

Maverick* Research: Digital Humans Will Drive Digital Transformation

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FOUNDATIONAL This research is reviewed periodically for accuracy.

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Initiatives: [Technology Innovation](#)

A digital human economy provides the opportunity for a new digital ecosystem, underpinned by technology that brings individuals and organizations together to innovate and interact in new ways. This collaboration will enable organizations to differentiate and compete in the world of digital humans.

More on This Topic

This is part of an in-depth collection of research. See the collection:

- [Maverick* Research: Expanding on Edgy Ideas](#)

Overview

Specific Maverick Caution

This is Maverick* research (see Note 1), designed to spark new, unconventional insights. It introduces the digital human economy (DHE), which will provide opportunities to drive digital transformation through innovative business models. Digital human technologies are growing exponentially across many of today's industries and use cases, with an eye toward more use cases tomorrow. Organizations looking ahead to the next "moonshot" should get in on the ground floor of the DHE. Failure to do so will result in losing out on an opportunity for digital transformation through the new innovative business models that digital humans offer and being overtaken by their competitors.

Maverick Findings

- Digital human technologies are growing at an exponential pace, and they are already driving a market of their own.
- The DHE will provide organizations with the opportunity to develop a set of new business models and competitive advantage.

Maverick Recommendations

Organizations striving to transform by engaging customers and employees in unique ways should get in on the ground floor of the DHE and establish the rules and market that most benefit themselves.

Strategic Planning Assumption

By 2035, the digital human economy (DHE) will become a \$125-billion market and continue to grow.

Maverick Research

Gartner Maverick* research delivers breakthrough, disruptive and sometimes contradictory ideas that challenge conventional thinking. Formed in our research incubator, it is designed to explore alternative opportunities and risks that could influence your strategy.

Analysis

“Suppose that sometimes he found it impossible to tell the difference between the real men and those which had only the shape of men ...” René Descartes.

— The Philosophical Writings of Descartes: Volume 3, The Correspondence by René Descartes¹

Digital transformation can refer to anything from IT modernization (e.g., cloud computing) to digital optimization (using digital to supercharge existing business models) to the invention of new products and services, as well as net new digital business models. Enterprise architecture/technology innovation (EA/TI) leaders, including CTOs, who head organizations with a Technology Adoption Profile of Exploratory are looking ahead to potential disruptive “moonshots” (see [Successful Innovation Strategies Look Beyond Culture by Treating Organizations as a Persona](#)). They need to track and engage early in the DHE.

The digital human economy refers to the set of business models and practices designed around the use of digital humans in today's and tomorrow's digital economy.

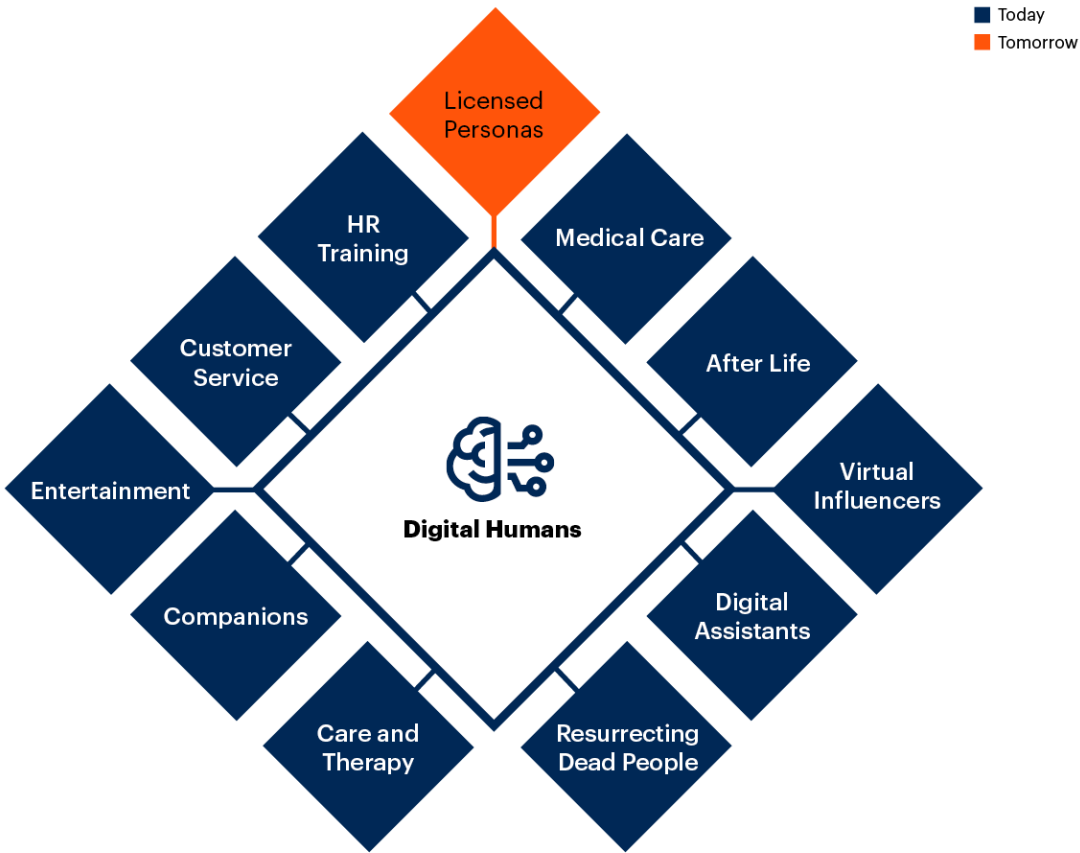
Avatars are already driving a market of their own. In fact, the concept of direct-to-avatar (D2A) – an emerging business model selling products (e.g., clothing and accessories) for use on avatars and digital identities is already gaining a lot of money and creating a new market of its own. (See [How Freemium Can Work – 5 Case Studies](#) for an examination of how Epic Games uses this model.) This market will become a part of the larger DHE, which will be driven by the licensing of digital personas. This research will inform those leaders on the current state of the DHE, and the urgent need to explore opportunities for the innovative, digital business models it provides.

As far back as the early 1600s, philosophers such as René Descartes had already imagined the idea of machines, or “automata” acting like a human. In fact, even back then, Descartes proposed a “test” to determine whether what was being represented was truly real (human). Flash forward to 1950, when Alan Turing proposed the question, “Can machines think?” and the origin of the modern-day Turing Test – an assessment designed to determine whether a computer is capable of thinking and acting like a human being.

Although we are several years away from physical machines manifesting themselves as humans, the age of the digital human has already begun. Digital humans are interactable, artificial intelligence (AI)-driven representations that have some of the characteristics, personality, knowledge and mindset of a human. These traits make them appear to be humans and behave in a “human-like” manner. Digital humans (see Figure 1) are an instantiation of a digital twin of the person (see Note 2) that are typically represented as digital avatars, humanoid robots, simply a speaker or a text-chat interface (i.e., a chatbot ²). There are many use cases that digital humans are used for today (see Table 1). ³

Figure 1: Multiple Scenarios for Digital Humans Today and Tomorrow

Multiple Scenarios for Digital Humans Today and Tomorrow



Source: Gartner
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Table 1: Multiple Scenarios for Digital Humans in Use Today (as Discussed on Social Media Platforms)

(Enlarged table in Appendix)

Use Case ↴	Description ↴
Personalized customer experiences through digital avatars	<ul style="list-style-type: none"> ■ Soul Machines' integration of emotional intelligence ⁴ with IBM Watson's AI ⁵ and Digital Humans' UneQ ⁶ ■ Digital avatars with human faces and emotional expressions are being used for customer interactions with user interfaces (UIs). ■ They can respond according to a customer's personality and have found initial utilization in banking, brand personas and educators.
App-based digital human creation	<ul style="list-style-type: none"> ■ Applications (e.g., Epic Games' MetaHuman ⁷) enable anyone to create real-time, photorealistic digital humans with human-like expressions on smartphones. ■ Detailed features of human faces in avatars will democratize the creation and deployment of digital humans. ■ To be used as characters in games and movies, immersive training and customer service.
Robots as special-needs caregivers	<ul style="list-style-type: none"> ■ MindHeart's EduPal ⁸ robots and ChartaCloud Robotics' NAO humanoid robot ⁹ ■ Humanoid robots create intervention therapies and skills development programs for the social engagement and education needs of children with autism.
COVID-induced service and care by humanoid robots	<ul style="list-style-type: none"> ■ Pepper's humanoid robot ¹⁰, Hanson Robotics' Sophia ¹¹ and Promobot's "Average Russian Woman" ¹² ■ Hanson Robotics will mass produce Sophia to provide care and therapy for socially isolated people and assist the healthcare industry.
HR training	<ul style="list-style-type: none"> ■ TaleSpin ¹³ has created semirealistic human avatars that can train executives for future business situations and improve their decision-making ability. ■ This provides realistic situations for training that would otherwise have been only theoretical.
Afterlife	<ul style="list-style-type: none"> ■ HereAfter ¹⁴ enables people to create virtual residents of themselves. These digital versions can even be immortalized after the analog version's death. ■ People will be able to interact with them via smartphones and voice-computing devices.
Virtual influencers	<ul style="list-style-type: none"> ■ CGI-generated virtual influencers, such as Lil Miquela ¹⁵, Blawko ¹⁶ and KFC's Virtual Colonel ¹⁷ have been developed with specific personality types. ■ Their multiplatform presence has resulted in three times more engagement on social media platforms than real-life influencers.
Resurrecting dead people	<ul style="list-style-type: none"> ■ Eternime ¹⁸ has built an AI-enabled chatbot that can harvest information — including geolocation, motion, activity, photos. ■ Facebook data enables users to create an avatar of themselves or family members to live on after they die.
Companionship	<ul style="list-style-type: none"> ■ Hybri App ¹⁹ has designed AI-, virtual reality (VR)- and augmented reality (AR)-based customizable virtual partners to provide individuals with companionship. ■ This is provided via smartphones during the loneliness of COVID-19 self-isolation.
Entertainment	<ul style="list-style-type: none"> ■ AI robot, Erica ²⁰ has been simulated with motions, emotions and acting skills to play the lead actress in a Hollywood movie with a robot character.
Travel	<ul style="list-style-type: none"> ■ Travel booking companies have implemented humanlike digital assistants as virtual bots. ■ They are configured with AI workflows and user recognition to verbally respond to travel requests.
Financial advisor	<ul style="list-style-type: none"> ■ Some financial institutions and FinTechs have implemented conversational AI as roboadvisors to replace or augment human financial advisors. This provides 24/7 services for asset allocation and aims to optimize investment portfolios. ■ Sparbank 1, SPB Bank ²¹, one of the largest savings banks in Scandinavia, is currently upgrading its existing virtual agent, hoping to obtain the world's first certified digital financial advisor ²².
Social media analytics tool, date range — 9 March 2019 to 8 March 2021	

Source: Gartner (March 2021)

Imagine Steve Jobs participating in your next innovation brainstorm or Peter Drucker helping develop your organizational strategy. Why hire a celebrity, a supermodel or even a social media influencer to market your product, when you can create the ideal brand ambassador from scratch? Whether the digital persona is of a person, alive or dead, real or fictional, the digital instantiation will be able to interact as if these people are in the room with you. Organizations have begun creating generic digital human personas, and are studying how to create licensed personas of their best:

- Salesperson
- Presenter

- Analyst
- Innovator
- Leader
- Programmer
- Customer service representative
- Help desk technician
- Developer
- Lawyer

Technology is constantly improving to make it possible for digital humans to interact, learn and express themselves in human ways. These capabilities will be driven largely by conversational AI, CGI and 3D real-time autonomous animation. They will open up a host of opportunities for organizations that embrace the technology early. The DHE market will grow exponentially and will drive the transformation of lackluster enterprises into differentiated organizations that engage customers and employees in unique ways.

Getting in on the ground floor of the DHE will provide organizations with the opportunity to develop a set of business models and channels. Digital humans (e.g., licensed personas, avatars, customer service agents, chatbots and virtual personal assistants) can be the new products a company offers to open new business channels, advance digital transformation and entice an ecosystem of partners to participate. Organizations should use the Gartner Digital Ecosystem Frameworks (see [The Gartner Digital Ecosystem Framework: How to Describe Ecosystems in the Digital Age](#)) to define their part and participation in the DHE. The DHE ecosystem will have unique characteristics to consider (see Table 2).

Table 2: DHE Ecosystem

(Enlarged table in Appendix)

<i>Characteristics</i> ↓	<i>Examples</i> ↓
Participants	<ul style="list-style-type: none"> ■ The digital humans themselves ■ The personalities represented in the personas and their families ■ Asset creators
Rules	<ul style="list-style-type: none"> ■ Unique legal considerations of persona use and ownership ■ Ethical considerations ■ Privacy
Shared capabilities	<ul style="list-style-type: none"> ■ Platform-hosting services ■ AI capabilities ■ Representations and models of people ■ APIs ■ Autonomous animation
Value exchange	<ul style="list-style-type: none"> ■ Knowledge and skill sharing (based on industry expertise) ■ Entertainment ■ Marketplace of personas ■ Direct-to-avatar ■ Multipresence
See The Gartner Digital Ecosystem Framework: How to Describe Ecosystems in the Digital Age	

Source: Gartner (March 2021)

With the proliferation of digital human technologies, true multipresence will be achieved. Multipresence means that a person is always available for interaction, regardless of his or her physical presence. This enables numerous applications in which the individual does not need to be physically present to complete several tasks simultaneously. People will be able to communicate, interact socially, buy, sell, learn, and teach anytime, anywhere, and in multiple places at once. Organizations can't wait for the DHE to grow around them. COVID-19 has already been an accelerator in this area. Digital humans have evolved from the "uncanny valley" of facial expressions to providing care and company during COVID-19 isolation. To survive and thrive in this multipresent world of digital humans, organizations should drive the DHE.

Evidence

¹ The Philosophical Writings of Descartes: Volume 3, The Correspondence by René Descartes, Anthony Kenny

² Brown, D. (2021, February 4). [AI Chat Bots Can Bring You Back From the Dead, Sort Of](#). The Washington Post.

³ Source: Social Media Analytics Tool; Date Range — 9 March 2019 to 6 March 2021.

⁴ [Delivering on the Promise of AI](#)

⁵ [Have Personalized AI Conversations With Your Customers](#)

⁶ [Revolutionize Customer Experiences With Scalable Human Connections](#)

⁷ [A Sneak Peek at MetaHuman Creator: High-Fidelity Digital Humans Made Easy](#)

⁸ [HIPAA-Compliant Secure Video Conferencing](#)

⁹ [World Class Cloud-based Robotics Software and Services for the New Era](#)

¹⁰ [Pepper](#)

¹¹ [Why Human-like Robots?](#)

¹² [Insanely Humanlike Androids Have Entered the Workplace and Soon May Take Your Job](#)

¹³ [A Skills Mobility Platform](#)

¹⁴ [Ultimate. Memory. Machine.](#)

¹⁵ [Instagram](#)

¹⁶ [Instagram](#)

¹⁷ [KFC: Virtual Colonel](#)

¹⁸ [Eternime Plans to Create an Immortal Library of Mankind](#)

¹⁹ [What Is the Hybri?](#)

²⁰ [What to Make of ERICA, the AI Superstar Robot?](#)

²¹ [Conversational AI and the future of financial advice](#)

²² **Social Media Analytics Methodology:** Gartner conducts social-listening analysis leveraging third-party data tools to complement or supplement the other fact bases presented in this document. Due to its qualitative and organic nature, the results should not be used separately from the rest of this research. No conclusions should be drawn from this data alone, because it may not be entirely market representative. Social media data in reference is from 9 March 2019 to 8 March 2021 in all geographies (except China) and in recognized languages.

Additional research contributions were provided by Fahim Talmeez and Ritesh Srivastava from the Gartner Social Media Analytics team.

Note 2 Digital Twin

A digital twin of the person (DToP) not only mirrors a unique individual it is a near-real-time, synchronized, multipresence of the individual in both the digital and physical spaces. This digital instantiation (or multiple instantiations) of a physical individual continuously intertwines, updates, mediates, influences, and represents the person in multiple scenarios, experiences, circumstances and personas.

Recommended by the Authors

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[Hype Cycle for Emerging Technologies, 2022](#)

[Building a Digital Future: The Metaverse](#)

[5 Principles to Navigate the Industrie 4.0 Journey Toward a Digital Society](#)

[Maverick* Research: World Order 2.0: The Birth of Virtual Nations](#)

[Maverick Research: Metaverse Will Kill the Transit Company, but Will Grant You Eternal Life](#)

[Maverick* Research: Being Human 2040 – The Life of the Architected Human in a More-Than-Human World](#)

[Maverick* Research: Deepfakes Will Kill the Metaverse; Synthetic Media Could Save It](#)

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Characteristics ↓

Value exchange

Examples ↓

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- Entertainment
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- Direct-to-avatar
- Multipresence

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