/doi/full/10.1080/17441692.2020.1867881.

[viii] Tomer, Adie, Lara Fishbane, Angela Siefer, and Bill Callahan. "Digital Prosperity: How Broadband Can Deliver Health and Equity to All Communities." Brookings, February 27, 2020. https://www.brookings.edu/research/digital-prosperity-how-broadband-can-deliver-health-and-equity-to-all-communities/.

[ix] Eruchalu, Chukwuma N., Margaret S. Pichardo, Maheetha Bharadwaj, Carmen B. Rodriguez, Jorge A. Rodriguez, Regan W. Bergmark, David W. Bates, and Gezzer Ortega. "The Expanding Digital Divide: Digital Health Access Inequities during the COVID-19 Pandemic in New York City - Journal of Urban Health." SpringerLink. Springer US, January 20, 2021. https://link.springer.com/article/10.1007/s11524-020-00508-9.

[x] Clark , Daniel. "Bench to Bedside: The Technology Adoption ... - Springer," May 31, 2018. https://link.springer.com/content/pdf/10.1007%2Fs12553-019-00370-z.pdf.

[xi] Lores Enrique Lores, Enrique. "Achieving Digital Equity Means Tackling 'Tech Poverty'." World Economic Forum. Accessed February 24, 2022. https://www.weforum.org/agenda/2021/06/digital-equity-tackling-tech-poverty/.

xii Sieck, Cynthia J., Amy Sheon, Jessica S. Ancker, Jill Castek, Bill Callahan, and Angela Siefer. "Digital Inclusion as a Social Determinant of Health." Nature News. Nature Publishing Group, March 17, 2021. https://www.nature.com/articles/s41746-021-00413-8.

xiii "Risk for COVID-19 Infection, Hospitalization, and Death by Race/Ethnicity." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention. Accessed February 24, 2022. https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html.

xiv "Frontiers | Call for Action to Address Equity and Justice ..." Accessed February 24, 2022. https://www.frontiersin.org/articles/10.3389/fpsyt.2020.559905/full.

xv Whitelaw, Sera, Danielle M Pellegrini, Mamas A Mamas, Martin Cowie, and Harriette G C Van Spall. "Barriers and Facilitators of the Uptake of Digital Health Technology in Cardiovascular Care: A Systematic Scoping Review." OUP Academic. Oxford University Press, February 4, 2021. https://academic.oup.com/ehjdh/article/2/1/62/6128570.

xvi Landi, Heather. "Adoption of Digital Health Is Stalling. What Is Turning Consumers off?" Fierce Healthcare, March 11, 2020. https://www.fiercehealthcare.com/tech/consumer-adoption-digital-health-stalling.

xvii Ramos, Giovanni, Carolyn Ponting, Jerome P. Labao, and Kunmi Sobowale. "Considerations of Diversity, Equity, and Inclusion in Mental Health Apps: A Scoping Review of Evaluation Frameworks." Behaviour Research and Therapy. Pergamon, October 14, 2021. https://www.sciencedirect.com/science/article/pii/S0005796721001893.

xviii Ramos, Giovanni, Carolyn Ponting, Jerome P. Labao, and Kunmi Sobowale. "Considerations of Diversity, Equity, and Inclusion in Mental Health Apps: A Scoping Review of Evaluation Frameworks." Behaviour Research and Therapy. Pergamon, October 14, 2021. https://www.sciencedirect.com/science/article/pii/S0005796721001893#bib86.

xix Ramos, Giovanni, Carolyn Ponting, Jerome P. Labao, and Kunmi Sobowale. "Considerations of Diversity, Equity, and Inclusion in Mental Health Apps: A Scoping Review of Evaluation Frameworks." Behaviour Research and Therapy. Pergamon, October 14, 2021. https://www.sciencedirect.com/science/article/pii/S0005796721001893#bib86.

xx Rae Ellen Bichell, Cara Anthony. "Kidney Experts Say It's Time to Remove Race from Medical Algorithms. Doing so Is Complicated." Kaiser Health News, June 8, 2021. https://khn.org/news/article/black-kidney-patients-racial-health - disparities/?utm_campaign=KHN%3A+Daily+Health+Policy+Report&utm_medium=email&_hsmi=132394588&_hsenc=p2ANqtz--4ODxarsKPHQSQeAfuOeyLJlAbaGTNgUoPyX4KJJqtvaQOUyan-ZRycCujUe8kMR623a6e7lV0KBUtZgGVacR1ynlazQ_Tte4IvXmfHP2n4J1zvI0&utm_content=132394588&utm_source=hs_email.

xxi Williams, Joni Strom, Rebekah J Walker, and Leonard E Egede. "Achieving Equity in an Evolving Healthcare System: Opportunities and Challenges." The American journal of the medical sciences. U.S. National Library of Medicine, January 2016. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4724388/.