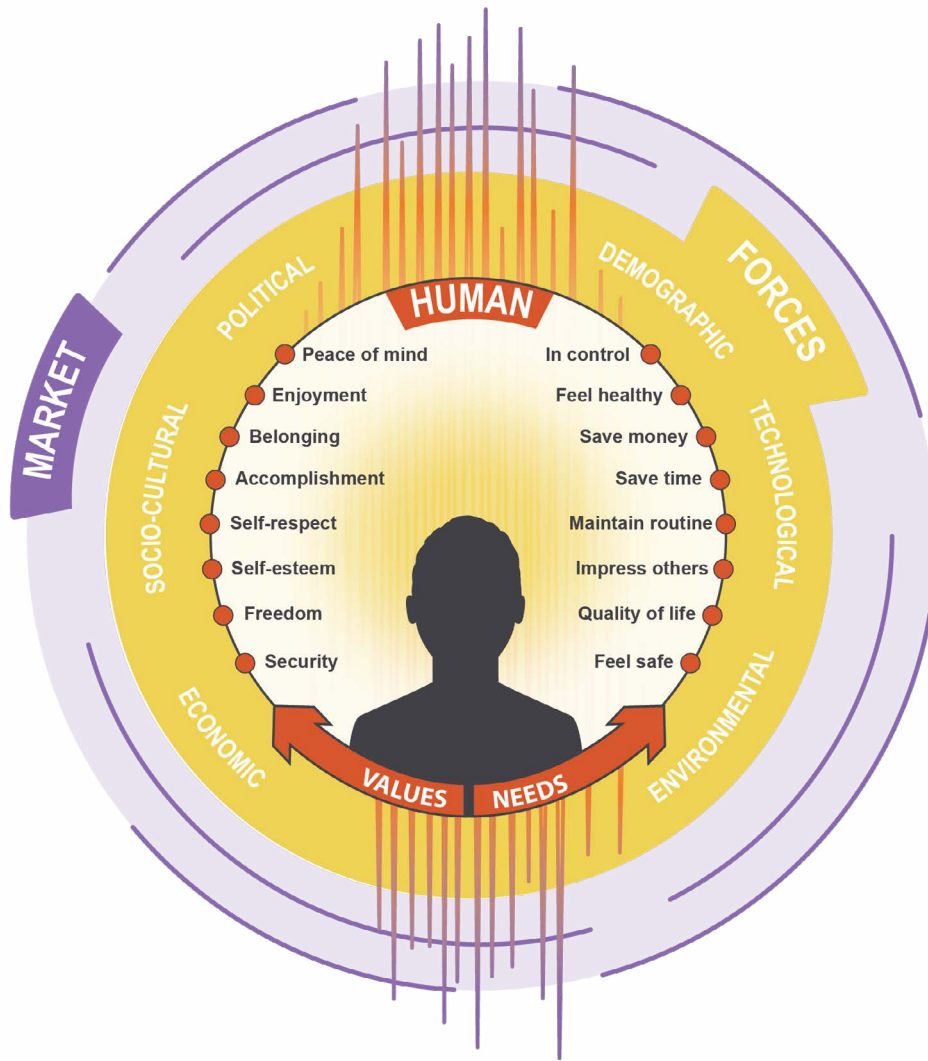


TRENDS + FORCES →

AI Revolution in Health Care

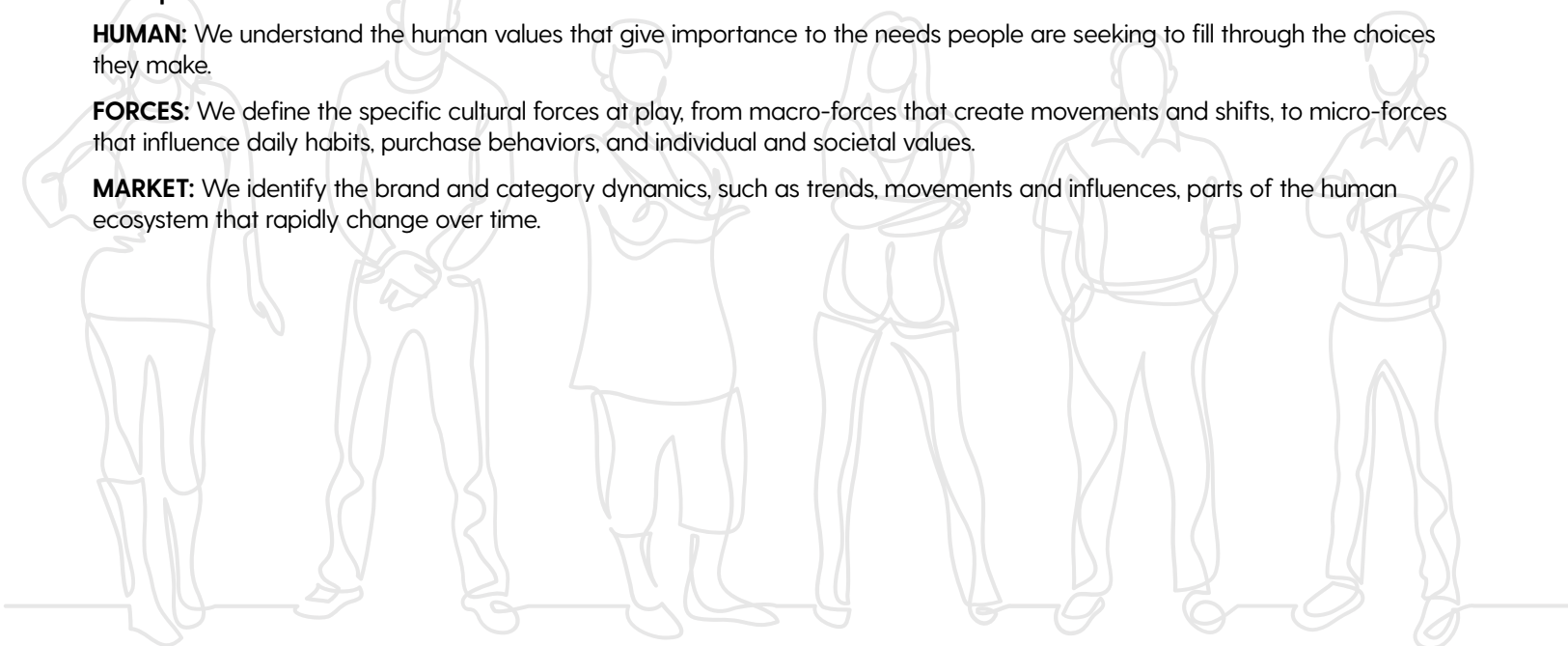


Decisions are driven by human values, influenced by cultural forces and shaped in the context of the market.

HUMAN: We understand the human values that give importance to the needs people are seeking to fill through the choices they make.

FORCES: We define the specific cultural forces at play, from macro-forces that create movements and shifts, to micro-forces that influence daily habits, purchase behaviors, and individual and societal values.

MARKET: We identify the brand and category dynamics, such as trends, movements and influences, parts of the human ecosystem that rapidly change over time.



AI Revolution in Health Care



FORCES AT PLAY
technological



VALUES AT PLAY
health + wellness
security

Generative AI has the potential to [revolutionize the health care industry](#). In some cases, it's already begun. Whether it's helping to streamline software optimization, facilitating drug research, or preventing the spread of medical misinformation, the potential uses for AI in health care are limitless. What does this mean for the future of health care? AI could connect the highly fragmented health care system, connecting the dots between currently disparate departments that require much time and energy.



PROVIDERS, PHARMA, RESEARCHERS

How can AI be integrated into the way providers, pharmaceutical companies, and researchers work in health care? From accelerating drug research to creating synthetic data to medical chatbots, generative AI is already making a splash in this part of the health care industry.

Discovery + Research. Several biotech and pharmaceutical companies are already employing generative AI in their research process to accelerate drug research and discovery, improve clinical-trial planning and execution, and create more precise therapies. Using machine learning for discovery and research can be much faster than teams of humans in uncovering new treatments, vaccines, medications, and more.

- [Insilico Medicine](#) used AI to go from novel-target discovery to pre-clinical candidate in just 18 months – much faster than the average for a new treatment.
- Biotech company [Exscientia](#) is using generative AI to analyze patient tissue and use functional precision oncology to improve patient outcomes.
- [NVIDIA](#) is offering a set of generative AI cloud services that facilitate drug discovery and research in genomics, chemistry, biology, and molecular dynamics.

Synthetic Data. Founded in 2019, [Syntegra](#) was the first generative AI company in health care. Using a groundbreaking machine learning model, Syntegra generates accurate, privacy-preserved synthetic data to bridge the gap between data privacy and data science needs, allowing researchers to take a data-centric approach without risking any real data. Syntegra's synthetic data maintains the statistical fidelity of the real data, even capturing rare cohorts and outliers, while fully protecting patient privacy and surpassing HIPAA and GDPR standards.

This approach dramatically accelerates research and innovation through increased access to patient-level data at scale to improve care and outcomes for patients. [Recent tech updates](#) to the Syntegra Medical Mind 2.0 include training on datasets with over 20 million patient records and supporting long sequence lengths to represent longer patient care trajectories.

Google vs. Microsoft. Tech rivals [Google and Microsoft are locked in a battle](#) to see which AI model can break into the health care industry first – though Google is taking a more cautious approach, opting to hold back some of its most advanced AI programs from the general public because of concerns about safety and potential impact on the core online search business. But In April, Google started testing its medical chatbot technology, called Med-PaLM 2, with customers across the country, including the research hospital Mayo Clinic. What makes Med-PaLM 2 different from other AI models is that it's been trained on questions and answers from medical licensing exams, which helps it generate responses to medical questions and perform tasks such as summarizing documents or organizing health data.

AI Revolution in Health Care

On the other hand, Microsoft has teamed up with OpenAI and health software company Epic to build tools that can automatically draft messages to patients using the algorithms behind ChatGPT. Both Google and Microsoft have expressed interest in building a virtual assistant that answers medical questions from patients around the world, particularly in areas with limited resources.

Radiology. In [radiology](#), AI is being used to improve patient outcomes. AI works by taking digital images, normally interpreted by radiologists in a qualitative way, and transforms them into quantitative data, which is then used to train algorithms to recognize patterns that may give insight into a diagnosis or prognosis invisible to the human eye. AI can be applied to almost the entire patient journey through a radiology department, including hospital workflow, image reconstruction, and reading and interpreting images. The market for AI in medical imaging is expected to reach \$10.14 billion by 2027.

PATIENTS + CONSUMERS

Patients and consumers can expect to integrate AI into their health and wellness journeys in the future.

Including use cases like using AI as a more accurate search engine and using AI tech to find customized, personalized drug recommendations, generative AI will take patient care to a more individualized, efficient level.

Better Than Search Engines. For patients, AI can be a better alternative to a search engine like Google. With a normal search engine, a patient can search for symptoms, diagnoses, or treatments, but they'll only receive one-size-fits-most information. Google doesn't account for individual, personalized factors, leaving the patient to come to their own (sometimes faulty) conclusions.

With AI, patients can ask questions more precisely, input everything they know about their diagnosis, symptoms, and

potential treatment options, to produce a highly personalized care plan. Of course, this treatment plan will need to be reviewed by a doctor or provider before being implemented, but AI can help alleviate the spread of misinformation and misdiagnosis related to health care.

Consumer Recommendations. [Genetica](#), the Kansas City-based tech company behind Flora AI, uses generative AI to match patients and consumers with cannabis and CBD products, offering personalized recommendations based on an analysis of over 650 million data points, including product components, customer lifestyle factors, and desired effects. This allows consumers to find cannabis products that best suit their needs and individual biochemistry for optimal results.

This kind of generative AI model could eventually be applied to a wider market in health care, appealing to a broader range of patients – drastically reducing the time it takes to find a drug, treatment, or other medication that works for each patient on an individualized level.

Matching Drugs to Patients. Israeli-based health-tech firm [Genetika+](#) is transforming psychiatry and neurology care by matching antidepressants to patients experiencing depression or anxiety, avoiding unwanted side effects and making sure that the prescribed drug works as well as possible.

With antidepressants, it can often take a long time for patients to find the right fit – it's estimated that almost [two-thirds of initial prescriptions](#) for depression or anxiety may not work properly. Because different bodies react differently to medication, this means it can be a lot of trial and error to find the right antidepressant and dosage before the patient starts to feel the effects.

Genetika+ works by combining stem cell technology with AI software, and then using a patient's medical history and genetic data to determine the best drug and the dosage. While this technology is still in the trial phase, the company hopes to begin using it commercially within the next year.

Philips' VitalEye technology and algorithms process over 100 body locations in parallel to intelligently extract signs of breathing—allowing routine exam set-up time to occur in less than a minute.

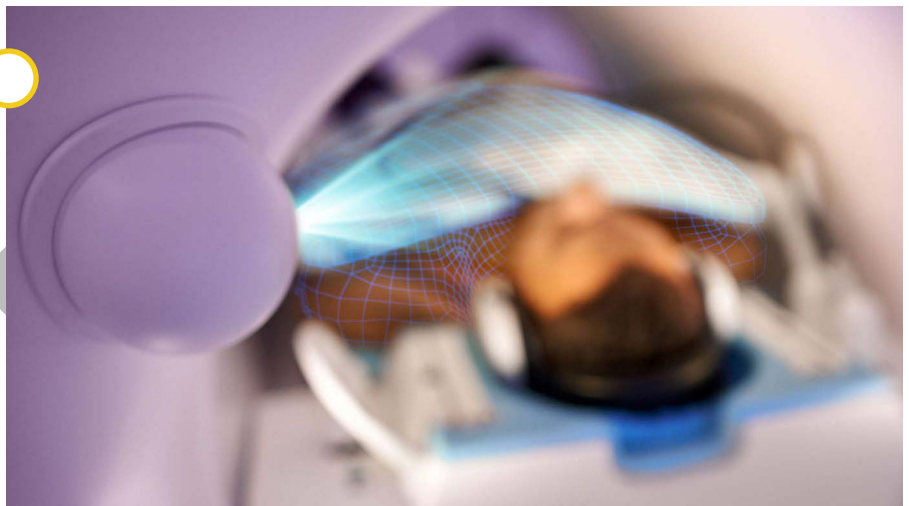


Photo Credit: [insideprecisionmedicine.com](#)

AI Revolution in Health Care



INSURANCE, HR, CORPORATE

On the corporate side of health care, AI has the potential to streamline complex business processes for a more efficient office environment, leaving providers more time to focus on patient care. From HR functions to insurance, here's how AI could change this aspect of health care.

Increasing Efficiency. Future AI models could be particularly useful in [data analytics and software optimization](#). AI assistance in these functions could help remove friction of the bureaucracy and the corporate environment, so health care providers are better able to focus on patients and providing a higher level of attentive care.

- For hospitals, doctor's offices, and other medical providers, generative AI can help with things like inventory tracking and restocking, cold-chain logistics, data sharing, and HR functions.
- It could also help personalize and automate corporate functions, with AI-enabled office applications, auto-generated knowledge management, and human-machine interaction assistance.

Handling Insurance Data. The insurance industry relies heavily on processing large quantities of written or verbal communication, and existing software has struggled to automate these services. [Generative AI could be a game-changer](#), with its ability to proficiently collect and analyze large amounts of data.

- Complex underwriting processes for medical, disability, or life insurance – especially in more intricate cases where context and follow-up questions are required – could benefit from the efficiency of AI powered software, driving down the underwriting time and cost while increasing accuracy.
- Even virtual assistants or chatbots, trained on customer service data or materials on policies, could help answer questions from consumers about what policies they should buy and how that policy might impact their unique needs.
- Other [potential use cases](#) include prior authorization, product comparison, workflow automation, risk assessment, fraud detection, and more.



Photo Credit: Getty Images

In spring 2023 Google introduced a suite of AI tools to help speed up prior authorization in health insurance claims.

Handling Digital Patient Communications. [Epic, the health care software company, is teaming up with UNC Health](#) for a program to test drive new generative AI tools. The program, starting with 10 physicians at UNC Health, will use generative AI to auto-draft responses to some of the most common and time-intensive patient messages.

UNC said they've seen an increase in digital messaging from patients, including requests for prescription refills to more complicated medical questions, and the new AI-powered software could help doctors cut down on response time. The pilot project will begin with a small subset of "more administrative" messages, similar to how smartphones can suggest responses to texts, so the technology won't replace the clinician's judgment. There is always a person reading and sending the message – AI just acts as a tool to assist the physician.



OPPORTUNITIES FOR 2023

- The race to integrate generative AI in health care has begun – providers, pharmaceutical companies, manufacturers, and researchers have started to implement AI into drug research, clinical trials, synthetic data training, and patient care chatbots.
- On the consumer side, AI will go beyond new devices and interesting tech developments – patients will start to see AI affecting things like how they search and find information related to symptoms, diagnoses, drugs, or treatment options.
- AI assistance on the corporate side of health care, including insurance, HR functions, data analytics, and software optimization, could help streamline multiple complex processes for a more efficient office environment.



**HEART
& MIND**
STRATEGIES