Arizona State University
Ira A. Fulton Schools of Engineering - The Polytechnic School

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OMT 520 Strategic Management of Technology

STRATEGY EXAMINATION OF THE ARTIFICIAL INTELLIGENCE IN HEALTHCARE INDUSTRY

Team 5

Apurva Annasaheb Dange
Ankush Sanjay Harishchandre
Swarda Sadashiv Bhandare
Jingxin Wang

Professor Advisor: Dr. Andrea Cherman, Ph.D.

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INTRODUCTION

In 1956, John McCarthy, Marvin Minsky, Claude Shannon, and Nathaniel Rochester led the Dartmouth Research Project, reintroducing Artificial Intelligence. It combines human intelligence by means of machines that experience processed test claims, locate, and act in a manner that produces premises, problem-solving, and decision-making (Topol, 2019). In the 1960s and 1970s, the usage of early clinical information and decision support systems was the first step in the introduction of Artificial Intelligence in the healthcare sector. (Topol, 2019) Utilizing AI, it leverages data to identify patterns, make predictions, and influence healthcare decisions (Topol, 2019). AI (Takita et al., 2025) has since been utilized to assist in clinicians' prior and more accurate diagnosis of the patient, limiting the amount of paperwork encouraged and furthering patient flow and triage (Takita as modified, 2025). To enhance quality and remove operating costs in the clinical setting, AI appears to be applied. Prior to AI, the situation was entirely different from what it is now because decision-makers required greater expertise to categorize the patient, which hindered the patient's evaluation and made the workload of clerical work somewhat difficult (Topol, 2019). The creation of AI scribes has particularly increased hospital and clinical revenue, leading to a decline in the insurance claims drop rate (Bishop, 2022).

AI lies spilling across the healthcare industry, from pilot projects to key infrastructure. In addition to use in insurance claims and healthcare management (Bishop, 2022; FDA, 2025a), hospitals and doctors are utilizing machine learning for imaging, triage, and documentation (Bishop, 2022). The healthtech-related IT sector is trying to build generative and predictive models that may efficiently improve the usage of AI in healthcare (Bishop, 2022; Pifer, 2022). Based on Grand View Research, the market for AI in the healthcare sector may pass $10 billion in 2025, and this niche is expected to widen actively through 2030 because of the transition between the provider and payer settings (Grand View Research, 2025).

Further shifts in the institutional environment underscore the strategic value of AI in healthcare. The Office of the National Coordinator for Health IT (ONC) encourages national data exchange through the Trusted Exchange Framework and Common Agreement (TEFCA) to help access for model building and deployment (Office for Civil Rights, 2024). The FDA maintains an updated list of medical products with AI/ML capabilities that have received marketing licenses. A new system relying on Category III CPT codes, created by the American Medical Association (AMA), that is a significant step toward standardized reimbursement (American Medical Association, 2024; Murray et al., 2022) has already been enriched.

But trust still needs to be earned. Adoption remains uneven, and legal and ethical limitations are becoming stricter. The U.S. Department of Health and Human Services' 2024 final rule, which restricts discrimination by the use of healthcare decision-support systems (Federal Register, 2024), at present defines algorithmic bias and monitoring properly. While digital medicine meta-analyses illustrate the potential for imaging and diagnostics, the technologies also emphasize the value of careful evaluation and methodological diversity (Nature, 2023).

This paper showcases strategic analysis of the AI in the healthcare industry, it contains analysis of characteristics of each firm, competitive analysis and strategies. The frameworks of analysis which contain Porter's Five Forces Framework, the Resource-Based View and the VRIO Framework (Value, Rarity, Imitability, Organisation) to distinguish the resources of the firms. Followed by the Core competencies Framework, Business level, Corporate level and Cooperative strategies which will help in predicting the market positioning, the growth of the industry and the partnerships.

LITERATURE REVIEW

Evolution of Artificial Intelligence

The computer scientists named John McCarthy, Marvin Minsky, Claude Shannon, and Nathaniel Rochester organized the Dartmouth Conference in 1956, which was known as the official beginning of the research of artificial intelligence (AI) (Russell & Norvig, 2020). The aim was to create machines that can think, learn, and make choices like people. The early AI research of the 1960s and 1970s was focused on symbolic reasoning and expert systems that used rules to remember what people knew. These early systems worked well, but they had some problems because they needed rules that were written by hand, which made them difficult to change and grow (McCarthy et al., 2006).

People started using machine learning in the 1980s and 1990s because it allowed the systems to identify patterns in data instead of just following rules. Many people were interested in neural networks, which were based on how the human brain works, but they were limited in usefulness because computers were not powerful enough during those periods (LeCun et al., 2015). As computers improved , data sets grew larger, and algorithms became more efficient in the early 2000s; these advancements helped improve machine learning approaches. In several fields, such as support vector machines, decision trees, and ensemble approaches, they have been useful for identifying trends and predicting the results. (Bishop, 2006).

The most significant change that happened in the 2010s was deep learning, a type of machine learning that uses many layers of neural networks to learn from raw data for example study cases of medical material or information fed by humans. Then there was outstanding progress in image recognition, language processing, and playing complex games (Goodfellow et al., 2016). Convolutional neural networks improved the processing of images, recurrent neural networks made it easier to handle sequential data, and also the understanding of language was improved. In 2017, transformer architectures were introduced, which was the reason for the development of large language models that became important in the late 2010s and early 2020s (Vaswani et al., 2017). Later on in 2020, AI changed from simple rule-based systems into powerful data-driven technologies, which were capable of solving complex problems across various fields, thereby creating numerous new opportunities in the healthcare industry.

Evolution of Artificial Intelligence in Healthcare

The development of AI in healthcare was started in the 1960s and 70s with programs like MYCIN, an expert system that was used for decision-making purposes. It was developed by Stanford University in the 1970s; it helped doctors and physicians in identifying diseases that were infectious and provided the suitable antibiotic treatments for the same. However, MYCIN was not widely used due to lack of accuracy and lack of awareness (Shortliffe, 1976).

AI didn't really start to progress until the 1990s and 2000s, when it became useful in medical imaging, helping doctors read mammograms by acting as a "second pair of eyes" (FDA, 2025a). During this period, the shift to electronic health records (EHRs) generated massive data that guided the future growth (Topol, 2019). A significant shift in AI occurred during the 2010s with advances in "deep learning," which enabled AI algorithms to detect skin cancer and eye diseases in images at the same level of accuracy as human specialists (Esteva et al., 2017; Gulshan et al., 2016).

AI was even beneficial in predicting patients who would become more ill (Rajkomar et al., 2018). By the end of 2019 and into the early 2020s, AI was being utilized more frequently and being viewed positively. The COVID-19 pandemic from 2020 until 2023 sped acceptance for more digital health and created demand for AI-enabled solutions for patient monitoring, diagnostic decision-making, and resource management (Takita et al., 2025). AI was helping with everything from writing the doctor's notes automatically to tracking hospital schedules. There were some rules and systems created for helping this growth. The FDA made it easier to approve AI medical software (FDA, 2025b), the ONC set standards for safe data sharing (ONC, n.d.), and the AMA (American Medical Association) set up new billing codes so that hospitals and doctors could get paid for using these advanced tools (AMA, 2024; Murray et al., 2022). The figure 1 below shows key milestones of the evolution of how AI in healthcare has emerged. It started in 1960s by early AI programs developed by MYCIN to select the antibiotic. The timeline evolved in 1990s where the use of AI in medical imaging and EHR gained traction. After the covid-19, use of AI widespread across the industry and the transition into regulatory and payments frameworks established in 2020s.

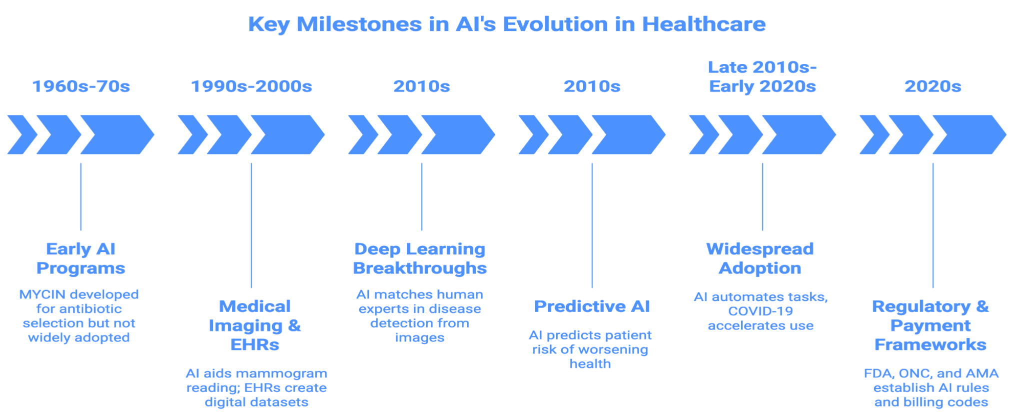

Figure 1, Key Milestones in AI Evolution in Healthcare.

Current Characteristics and Applications of AI in Healthcare

AI functions as an operational optimization, administrative automation, and clinical decision-support system in three principal ways. To enhance diagnostic accuracy, reduce administrative inefficiency, and optimize institutional resource allocation (Topol, 2019; Takita et al., 2025), specific functional layers are delineated for each overarching domain. These characteristics are shown in both areas by the use of computational modeling techniques that enhance diagnostic accuracy, operational efficiency, and patient outcomes. Building on this foundation, AI in healthcare is used in different areas of the healthcare industry, with clinical decision support being one of them. To reveal pathological signs like tumors, heart problems, and infection, AI systems scrutinize not only medical images but also patient data. They are playing a role in more accurate clinical decision-making by streamlining the diagnosis, simplifying the evaluation process, and providing consistent interpretations. Image-classification algorithms directly detect abnormal cellular morphology in pathology. To generate probabilistic differential diagnoses and associated quantitative confidence levels, integrated diagnostic models combine laboratory results with symptom-based data.

In addition to the clinical decision support, AI is widely used in automating the administrative workload, which enhances the operational workflow. The necessity for clerical and transactional tasks in the delivery of medical care is reduced by artificial intelligence–based solutions. Through automated transcription services, each clinical encounter produces structured and standardized clinical documentation. To achieve the complementary objectives of improved documentation accuracy and reduced turnaround time, robotic process automation and machine learning algorithms are employed to streamline medical coding and referral management systems, prioritize data processing, and validate billing. Overall, these innovations contribute to reduced clinician fatigue and lower administrative costs.

While AI is implemented in clinical settings to reduce the provider burden, it is also applied to predicting the operational efficiency of the hospital by ensuring the hospital is well equipped with all the necessary health supplies. In addition to approximating capacity constraints, predictive models are constructed to take into account patient flow and anticipated resource utilization. The scheduling algorithm probably has much to do with predicted patient flow and workforce staffing, which has so far demonstrated issues with a flawed allocation. These algorithms analyze the status of the service schedule, supplies, and inventory. This almost recent evaluation reduces the number of operating room bottlenecks while additionally increasing spent space and providing the flow of patients through the procedure. Using a risk-stratified approach, hospitals will initially incorporate AI applications in high-volume, non-clinical situation initiatives with minimal clinical exposure, transitioning on to applications with dedicated deployment to clinical operations as validation is funded by empirical data and model validation. In the end, the capacity to manage models may rely on the ability to check compliance with the data, study the model, and read the data.

The operational efficiency and clinical automation demonstrate how AI in healthcare is becoming more and more data driven and technology enabled. With the help of large language models (LLMs), machine learning (ML), deep learning (DL), and natural language processing (NLP) packages were analytically developed on three foundations: machine learning (ML), deep learning (DL), and natural language processing (NLP). These real-world applications are possible because of recent advances in technologies, where machine learning plays a vital role.

In order to estimate a specified patient's response or adverse event, constrain events into risk tiers, and customize treatment options, machine learning (ML) systems grow trained through retrospective datasets and test-derived statistical associations and patterns. Common applications include trajectory mapping for disease progression, in addition to models of the postoperative probability of patients getting remanded. Machine learning is a high-level technology that subsets deep learning, which helps in processing the high-level medical data into small polished chunks.

High-dimensional biomedical inputs like radiologic images, electrocardiograms, and genomic sequences are used in deep learning's dense neural networks. Convolutional layers, on the other hand, exhibit spatial hierarchies in scanning data, while recurrent layers exhibit temporal ties in physiological signals. Relating conventional diagnostic heuristics to these systems, they offer measurable precision gain for the early detection of malignant diseases and heart conditions.

Complementing the approaches by various technologies Natural language processing is another technology that uses large language models to analyze the data in unstructured clinical data. In order to determine diagnostic, procedural, and pharmacologic entities from physician narratives and medical documentation, NLP and LLM transform unstructured clinical text into structured semantic representations. Applications include the generation of documentation, the forming of clinicians' notes, the identification of salient entities, which includes diagnoses, drugs, and procedures, and, moreover, the summarization of clinicians' notes, which is then forwarded to the EMR (Electronic Medical Records). By better efficiently standardizing the practice of medical reporting, surroundings, and literature reviews, LLM-based architectures further enhance this capability with domain-specific reasoning and generative synthesis.

All three approaches suffer from common challenges: bias of algorithms, vulnerability of data security, and generalization instability in different populations. To mitigate these risks, institutions adopt human-in-the-loop governance in which clinicians validate AI outputs prior to taking action. This correspondence stands in contrast to the FDA's Software as a Medical Device (SaMD) regulatory framework, which requires traceability, model interpretability, and ongoing post-market performance monitoring for clinical safety and reliability (FDA, 2025b). The figure 2 below illustrates the three technical foundations of machine learning, deep learning, and natural language processing that underpin artificial intelligence applications in healthcare.

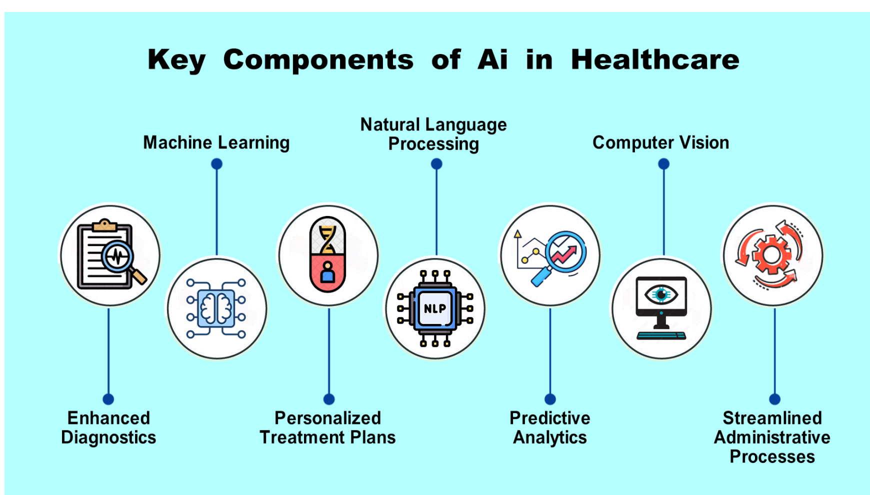

Figure 2, Technical Foundations of Artificial Intelligence in Healthcare (Topol, 2019; Takita et al., 2025).

Strategy Theories and Frameworks of Analysis

To analyze industry structure, company positioning, and sources of competitive advantage in the AI healthcare sector, the strategic management frameworks that will be used in the ensuing analysis are explained in this section.

Competitive Analysis for Attractiveness of the Industry and Five Forces Framework

Michael Porter's Five Forces Framework (1979) is a tool for analyzing the competition in an industry and its profit potential. It describes five forces which are the risk of new players, the power of suppliers, the power of buyers, the risk of replacement products, and competition among current players. When the barriers to entry (for example, substantial investments, strong brand names, or regulations) are low, newcomers are more likely to come in. Supplier's strength is based on their number, if there are few suppliers or if they provide unique inputs, then supplier power grows.

On the other hand, if there are many alternatives for customers or they can easily switch, then buyer power rises. Competition among the present players becomes very aggressive when there are a lot of firms in the market, the market is not growing very fast, or the products are not very different. Thus, in the Porter's framework (Figure 3), Porter provides a visual picture of the interaction of these forces, which results in the emergence of industry attractiveness and consequently the formulation of strategic decisions.

Figure 3, Michael Porter's Five Forces of Competitive Strategy (Porter, 1979).

Resource-Based View and VRIO Framework

The Resource-Based View (RBV) states that a firm can obtain a competitive advantage if it has a unique and hard-to-copy resource or capability (Barney, 1991). These resources may be tangible, such as money and technology, or intangible, like the company's reputation, culture, or staff's skills. To determine the real potential of the resources to create advantages, companies apply the VRIO analysis, which inquires if a resource is Valuable, Rare, Inimitable, and Organized. As depicted in Figure 4, the resources which are unable to meet any of these criteria are only expected to bring about limited or temporary benefits at most. But the resource that passes all four tests turns out to be the source of a sustained competitive advantage, thus helping the firm to remain ahead of its competitors for a longer period of time.

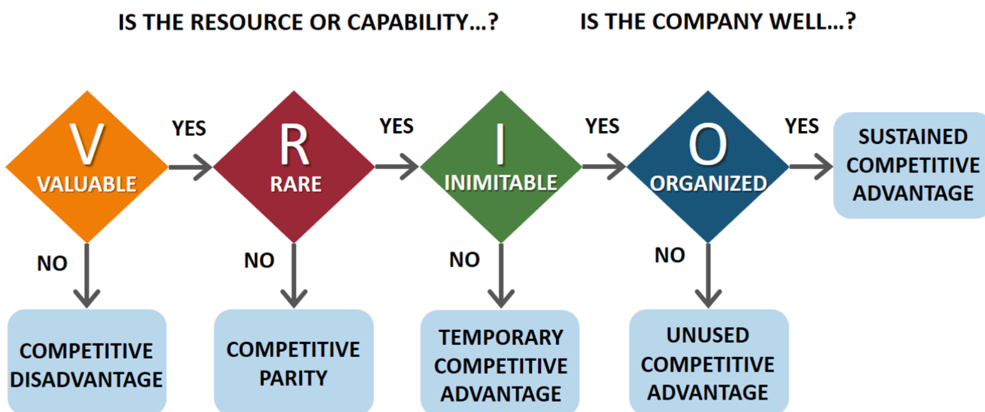

Figure 4, VRIO: From Firm Resources to Competitive Advantage (de Bruin, L. 2016).

Core Competencies of the Firm

Core competencies denote the combined learning, expertise, and coordination abilities of the company which make it possible for the firm to efficiently mix technologies, transfer knowledge, and penetrate several markets (Prahalad & Hamel, 1990). They not only represent the individual resources, but also the integrated capabilities which are valuable, hardly imitated, and key to providing customers with unique values. The competences that have been laid down in the past become the basis of a company's long-term competitive power as they support the development of products and services across different business areas. The figure 5 shows that core competencies usually take their roots from the skills that are technical and specific to the domain, travel through functional capabilities, and ultimately reach the higher-level leadership and organizational competencies which determine the strategic direction of the firm in terms of its overall business strategy.

Generic Business Strategies

Porter (1985) identified a set of Generic Business-Level Strategies, which indicate how companies could compete only with the right strategic choice. These strategies are cost leadership, differentiation, and focus and are the main three discussed by Porter. In cost leadership the company attains the lowest cost of production in the whole industry by means of efficiency, control of costs, and using economies of scale. Differentiation is the strategy of making a product or service so different from others that it is perceived as unique by the customers and, thus, is sold at a premium price, this can be done through quality, design, customer service, and technology. Focus is when the firm selects one particular market and works in its favor either with a cost focus or with a differentiation focus.

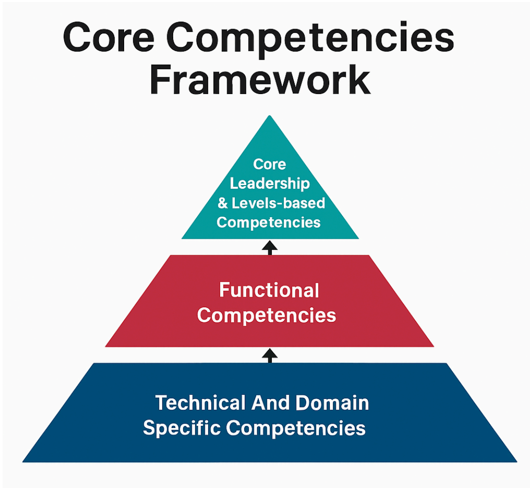

Figure 5, Core Competencies Framework (Bhandare, 2025).

Each of these strategies needs the company's capabilities, resources, and internal structures to be aligned and consistent with the strategic direction the company has chosen, thus supporting the firm's decision. The figure 6 indicates how companies pick their strategy based on their targeting of the market, whether broad or narrow and the method of competition, either through low cost or product uniqueness. Porter (1985) has warned that if firms try to mix up several strategies they may end up being "stuck in the middle" without any clear competitive advantage.

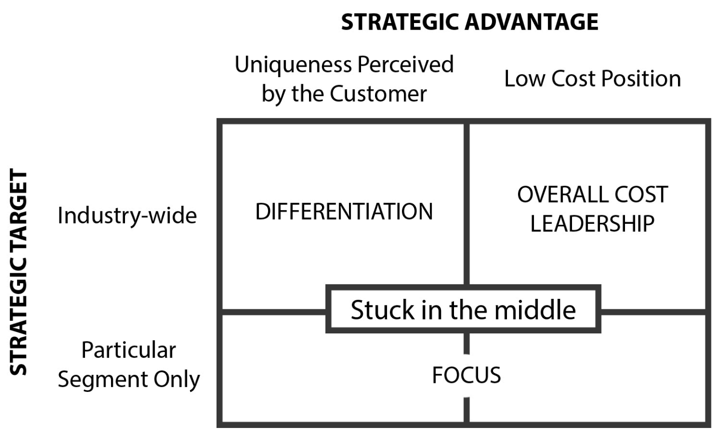

Figure 6, Business level Strategy Framework (Porter, 1985).

Corporate and Cooperative Strategies

Corporate-level strategy describes how a company decides on the industries it will be present in and how it will handle its various business units in a way that will generate overall synergy (Barney & Hesterly, 2019). This also involves diversification, where companies move to related or unrelated product and market areas as a way of reducing risks and sharing resources, as well as integration, where companies increase their size by either getting closer to suppliers or customers (vertical integration) or merging with competitors (horizontal integration).

Cooperative strategies give companies the option of collaborating with other firms through mergers or joint ventures. Such collaboration is beneficial in that it keeps the companies involved sharing the costs, penetrating the new markets, and leveraging the strengths of each other, however, it also implies the need for thorough partner selection and effective communication (Hill, Jones, & Schilling, 2019).

INDUSTRY CASE

Market Overview

In the last decade in the healthcare industry, the growth of artificial intelligence (AI) has been nothing short of remarkable, and this is reflected in the spending on AI in the healthcare sector. In the broader context of the standing of AI in the healthcare ecosystem, there has been rapid investments around the globe because of 6 major key areas of improvement (Clinical support, Administrative automation, Operational optimization, Drug discovery and Virtual care) and demand of healthcare firms. Figure 6 shows that, globally, AI health spending escalated from around $1.1 billion back in 2016 to a remarkable $22 billion to $32 billion in 2023 (Grand View Research, 2025; McKinsey & Company, 2023). In the US, total healthcare AI investment, according to Forbes Health in 2024, soared to $11.8 billion and is now no longer just a series of pilot projects but a fundamental part of the US healthcare infrastructure.

Market Size, Growth and Segmentation of AI in Healthcare

The rapid growth of this industry globally has been driven by many factors such as rising patient care costs, shortage of clinicians, health data digitization, and recent development of technology and demand for scalable solutions. According to figure 7, analysts forecast a compound annual growth rate of 35 to 45% from 2024 to 2030 and predict that the global AI health market will burst past $180 to $190 billion in 2030 and could conceivably top $500 billion in 2032 (McKinsey & Company, 2023). The figure 8 shows the regional share, North America earning the largest share of 49%, whereas Europe summing up to 27% and the rest occupied by Asia-Pacific and the rest of the world, with Asia-Pacific becoming the largest expanding region in AI in the healthcare industry.

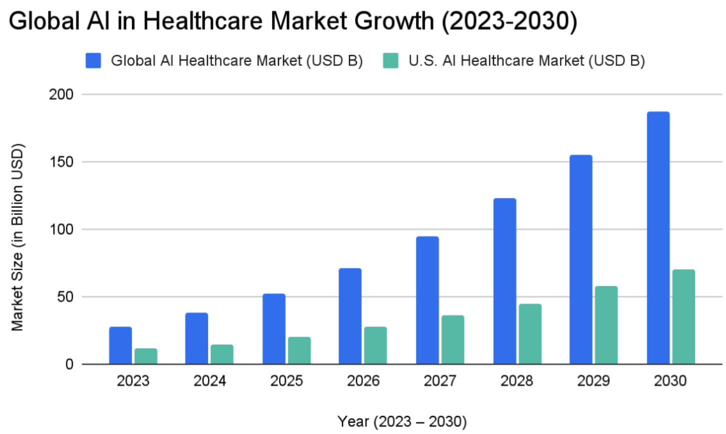

Figure 7, Global AI in Healthcare Market Growth (2023-2030) (Dange, 2025).

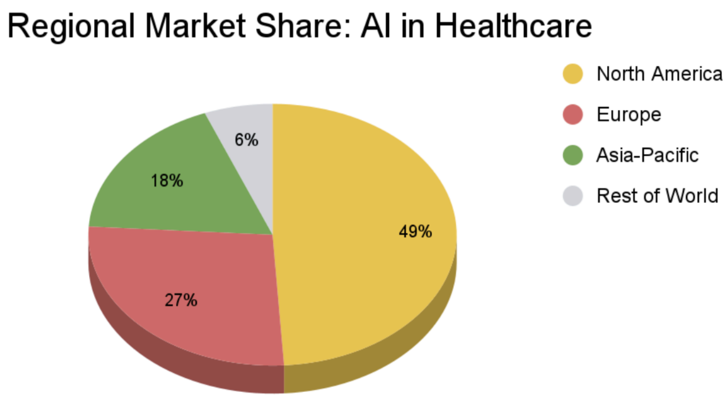

Figure 8, Regional Market Share in AI in Healthcare Industry (Dange, 2025).

The AI healthcare market encompasses numerous interconnected segments across clinical, administrative, and operational functions. As shown in figure 9, clinical decision support and diagnostics is the most significant segment, with multiple FDA-cleared imaging tools existing to assist clinicians with detecting cancers, heart disease, and neurological conditions (Grand View Research, 2025). AI-assisted and robotic surgery is the fastest-growing segment, as it promotes less invasive techniques and more precise interventions (Grand View Research, 2025). Administrative automation encompasses functions such as ambient documentation, billing, and coding. AI scribes (e.g., Nuance DAX) are an example of capabilities designed to improve efficiencies and reduce clinician burnout (MarketsandMarkets, 2024). Drug discovery and precision medicine utilize deep learning to design molecules, monitor specific cohorts of patients, and analyze clinical trials to decrease time to market (Grand View Research, 2025). Virtual assistants and remote monitoring amalgamate natural language processing (NLP) and predictive analytics to facilitate the telehealth consult and long-term care. In terms of components, revenues derived from software represent the largest share, followed by services, and finally, specialty hardware (Grand View Research, 2025). Most healthcare providers utilizing AI techniques are hospitals and clinics; pharmaceutical companies and insurers are utilizing AI to a much greater degree, and primarily for drug discovery/research and claims analytics. North

America accounts for nearly 49 percent of global expenditures on AI in healthcare, aided by supportive hardware, health IT infrastructure, and venture funding for healthcare start-ups. While North America carries the largest share of total expenditures on AI in healthcare, Asia-Pacific is experiencing the fastest rate of growth in spending, driven by rapid adoption of digital health technologies in China and India (Fortune Business Insights, 2025; Grand View Research, 2025).

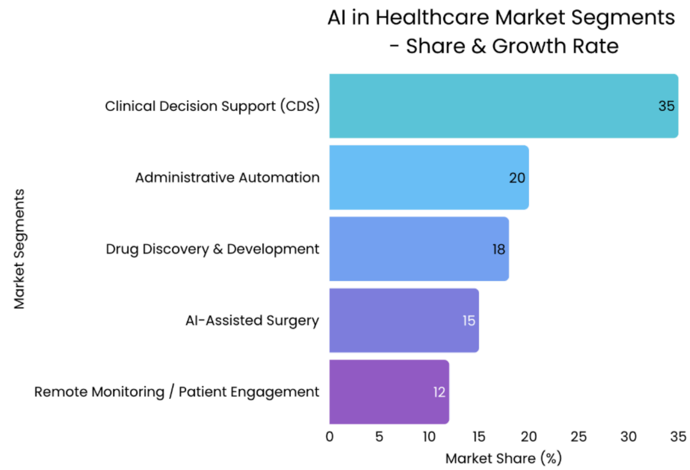

Figure 9, Market Segmentation (Share and Growth Rate) AI in Healthcare Industry (Dange, 2025).

Main Players in the Artificial Intelligence Healthcare Industry

The competition is made up of large tech companies and smaller dedicated health AI companies. The four major companies are Microsoft, Google, Amazon Web Services (AWS), and IBM, each leveraging what it considers its own advantages to grow in the healthcare space. Figure 10, estimates the total market share of each firm in the healthcare industry, as shown IBM and Microsoft each captured 18% of the total industry showing their strong enterprise footprints and long term investments in clinical AI development. Google and Amazon (AWS) holding the 16% and 12%, Google driving predictive modeling and biomedical research and AWS capturing the infrastructure of many healthcare systems. Rest 36% is summed up by various vendors in ai in healthcare holding different expertise.

Microsoft has firmly emerged as a major player in healthcare artificial intelligence after acquiring Nuance for $19.7 billion in 2022, which brought medical speech recognition and ambient documentation to Azure Health Cloud (Microsoft, 2023; Nuance Communications, 2022). Microsoft has relationships with Epic and has been developing tools using GPT-4 Copilot to support AI documentation and clinical summaries, or AI decision support. Microsoft maintains a strong position thanks to its extensive enterprise reach, HIPAA-ready cloud environment, and commitment to interoperability (Microsoft, 2023). Microsoft revenued by $281.7 billion in 2025 with 228,000 employees which operated in healthcare AI strategy by the intelligent cloud segment. After the Nuance acquisition, around 77% of U.S. hospitals use Azure for stack information. Microsoft's R&D is supported by MSR Health Futures Lab with over 70,000 U.S. patents.

Google remains a unique balance of traditional research and enterprise tools in healthcare and has a strong educational influence in academic medicine. DeepMind was important in developing early prediction of diseases, while Med-PaLM and AlphaFold paired powerful clinical language models with drug discovery (Google Research, 2023). Google Cloud's Healthcare Data Engine provides and connects imaging data, electronic health records, and genomic data, all on secure AI-enabled health platforms. Google Cloud reportedly has a partnership with Mayo Clinic and has worked with National Health Services (NHS) hospitals, emphasizing their focus on real-world research and clinical demonstration (Google Cloud, 2024). Google earned $307.4 billion in 2024 revenue and operated via a decentralized "company-wide effort." It's R&D is driven by Google Deepmind with more than 1,121 new AI patents in 2024, with a 71% reported ROI by the clients within the first year.

Amazon is at the forefront of the healthcare cloud market with tools like Comprehend Medical and HealthLake that rely on Natural Language Processing (NLP) techniques to pull meaning out of messy health data and organize it (Amazon Web Services, 2024). AWS is working with leading health systems on analytics, risk prediction, and fraud detection to improve outcomes and control costs. Most importantly, in 2023, Amazon moved deeper into care by purchasing One Medical and is operating Amazon Pharmacy using AI and their data capabilities to simplify supply chains and improve patient experience. The scale that AWS provides, with its partner ecosystem combined with the clinical data, will continue to make it a go-to AI infrastructure in healthcare (Business Insider, 2025). Amazon operates in a dual-threat model, with a profit of $108 billion 2024 loss in the patient care division, which is One Medical and Amazon Pharmacy. One Medical's R&D is funded by $15.3 billion for AL/ML in 2024, as well as an $8 billion investment with Anthropic, its AI partner.

IBM was an early player in healthcare with Watson Health, using AI to support cancer care and clinical decision-making. After divesting Watson Health in 2022, IBM launched Watsonx to deliver AI analytics and consulting to highly regulated industries like healthcare (IBM, 2024). A combination of IBM's capabilities in medical natural language processing, data management, and hybrid cloud continues to be relevant to large healthcare organizations (Merative, 2024). IBM being the least revenue by $62.75 billion in 2024, with the most R&D, with 3,000 researchers in 12 global labs including MIT-IBM Watson AI Labs.

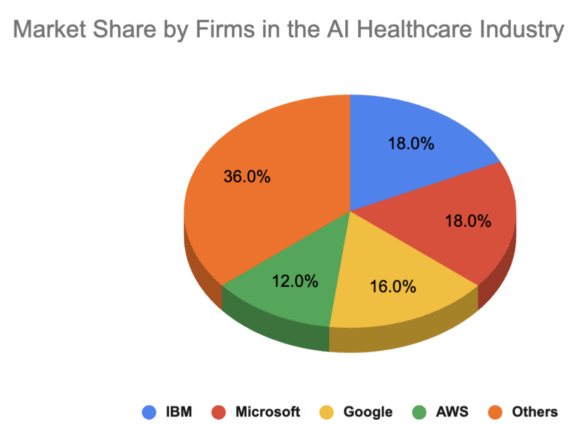

Figure 10, Market Share by Firms in the AI Healthcare Industry (Dange, 2025).

General Environment Affecting the Industry

Regulators have shown their support for AI in healthcare but on the other hand, they have put more rules and oversight in place. The FDA says that the number of AI/ML medical devices approved will be close to 900 by 2025, showing that there is already a lot of activity in terms of approvals (FDA, 2025). ONC's TEFCA promotes secure and nationwide health data sharing; the AMA created a new Category III CPT code so that AI-assisted services can be reimbursed (AMA, n.d.), and HHS published Section 1557 of the Affordable Care Act, which bans biased algorithms from being used in clinical decision-making tools (HHS OCR, 2023). These initiatives have the goal of using artificial intelligence (AI) in a manner that is ethical, fair, and clear in the field of medicine.

Between 2020 and 2023, in terms of the economy, society, and technology, health AI investment went up to the highest level ever as the investors looked for cost-saving innovations through a prolonged period of healthcare spending (CB Insights, 2024; Rock Health, 2024). The lack of medical practitioners as well as the burden of paperwork have together led to the implementation of AI in a manner that is less time-consuming and less stressful for the practitioners (AMA, n.d.). At the same time, deep learning and large language models, as well as cloud computing, are making AI more powerful (McKinsey & Company, 2023). However, the issues of internet security and legal privacy concerns are still major obstacles that AI must overcome before it can be widely used and accepted in healthcare.

Industry Trends Analysis

The healthcare AI market is clearly going through a phase of consolidation. After the many trials and tests, it is now moving towards integration as a key infrastructure. This change is supported by a number of strong market forecasts including a compound annual growth rate (CAGR) of around 37-38%. At the moment, North America is making up almost half (~49%) of the world market.

The sources of this growth first of all are clinics and hospitals which are turning to automation both for clinical and administrative activities. Scaling is mainly achieved in use cases such as ambient documentation (scribing), automated billing and coding, and clinical decision support. On the other hand, advanced diagnostics and drug discovery areas are still growing slowly as they are dependent on obtaining more clinical evidence for validation.

The sector is moving towards the use of cloud based platforms that are quite heavily integrated with Electronic Health Record (EHR) systems from the technological viewpoint. We can observe that the strategic actions of major market leaders reflect this trend:

Microsoft is directly integrating its Nuance DAX innovation along the Epic, Azure pathways and its general Azure Health Data Services.

Google is turning its cutting edge research from DeepMind and Med, PaLM into easily accessible APIs delivered via its Healthcare Data Engine.

IBM is implementing AI through its watsonx platform in a standardized, regulated way, using the Red Hat hybrid cloud infrastructure to cater to the gamut of enterprise requirements.

Moreover, the range of data that is being used is no longer limited to just the text from static EHRs. Companies are progressively taking on board data from sensors and wearables, an excellent illustration of which is Google's purchase of Fitbit for the development of continuous, longitudinal patient datasets. What results from this is the rise of a platformized ecosystem where companies are taking up different strategic roles ("Integrator, " "Innovator, " or "Trusted Partner") to position their abilities most effectively with provider workflows.

Along with these technical changes, customer behavior is also changing. Buyers, especially very large hospital systems and payers, are more and more behaving as enterprise platform customers, not as "point, solution" buyers. To start with, they require that a new solution be seamlessly integrated with their current EHRs.Other conditions needed for the deployment are security has to be verifiable through artifacts and there should be a quantifiable and measurable return on investment (ROI). This situation is forcing AI suppliers to look for collaborative selling agreements with leading EHR providers and also to prove the value of their solutions in real, world clinical settings.

Meanwhile, the regulatory environment is becoming more and more stable. Some of the proactive policy actions such as an accelerated FDA engagement and the Office of the National Coordinator's (ONC) TEFCA (Trusted Exchange Framework and Common Agreement) are facilitating the setting of standards for clinical evidence and secure data sharing. This supports the "governance, first" delivery model, which sees auditability as a product feature rather than a compliance burden.

On a strategic level, these factors are causing changes in vendor, client interactions with the first moves from short, term, single, department pilots towards multi-year platform partnerships. Some of the evidence are the moves by Microsoft such as the deep Epic, Azure integration and the Nuance acquisition that are aimed at not only fastening its distribution channels and workflow access but also hard, wiring them.

Google's long term projects with Mayo Clinic and the NHS, which not only ensure crucial evaluation environments but also facilitate the translation of research into practice.

IBM's change of focus from Watson Health to watsonx, which is a market driven reaction to the need for governed, regulated, and hybrid, cloud deployment models.

To wrap it up, the sector is moving towards the model of evidence, backed, EHR, embedded platforms. Therefore, in this new balance, success and market size are to a large extent dependent on having strong channels and excelling in compliance besides the inherent quality of the AI model.

STRATEGY ANALYSIS

The healthcare AI industry is characterized by high technological barriers and intense rivalry among established technology giants. To understand the structural attractiveness and profit potential of this sector, we apply Porter’s Five Forces framework. This analysis evaluates the competitive pressures from supplier leverage to buyer bargaining power that dictate the long-term profitability for firms integrating Artificial Intelligence into clinical workflows.

Porter’s Five Forces Analysis of AI in Healthcare Industry

Threat of new entrants - The threat comes from specialized MedTech startups (such as PathAI or Tempus) and Vertical SaaS providers. These entrants leverage open-source models to bypass high R&D costs, focusing on niche clinical applications that larger firms may overlook.

Entry into this market is constrained by three substantial hurdles:

1. Data & Evaluation
2. Workflow Integration
3. Governance & Compliance (HIPAA & FDA approvals)

Microsoft's Nuance acquisition puts it in a privileged data/workflow position that a new entrant can't duplicate anytime soon; Epic-Azure gives Microsoft NLP in clinical workflows, making it hard for any newcomer to access the same clinics. At the same time, Google's research partnerships with Mayo Clinic and NHS create evaluation settings that newcomers would be hard-pressed to get; IBM's hybrid-cloud approach with Red Hat removes institutional barriers to on-prem/edge access, making entrance not realistic. Technology is available, commercialization is hard which makes the threat of entry as moderate.

Buyer power - Providers of healthcare services and payors are consolidated, process-oriented buyers. They are capable of executing pilots, requesting security/compliance evidence, and postponing scale-up until clinical and financial results (e.g., documentation time savings, denial declines) are shown. Due to the dense infrastructure and governance of North America, buy-side sophistication is relatively high, demanding the evidence of the solution, which reinforces negotiating power. In conclusion, the buyer power is high in this classification.

Supplier power - The primary suppliers to the AI healthcare industry are semiconductor manufacturers (e.g., NVIDIA) providing the scarce GPU compute power required for model training, and healthcare systems (e.g., academic medical centers) that control the proprietary longitudinal patient data needed to tune these models. Since high-quality clinical data and high-performance chips are scarce and concentrated resources, these suppliers exert significant leverage over pricing and availability.

Threat of substitution - Substitutes still exist for many administrative duties such as native EHR capabilities, old-fashioned analytics or RPA, and comfortable manual workflows. As evidence mounts (e.g., FDA-tracked devices powered by AI; ambient documentation evidence), NLP will push substitutes out in documented niches; elsewhere credible alternatives will maintain price/adoption pressure making this a moderate classification of substitutes. Significant substitution also comes from third-party management consulting firms (e.g., McKinsey) offering process optimization without AI risks, and internal hospital engineering teams developing bespoke tools to avoid vendor lock-in.

Competitive rivalry - The competitive rivalry in this industry is high as Big Tech companies and specialists land on overlapping budget lines. Our focal players space out distinct positions with various different strategies and offerings, yet compete for the same enterprise accounts. The three players mentioned in this paper have their own unique value propositions in this industry. Microsoft builds distinction with a workflow-embedded clinical AI (Nuance DAX) and Epic's distribution with Azure while Google leads the way with seamlessly translating research into a platform (Med-PaLM/DeepMind; Healthcare Data Engine), and IBM plays into governed, hybrid deployment (watsonx + Red Hat) with services-led assurances. This special offering makes the competition even more tougher hence is classified as highly competitive. Figure 11, showcases the summary of the above explanation and highlights the reason behind supplier power and competitive rivalry remains influential among all the forces while other forces remain low to moderate.

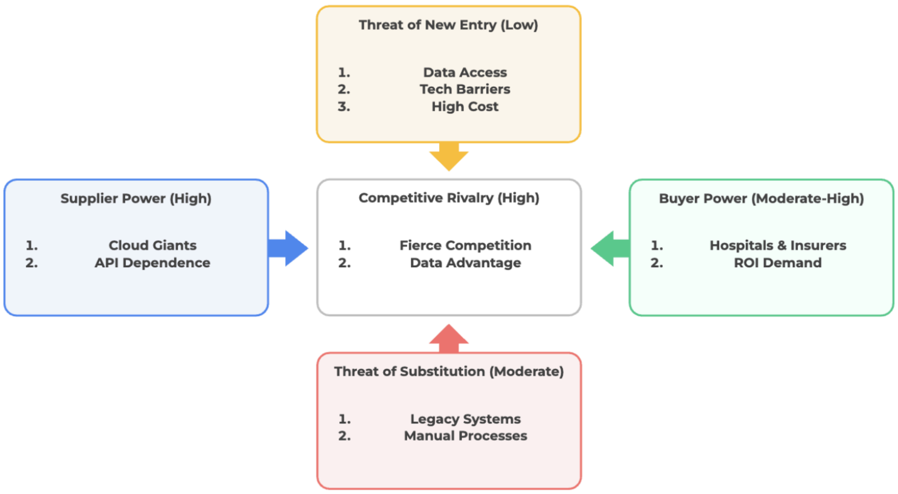

Figure 11, Summary of Porter's Five Forces Analysis of the AI in Healthcare Industry. (Dange, 2025).

Resource-Based View (RBV) Analysis of AI in Healthcare Industry

Jay Barney's "resource-based view" approach states that firms' advantages primarily come from the resources they possess and control independently, rather than solely from external industry structures. (Barney, 1991; Barney & Hesterly, 2019). These resources include both physical assets, like cloud infrastructure, data centers, and capital, and intangible assets, like access to clinical data, partnerships with hospitals, brand reputation in the enterprise market, and organizational capacity that connects AI with health information systems (EHR) in AI-driven healthcare. (Barney, 1991; Prahalad & Hamel, 1990). The three selected market leaders are analyzed below in light of this viewpoint. (Grand View Research, 2024; McKinsey & Company, 2025; Precedence Research, 2024).

In the healthcare AI sector, sustainable competitive advantage relies on the possession of rare and non-substitutable resources rather than just the product features. The critical industry-wide resources required for success include:

Proprietary data sets **-** Access to massive, unstructured, longitudinal clinical datasets (voice, imaging, EHR history) which are necessary to train medical-grade models.

Regulatory & Compliance capital - Deep institutional knowledge of FDA approvals and HIPAA compliance, which acts as an intangible asset protecting firms from liability.

Integration ecosystems - Established API connections with major Electronic Health Record (EHR) systems (like Epic or Oracle Cerner), which creates a distribution network that is costly for rivals to replicate.

VRIO Analysis of AI in Healthcare Industry

Microsoft's AI Healthcare - Value - Microsoft's key resource is its Proprietary Clinical Voice Data (acquired via Nuance). This resource adds value by enabling the training of ambient listening models that reduce physician burnout a capability competitors cannot easily match without similar data access.

A rarity - Microsoft combines different clinical speech datasets and terminology from Nuance with strong connections to Epic EHR to create a valuable mix of "data plus workflow access." (Nuance, 2024; Microsoft News Center, 2023). This combination is rare in the health IT industry because most companies lack deep EHR connections, clinical-grade voice datasets, or a sizable interest in the field. (Epic Systems, 2024).

Imitability - Large health systems require long-term investments and teams from different fields, which leads to high expenses, lengthy processes, and a strong reliance on previous decisions. This process is necessary to create medical speech databases, improve accuracy across different accents and background noise, align clinical terms, and gradually obtain privacy and security To keep imitation challenging, large clinical datasets and EHR partnerships are necessary for nearly capable rivals to achieve functional substitutability. (Barney & Hesterly, 2019).

Organization - Microsoft operates through different divisions on one Azure platform, which includes product, compliance, security, and a big channel for independent software vendors and system integrators The company manages everything from models to sequences, as well as The company specializes in global sales and delivery. (Microsoft, 2024). Through healthcare-specific data governance, BAA procedures, and quoting paths, the company ensures the identification of value. (Microsoft, 2024).

Google's AI Healthcare - Value - Google's key resource is its DeepMind Research Engine & Talent Pool. This resource adds value by producing frontier scientific breakthroughs (like AlphaFold) that can be rapidly commercialized into diagnostic APIs.

A rarity - Recent long-term collaborations with the NHS and the Mayo Clinic result in relatively uncommon prospective evaluation settings and clinical feedback loops. (NHS, 2023; Mayo Clinic, 2023). Only a small number of firms can develop and authenticate bio-AI knowledge using Google, DeepMind's research engine, and medical expertise (DeepMind, 2024).

Imitability - Google often conforms to the "publish open tools to platformize" trend. Strong rivals may push through public papers and toolchains, but non-imitability comes solely through a full shield and steadily relies on accruing real-world clinical data, evidence, and process-implementing tests to narrow the gap. Strong rivals may additionally push along public papers and toolchains. (Google Research, 2023).

Organization - Google earns money from its large number of developers and partners through its cloud APIs and healthcare data. (Google Cloud, 2024). Its strong platform and better organization may result in a larger gap if its ability to transition research assets into EHRs or care team workflows is improved. (Google Cloud, 2024).

IBM's Watsonx for AI Healthcare - Value is centered on model governance, compliance, and risk management, thus addressing healthcare requirements. (IBM, 2023). Their onsite system deployment closer to where the data is, or through the hybrid cloud offered by IBM and Red Hat, is effective for security, speed, and data residency, thus providing a common place to work. (IBM, 2024; Red Hat, 2024).

A rarity - IBM actually has fewer strong connections to EHRs and fewer healthcare-specific assets than either Microsoft or Google. (IBM, 2024). Open technology and healthcare industry standards make a huge difference when it comes to adoption, although this is hardly unique. (Red Hat, 2024).

Imitability - Competitors may build comparable offerings without significant cost because the stack employs open-source components and a services-led playbook. IBM's differentiation arises more from its methods and delivery experience than from hard-copy proprietary data or algorithms. (IBM, 2023; Red Hat, 2024).

Organization - IBM's product-type divisions collaborate with strong consulting and services divisions to translate platform capabilities into client-specific solutions, focusing on large-account governance, compliance documentation, and migration roadmaps. (IBM, 2024). Figure 10 of the VRIO analysis, in general, highlights market leaders' abilities and their This contributes to a competitive advantage in the NLP market. (Grand View Research, 2024; Precedence Research, 2024).

Core Competence Analysis of AI in Healthcare Industry

A company's core competence comprises a difficult-to-imitate set of organizational routines, processes, and technologies that allow it to adjust to industry change and maintain an advantage. (Prahalad & Hamel, 1990). Companies employ skills of their resources' at a global scale with the help of technology, well-designed processes, and internal knowledge sharing. (Prahalad & Hamel, 1990). We explain the core competencies of the three selected companies below.

Microsoft's Core Competence - Ecosystem Embedding. Microsoft excels at the organizational routine of workflow integration. Rather than selling standalone AI tools, its distinctive capability is seamlessly embedding complex AI (like DAX) into the productivity software doctors already use daily (Teams, Outlook, Epic). This ability to hide complexity behind familiar interfaces is a difficult-to-imitate organizational skill.

Google - They're really good at putting research ideas into actual products. They have a unique way of scaling 'deep science' ideas (such as DeepMind) into cloud APIs that can be leveraged by developers. Their ability to quickly deliver this makes them leaders in accurate diagnosis and linking complex data.

Firm	Value	Rarity	Imitability	Organization	Advantage
Microsoft	✅Nuance DAX (Clinical Efficiency)	✅Epic EHR (Exclusive Integration)	✅Medical Voice Data (Proprietary)	✅Azure HDS (Unified Ecosystem)	Sustained
Google	✅Med-PaLM 2 (Diagnostic Accuracy)	✅Mayo & NHS (Research Access)	➖R&D Process (High Cost)	✅Cloud API (Health Integration)	Temporary & Potential
IBM	✅Watsonx (AI Customization)	❌Healthcare Ties (Limited)	❌Open-source (Replicable)	✅Hybrid Cloud (IBM + Red Hat)	Competitive Parity

Figure 12, Summary of the VRIO Analysis of Major Players (Jingxin, 2025).

IBM - IBM's key strength is its ability to deal with high-risk governance. IBM's expertise is in regulatory risk management, as their processes have been designed to be thorough for governance, auditing, and security for a hybrid cloud. They can serve high-regulated, risk-conscious healthcare customers requiring on-premises governance.

In Figure 13, Microsoft focuses on workflow-embedded clinical AI, Google focuses on frontier research converted into interoperable platforms, and IBM emphasizes administered AI with hybrid delivery, opposing the comparative logic. (Barney & Hesterly, 2019). Each bundle has its very own path-dependent and organizational roots, making it more challenging to emulate and providing unique long-term advantages. (Prahalad & Hamel, 1990). The area of focus for Google is in AI healthcare. (Singhal et al., 2023; Google Research, 2023).

Competence Dimension	Microsoft	Google	IBM
Knowledge Creation	GPT-4 Nuance (Clinical AI)	DeepMind AlphaFold (Bio-AI)	watsonx (Regulatory AI)
Integration & Application	Epic + Azure (EHR sync)	HDE (Health Data Exchange)	Hybrid Cloud (Deploy)
Knowledge Sharing & Partnerships	Health Alliances (Co-dev)	Mayo & NHS (Research)	Cleveland Clinic (Pilot)
Dynamic Capability	Adaptive Health Solutions	Continuous R&D Cycle	AI Governance Shift

Figure 13, Summary of Core Competence Analysis of Major Players (Jingxin, 2025).

Generic Business-Level Strategies in Healthcare AI

According to Porter's (1980) original theory, sustainable competitive advantage is created by pursuing a distinct generic strategy: cost leadership, differentiation, or focus. Those organizations that do not choose one strategy over another but instead try to position themselves in between will be left "stuck in the middle" with no clear-cut advantage. Of course, a healthcare AI market is a complex one, which means that any particular business's strategy needs to match up with its unique resources, following Resource-Based View (RBV) theory. Examination of each of the top three competitors in this market will shine the clear light on each one's strategic positioning.

Microsoft does this through a wide-ranging differentiation strategy. Its distinct value does not lie in it providing this service for free. Rather, it is because it offers something unique by tightly integrating all its solutions right into the current clinical practice.

The heart of this strategy is based on the integration of Nuance DAX (Dragon Ambient eXperience) and Azure Health Data Services with traditional Electronic Health Record (EHR) systems, especially with its partnership with Epic. This bundle offering with access to proprietary voice data for healthcare, privileged access to EHRs, and overall compliance resources makes for a high-value "sticky" environment. Microsoft is effectively leveraging documentation efficiency to deliver ROI to providers, increasing switching costs and making it difficult for competitors to replace it."

Google is also competing on a differentiation strategy with one that is rooted in innovation leadership and research excellence. Its unique value is based on its capacity to innovate and produce leading models such as Med-PaLM and developments made by DeepMind, all because of long-horizon research collaborations with top organizations such as the Mayo Clinic.

Google's plan is to translate these unique knowledge resources into scaled-service propositions, which it offers to the market through its Healthcare Data Engine and Cloud APIs. Such innovation-driven strategies have resulted in Google emerging as market leaders in NLP-driven reasoning and complex data harmonization.

After shifting strategies and concentrating not on the overall market with Watson Health, IBM has now adopted a focused differentiation strategy. Its activities are specifically aimed at satisfying one particular segment in the market: organizations which are regulated with particular demands concerning corporate governance and data management. IBM's offering, built around watsonx and Red Hat tech, is hybrid deployable, enabling customers to deploy AI models on-premises or on the edge versus only on public clouds. Their uniqueness is to cater to customers who value assurance, model governance, and audit-able compliance deliverables above everything else. IBM is competing in the market position of "Trusted Partner" for customers for whom data security and flexibility on any clouds stand non-negotiable.

This analysis confirms that all three major players have successfully avoided the "stuck in the middle" trap. Each has committed to a clear and defensible basis of competition: Microsoft with its in-workflow clinical differentiation, Google with its innovation-led differentiation, and IBM with its governed hybrid-cloud focus.

Corporate and Cooperative Strategy Analysis

The healthcare industry is being transformed by AI and hence many top IT companies are competing to innovate and expand their market as a result of this transformation. Microsoft, Google, and IBM, among others, are developing partnerships through mergers, strategic alliances, and next-generation AI solutions in order to get a better position in this rapidly evolving market.

***Microsoft* -** It entered the healthcare industry through strategic collaboration and diversification. One of its most important decisions was the $19.7 billion acquisition of Nuance Communications in 2022 with the goal of improving Microsoft's AI capabilities for healthcare. Microsoft then improved its position in the healthcare industry because of Nuance's expertise in clinical natural language processing (NLP) and speech recognition (Microsoft News Center, 2022). By expanding Microsoft's current AI and cloud technology into applications which are specific to healthcare, this acquisition represents related diversification. By incorporating Nuance's technology into its own cloud services, Microsoft now contributes to the healthcare software that doctors use for interaction with patients and documentation.

In 2020, Microsoft introduced the Microsoft Cloud for Healthcare, a vertically integrated platform which was developed for healthcare organizations with customized data models, compliance tools, and connections to electronic health record (EHR) systems (Microsoft, 2020) this move transformed Microsoft's general cloud infrastructure into a domain-focused service. By doing this, Microsoft increased its reach within the healthcare value chain and provided an entire solution instead of limiting itself to only general-purpose cloud technologies.

In addition, Microsoft heavily depends on strategic partnerships for strengthening its ecosystem. In order to include Azure OpenAI services into Epic's clinical software, it strengthened its collaboration with Epic Systems, the biggest EHR provider in the United States, in 2023. The partnership gave the opportunity to several hospitals to access Epic's systems and now open the door to use Microsoft's AI technologies (Epic Systems & Microsoft, 2023). In a similar way, its collaboration with Walgreens (2019) focused on updating Walgreens' healthcare infrastructure while developing digital health solutions (Microsoft & Walgreens Boots Alliance, 2019). Besides this, Microsoft has partnerships with major healthcare providers such as Cleveland Clinic and Mount Sinai Health System to jointly create and evaluate healthcare AI solutions in real-world situations.

Other than alliances and acquisitions Microsoft has also made strategic investments to strengthen its AI foundation. Even though they are not related to the healthcare sector, Microsoft's OpenAI investments (2019 and 2023) provided access to cutting-edge generative AI models which are already being used in the healthcare sector (Microsoft, 2023). In summary, all these relationships, financial support, and taking over other companies shows that the company's policy of developing a cloud ecosystem for healthcare that is both integrated and powered by AI.

Below, Figure 14 shows the summary of how Microsoft took different strategic moves while getting multiple alliances and acquisitions.

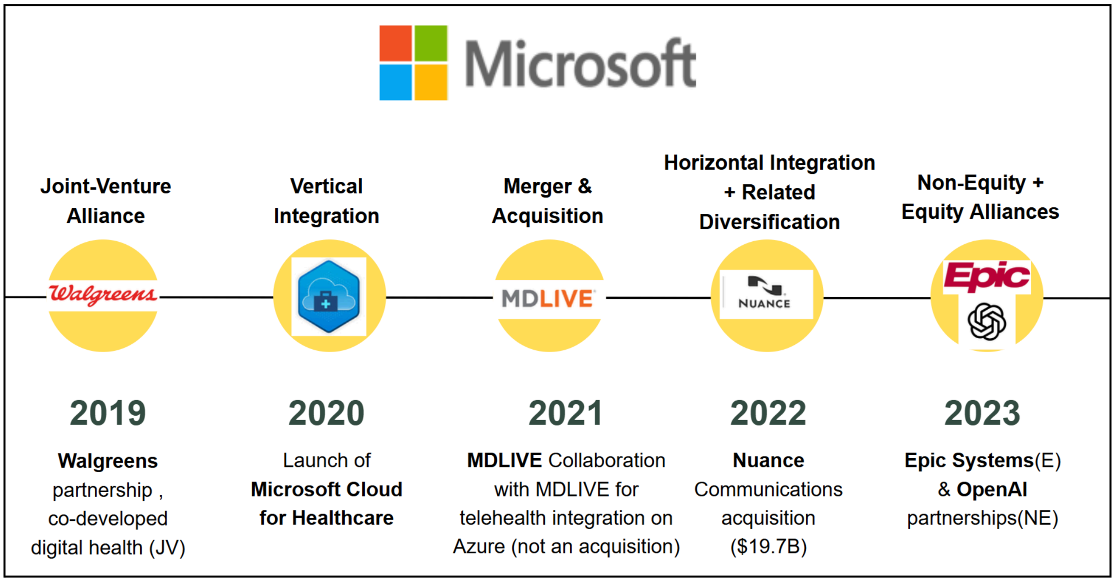

Figure 14, Microsoft's strategic moves in healthcare, 2019–2023 (Bhandare, 2025).

***Google* -** Through its parent company Alphabet adopted a variety of complementary strategies for its healthcare diversification. Among the main initiators was Alphabet that formed the subsidiaries Verily Life Sciences (2015) and Calico (2013) with a focus on medical technology, data science, and longevity research. These projects are surrounded by diversification in the area of medical devices, data analytics, and drug discovery besides Google's core tech business (Alphabet, 2015; Alphabet, 2013). The Fitbit acquisition by Google on a $2.1 billion deal in 2021 not only expanded but also strengthened its presence in customer health and wearables market presence, empowered with a wide pool of health data and a new means to incorporate AI-powered health insights (Alphabet, 2021).

Through the horizontal acquisitions like DeepMind (2014), Google made a drastic leap in its AI skills. DeepMind's medical research, where AI was being trained for retinal disease recognition, was merged into Google's overall AI supremacy (Google, 2014). It was via acquisitions such as Senosis (smartphone health monitoring) and Fitbit, that Google assembled an interconnected healthcare ecosystem, taking care of data collection through wearables to AI-based insights in the cloud (Alphabet, 2021).

Google's healthcare expansion mainly revolved around strategic partnerships. The company collaborated with the Mayo Clinic for a long-term period (for four years now, since 2019), mainly on AI and cloud migration, and in 2023, a generative AI search tool for clinicians to pull information from the medical database has been developed as a result of the partnership.(Google Cloud, 2023; Mayo Clinic, 2019) Other notable partnerships are HCA Healthcare (2021) for hospital analytics and Ascension (2019) for health record management. This year, Google has also formed a partnership with MEDITECH, one of the leading EHR vendors, to integrate its AI technology into the electronic health systems of the latter (Google Cloud, 2023).

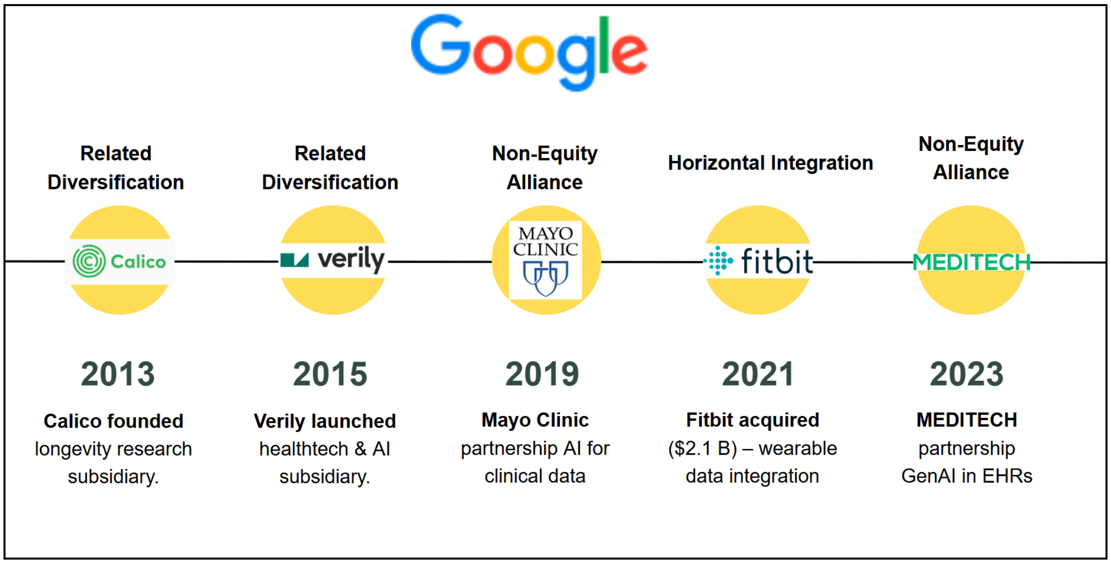

Figure 15, Google's strategic moves in healthcare, 2013–2023 (Bhandare, 2025).

Google regularly engages in collaborative research projects such as the NIH's STRIDES program and the COVID-19 High Performance Computing Consortium, effectively combining resources with the academic world and other tech giants (NIH, 2018; COVID-19 HPC Consortium, 2020). To create health technology products Google also works through verily with drug manufactures such as Sanofi and Novartis (Verily, 2019). These alliances serve to solidify Google as a critical factor in healthcare innovation, implying the use of its AI and cloud technology in the future as an indispensable part of the healthcare solutions. Figure 15 gives a timeline of how google took different strategic decisions.

***IBM* -** IBM's health sector involvement shows a mix of diversification and change in strategy which was strategic refocusing. The company invested more than $4 billion during the years 2015 and 2016, making acquisitions of Phytel, Explorys, Merge Healthcare, and Truven Health Analytics, among others, to create IBM Watson Health. This was a significant horizontal integration attempt to unite data, analytics, and AI throughout the healthcare industry. However, IBM was not able to develop a solid growth and eventually decided to part with Watson Health assets by selling them to Francisco Partners in 2022, which indicated a strategic withdrawal from the market and a focus on its types of cloud computing and AI (IBM Newsroom, 2022).

Once the divestiture was done, IBM shifted its focus to horizontal technologies and concentrated on delivering non-specific technologies to the healthcare sector, mainly general AI and hybrid cloud solutions that could be transferred to various industries, healthcare included. It is no longer advertising its IBM Watsonx platform and Hybrid Cloud services as healthcare-specific tools but as industry-neutral tools. The emphasis is on flexibility and scalability instead of directly emphasizing clinical use (IBM, 2023).

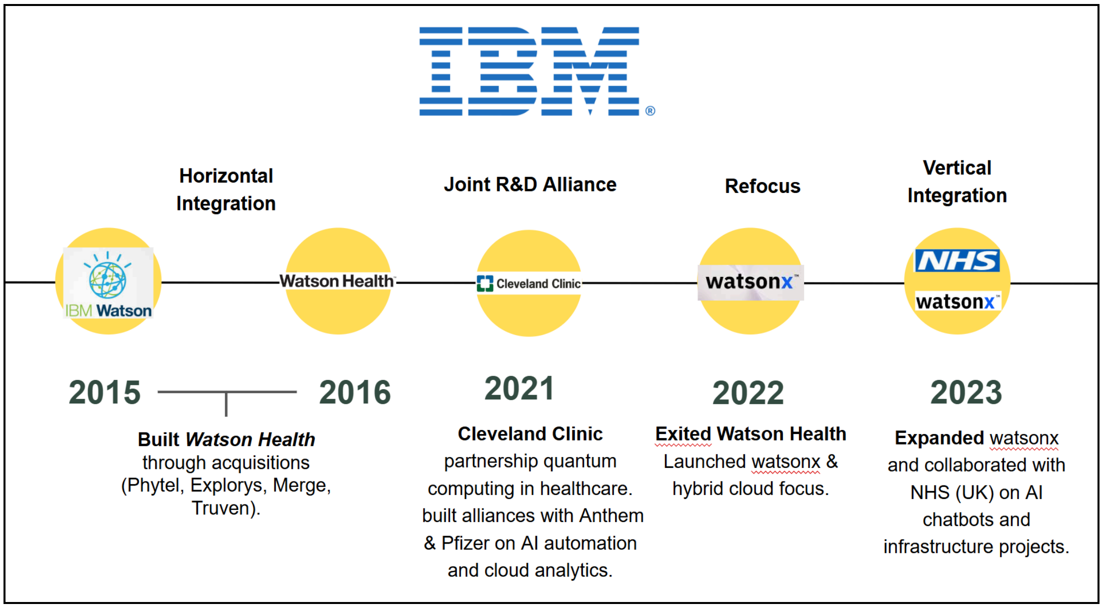

Figure 16, IBM's strategic moves in healthcare, 2015–2023 (Bhandare, 2025).

Using strategic partnerships, IBM is still very much present in the healthcare innovation platform. The 10-year collaboration deal with Cleveland Clinic (2021) led to the creation of the Discovery Accelerator. This new initiative used quantum computing and other IBM technologies to speed up the medical research of Cleveland Clinic (Cleveland Clinic & IBM, 2021). Besides, IBM is automating the claims processing for Anthem and facilitating AI-supported updates for the drugs' supply chain with Pfizer (IBM, 2021). It is certainly allowing the technology transfer while benefiting from the experts cooperation that is typical of IBM's partnership model.

Moreover, IBM retains a sort of vertical integration through its consulting and managed services. Through IBM Consulting, the enterprise delivers all-inclusive solutions from technology formulation to execution and maintenance assisting hospitals and health agencies in their IT system management. For instance, IBM has partnered with the UK's NHS for cloud infrastructure and AI-assisted chatbot development (IBM, 2020). This method incorporates IBM into healthcare processes, thus making it a permanent technology associate rather than a product supply company. Figure 16 gives a summary of a timeline of how IBM took different strategic decisions.

RESULTS AND CONCLUSION

In the AI healthcare industry, our analysis indicates that the market has shifted from experimental pilots to a stage where AI is becoming part of core clinical and operational infrastructure. A robust demand for automation and decision support comes spurred by structural pressures, such as clinician shortages, contested data, and growing costs, in addition to some stringent but more permissive regulations. To contest and thrive in this environment, businesses must integrate AI into real clinical workflows and run on compliant and secure cloud and data infrastructure and have secure access to large-scale real-world health data through long-term provider partnerships. Our comparison of front players suggests that sustainable competitive advantage in AI healthcare may support ecosystem-level platforms that mix technological innovation with deployment capability, governance maturity, and interoperability, far apart from firms that subject themselves merely to algorithmic performance. These capabilities facilitate continuous validation, improvement, and trust.

Core Competencies Needed to Succeed in this Industry

The three companies' core competencies in AI healthcare focus less on individual products and much more on how each company handles, creates, and delivers solutions. Microsoft excels at transforming clinical operations into repeatable, data-driven processes across its global enterprise network. Its core strength lies in the ability to specifically co-design workflow-embedded, clinical-grade AI with providers and eventually extend it through a highly integrated cloud and EHR ecosystem. Google's main strength is its research-to-product engine, which uses an open and experimental approach to develop models, leveraging its cloud and data platforms to quickly test, improve, and launch AI services that work well together in different markets. IBM's core competency in heavily regulated environments is a combination of hybrid-cloud infrastructure, compliance-by-design development practices, and close, long-term client engagement with a governance-first, service-led operating model. These distinct strategies to manage R&D, operations, and market reach constitute the true core competencies that facilitate each company's capacity to compete in the fast-changing healthcare AI.

Corporate-level and Cooperative Strategies Employed Successfully

In terms of corporate-level and cooperative strategies, IBM, Google, and Microsoft all rely on acquisitions, partnerships, and technology collaborations in AI healthcare. Microsoft utilizes a related horizontal integration and diversification strategy. Workflow integration is around the heart of Nuance's strategy due to its close collaboration with major EHR vendors like Epic and its acquisition of Nuance. Google additionally operates toward diversification, putting more pressure on data alliances and research-driven platforms. Utilizing Google Cloud's Healthcare Data Engine to position itself as an innovation-driven, interoperable infrastructure provider instead of a strictly workflow-embedded vendor, it marries assets like DeepMind, Verily, and Calico has partnerships with Mayo Clinic, the NHS, and HCA Healthcare. In contrast, IBM's most recent strategic refocus, which encompasses concentrating on Watsonx and Red Hat-based hybrid cloud solutions, prioritizes on-premise and hybrid deployments, governance, and transparency for properly regulated clients, funded by long-term, service-oriented alliances with major providers and payers. Collectively, these patterns prove how IBM uses corporate and cooperative strategies to mature a research-and-data-driven platform strategy and how IBM utilizes them to challenge a governance-centric niche interested in buying AI healthcare that is sensitive to regulation.

Sustainable Competitive Advantage of the Firms

It is clear that the three companies only benefit equally from the shift toward workflow-embedded, compliance-heavy, ecosystem-level AI platforms when they link their sustainable competitive advantages. While Microsoft, Google, and IBM each enjoy distinct advantages in the AI healthcare sector, their long-term success remains uncertain. Microsoft has the strongest overall position. Its partnership with top EHR vendors like Epic helps Microsoft's skills become a regular part of everyday medical work, and buying Nuance gives it strong knowledge in clinical language, documentation, and workflow tools. Microsoft may deliver end-to-end, workflow-integrated AI solutions that are difficult for competitors to reproduce in conjunction with Azure's healthcare-focused cloud services. The strength of Google's research and innovation of novel models is its advantage. It maintains the production of groundbreaking AI for healthcare and has established significant partnerships with organizations like the NHS and the Mayo Clinic. Though the research and model layer now provides for a large portion of Google's strength, it must quickly be capable of turning these innovations into widespread, popular, scalable solutions for hospital workflows. For heavily regulated clients, IBM's main advantage includes its focus on governance, security, and hybrid-cloud deployments. It comes secured by businesses that value control, compliance, and on-premises or hybrid infrastructure. Compared to Microsoft, IBM's position is less sustainable over the long term due to its limited access to proprietary clinical data and its smaller presence in front-line clinical workflows. In terms of AI healthcare, Microsoft possesses the greatest and most sustainable competitive advantage. It holds the broadest and most palatable portfolio of healthcare AI solutions among the three companies because of Nuance's combination of clinical expertise, thorough EHR integration, and a mature cloud ecosystem.

In summary, our team believes that engaging as an ecosystem orchestrator, rather than as a stand-alone model or point solution vendor, represents a sustainable strategic approach. Companies that create unique data and maintain long-term provider partnerships while enhancing day-to-day care solutions will benefit in the long run. Rather than only concentrating on how well the algorithms perform, a successful strategy in this market means mixing new technology, having the ability to perform it, mature governance, and responsible data management as the industry transitions toward systems that perform one and share information.

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