How the metaverse will help healthcare meet its goals

Three ways virtual worlds will support affordability, access and patient centricity.

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A Brillio Series: How metaverse-related technologies and capabilities are reshaping industries

The relationship between healthcare and the metaverse is distinct from other industries. That's because the metaverse is just one of several forces radically reshaping healthcare.

Mergers and acquisitions are accelerating throughout the industry, and the rise of value-based contracts is changing the complex healthcare ecosystem, as payers and providers receive payments based on outcomes rather than transactions.

But the greatest force at work in healthcare—and an area in which the metaverse's virtual platforms will play a key role—is the renewed emphasis on affordability and access that puts the patient at the center of care.

These priorities—affordability, access and patient centricity—are a response to both the skyrocketing cost of treatments and services, and the consumerism that has fueled demand for alternative care options such as retail clinics and urgent care sites.

The result is an ecosystem that's slowly but surely remaking itself in a more patient-centric way. Instead of pushing and pulling patients in different directions, industry players—from caregivers and hospitals to providers and payers—share the goal of empowering them.

Federal regulators are doing their part. In November 2019, the Centers for Medicare and Medicaid Services (CMS) grabbed headlines with the Transparency in Coverage rule, which requires insurers, group health plans and hospitals to publish their prices for consumers.

Even more groundbreaking—and relevant for the emergence of virtual healthcare—is the agency's new policy on data interoperability and access. Prior to the new regulation, healthcare information was viewed as a black box that restricted consumers' access to their own patient information and often required them to leave their health records behind or submit printed copies of their records when they changed insurance providers.

Not anymore. The new rule reinforces a continuum of care by requiring patients' data to be portable. Instead of being seen as a patchwork of treatments, appointments and transactions across a fragmented industry, healthcare is now increasingly viewed as a patient-centric value chain in which care providers, hospitals and insurers align, with patients at the center. And this is where the metaverse comes in.

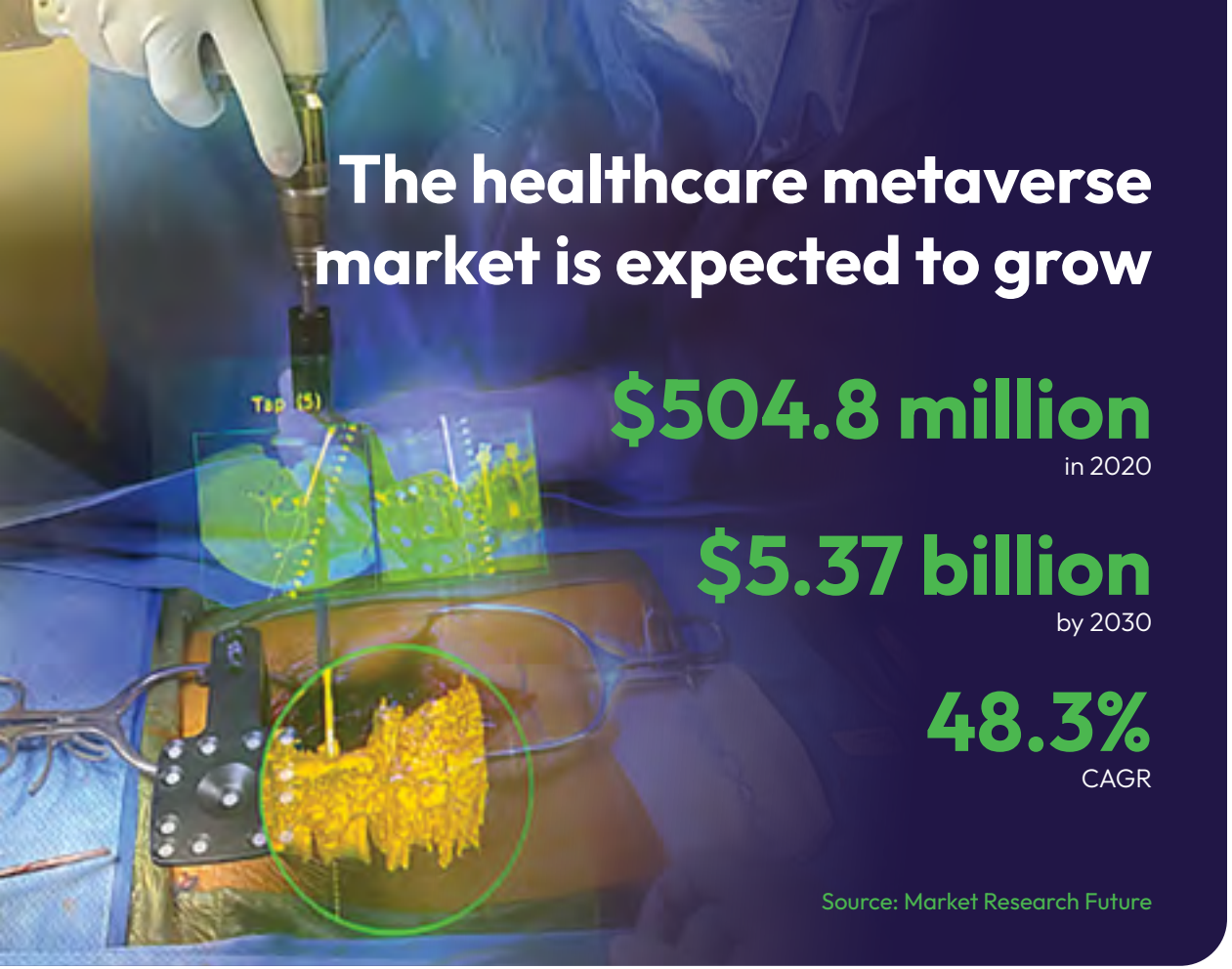

Image source: John Hopkins Medicine

> Through the combination of AI and VR/AR, virtual worlds provide new avenues of treatment and delivery that improve patient outcomes.

Get ready for telehealth 2.0

The metaverse offers a wide variety of ways to support a patient-centric focus. Through the combination of artificial intelligence (AI) and virtual and augmented reality (VR/AR), virtual worlds provide new avenues of treatment and delivery that improve patient outcomes.

It's telehealth 2.0, and examples abound.

Researchers have begun capitalizing on the metaverse's immersive qualities to explore advances in virtual medicine for practitioners and patients. Early last year, an AR headset-wearing physician at Johns Hopkins in the U.S. performed surgery assisted by CT scan images viewed directly over the patient's body.

In 2022, Cambridge University Hospitals in England developed the world's first training application in which medical students use mixed-reality headsets to interact with holographic patients. A new study found that patients immersed in VR require less anesthesia during surgery.

Healthcare providers and pharma companies are also putting immersive experiences to work. Applications in connected health and clinical trials are leading the way, followed by advances in data interoperability and 360-degree patient views. In all, the global healthcare metaverse market is expected to grow from $504.8 million in 2020 to $5.37 billion by 2030, according to global market researcher Market Research Future.

How virtual experiences will make a difference in healthcare

Here are three ways the metaverse will bring big changes to healthcare:

1. **Connected telehealth through digital therapeutics**
2. **Digital twins boost clinical trials**
3. **Value-based care goes virtual**

1 Connected telehealth through digital therapeutics

Inset image source: Mental Health App

The metaverse's ability to capture massive amounts of patient data is helping to advance the growth of digital therapeutics (DTx).

DTx is an evidence-based approach to healthcare delivery that's an increasingly important driver of affordability and access. According to the Digital Therapeutics Alliance, DTx has the potential to expand the use of high-quality therapies to underserved populations and transform how patients manage their healthcare.

The immersive experience at the heart of DTx is where virtual platforms come in. They provide a way for apps to not only help patients manage health conditions such as chronic pain and diabetes, but also deliver cognitive behavioral therapy (CBT) for lifestyle changes that contribute to chronic disease and mental health conditions.

For example, our team created a gamified metaverse app to evaluate children's mental health needs, an increasingly important topic in post-pandemic healthcare. In October 2022, a U.S. task force recommended screening children as young as 8 years old for anxiety.

The app—tailored for children in foster care—provides a fun, colorful gaming environment, complete with leaderboards. By observing the children's participation—when they enter, how long they play—caregivers can spot behavioral clues that signal anxiety or isolation.

The app offers a host of potential benefits, such as earlier intervention by caseworkers who can assess children without on-site or home visits. What's more, it's highly flexible. We created a companion mobile app for parents and teachers, and the app is versatile enough to be designed for other uses, such as in schools and the workplace.

Source: Mental Health App

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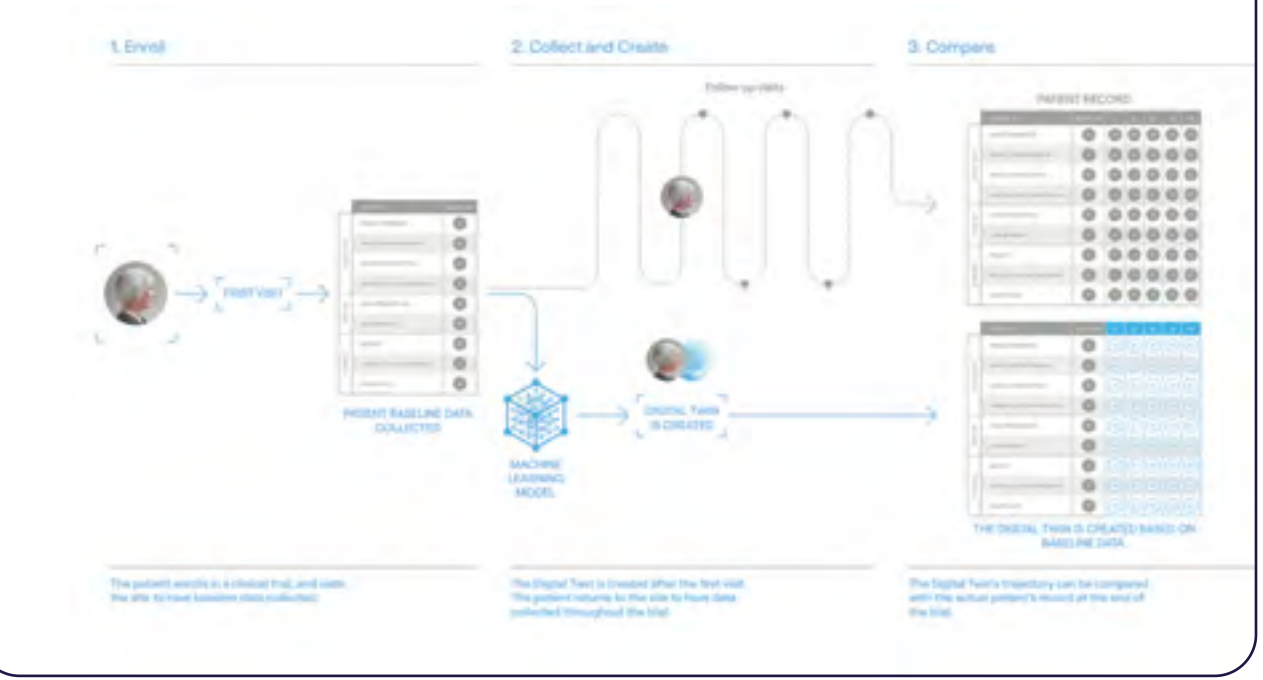
2 Digital twins boost clinical trials



Source: Unlearn.ai

> Decentralized clinical trials afford patients a much greater degree of privacy—and present a more complex supply chain.

The power of digital twins is that they let us see everything. When it comes to clinical trials, they can provide pharmaceutical companies with a window into every aspect of the process, from patient response to the supply chain.

For example, by administering clinical trials of experimental drugs on digital twins—virtual models of patients generated by machine learning—pharma companies can not only speed research but also optimize and predict the impact of therapies. Other outcomes include increased statistical power and improved decision making, as well as greater patient insights. In addition, digital twins allow studies to scale across diverse virtual patient populations.

Already, digital twins are making strides in the research process. Alzheimer's disease researchers use Unlearn.AI's flagship ML model DiGenesis to create virtual twins that are statistically indistinguishable from real-life patients. Unlearn.AI's research found that its model could supplement real subject data in a clinical trial and predict disease progression.

We're partnering with a client that specializes in decentralized, home-based clinical trials, in which researchers work with individual test subjects directly rather than through hospital settings. Decentralized clinical trials afford patients a much greater degree of privacy—and present a more complex supply chain.

Applying digital twins allows the intricate supply chain to be visualized, even as it integrates among dispersed subjects and a wide range of stakeholders, such as pharma manufacturers and logistics companies. Digital twins become the connector that links together all stakeholders.

3 Value-based care goes virtual

Few changes in healthcare are riding the wave of affordability and access like value-based care—and the metaverse is poised to become a key channel for its success, especially among health insurers.

Value-based programs, which reward healthcare providers with incentive payments for the quality of care provided to Medicare patients, got a boost last year when CMS set a goal to bring Medicare's 63 million beneficiaries into a value-based care model by 2030.

Much of the programs' success, however, rests on insurers' ability to rein in costs. The metaverse provides a path to optimizing insurers' businesses as they double down on a better patient experience, particularly through the support function. By tapping into AI knowledge bases, virtual agents can step in, digitally speaking, to cost-effectively deliver hands-on support and answer beneficiaries' questions on coverage and claims.

What's more, the use of virtual agents frees health insurers to field a smaller team of human agents to handle complex inquiries.

For insurers, the metaverse provides a new and improved way of connecting by enhancing the human touch of telephone support with a more personalized application. Virtual platforms enable higher quality, value-based care at a lower price.

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Next steps

With a strong focus on patient-centric care and transparency mandates by regulators, the entire health system is experiencing a massive shift. It's time to embrace innovations that drive better information and cost transparency so that patients can make educated decisions about their health and health benefits.

With the rapidly developing wave of virtual reality and the metaverse coming to the forefront of the business world, new tech innovations are pushing companies to reconsider how they function. Many of these new technologies have the potential to deliver real benefits to patients and practitioners, as well as medical facilities and research institutions, both public and private.

The metaverse—along with the rise of self-monitoring technology and the emphasis on connected experiences—will be a great enabler for telehealth and a catalyst for continuous care.

About the author

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I'm a problem solver and evangelist, focused on applying the right mix of business and technical competency to solve large business problems. I thrive on fuzziness and am passionate about defining the blueprint for digital transformation, with clear outcomes and elevated experiences for my customers. I have the ability to inspire teams to work toward common goals and accomplish desired results. I have over 22 years of diversified technical experience in architecting, solutioning, innovation and product development.

In my current role, I lead the innovation and establish the engineering mindset within Brillio. I have a Computer Science Engineering degree from The Bangalore University and am a member of the Forbes Technology Council.

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