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AI Didn't Replace the Radiologist. It Replaced the Junior One

Executive Summary

In 2016, Geoffrey Hinton predicted that deep learning would make radiologists obsolete within a decade. Yet, a recent investigation published in 2025 in The New York Times reveals that the Mayo Clinic has increased its radiology staff by 55% in the past decade.

In contrast, at iKang Healthcare, the deployment of AI technology led to a reduction in the number of radiologists by changing how image-reading work was divided.

iKang runs more than 150 preventive medicine branches across China and interprets 7–8 million medical images per year. By using AI for first-round image reading and centralizing the remaining review into 16 regional centers with experienced specialists, it reduced the number of radiologists from 400 to 160 while maintaining the image volume and reading accuracy.

AI did not make radiologists disappear. It changed which kind of radiologists the company needed.

Background

iKang Healthcare Group is one of China's largest preventive healthcare companies. Founded in 2004 by Lee Zhang and once listed on NASDAQ, it runs more than 150 self-owned medical centers and clinics across 54 cities. Most of its business comes from corporate contracts. By 2025, its clients included 232 Fortune Global 500 companies and 90 of the top 100 Forbes enterprises in China, with more than 60% of customers coming through employers who buy annual physical examinations for their staff.

Medical imaging is a core part of these examinations, usually CT and digital radiography (DR) scans. The radiologist's job is to spot possible abnormalities: a lung shadow that might be a nodule, a mass that could be a tumor or just a benign fatty deposit, an early sign of disease that needs specialist follow-up.

For iKang, reading accuracy matters directly to the business. When the company flags a potential issue, it arranges and pays for the patient's first specialist consultation. Over-reporting drives up those costs and creates unnecessary anxiety for patients. Missed findings are worse: a patient may be harmed and the company's reputation suffers. Pushing up reading accuracy became a central priority.

The traditional model: one branch, two radiologists

In the traditional model, image reading was conducted at the branch level. On average, an iKang branch had two (sometimes three) radiologists, who read the images produced at their own branches.

A two-radiologist team generally worked in parallel, with one radiologist reading one set of images and the other reading the rest. These two radiologists were not expected to compare their interpretations with each other. Each radiologist occupied a standalone workstation and followed the same procedure: select a scan, review it frame by frame, note any abnormalities, document them, save the scan, move on. Then, a chief general physician would examine the images along with the patient's other clinical information before preparing a final report.

The setup worked for years. It also had three clear weaknesses.

First, the system was expensive. With more than 150 branches, iKang had around 400 radiologists, one of its largest groups of professional staff.

Second, quality varied across branches. Radiologists in Beijing or Shanghai have seen more scans, faced more complicated cases, and collaborated more closely with experienced radiologists; in smaller cities such as Yinchuan or Hohhot, radiologists may see less complicated cases and work with less experienced colleagues. Although radiologists in different locations have the same qualifications, their practical experiences are very different, and hence their reading accuracy varies. But in healthcare, even a small number of misdiagnoses can hurt patients and damage the trust and reputation of the whole brand.

Third, it was difficult to motivate radiologists effectively. The primary incentives were tied to the years of experience and seniority. iKang could not simply add a bonus for "accuracy": paying extra for detecting suspicious findings may lead to overdiagnosis. The most serious types of errors, such as missed diagnoses, occur infrequently and are often detected late.

The intervention: AI first reading and regional centers

iKang started piloting AI-assisted image reading in 2021 in a few locations and rolled it out to all its outlets in 2025. The AI system was built on millions of past images and results by a third-party vendor. The goal was to improve diagnostic quality across its network.

Under the new system, once a patient completes a scan at a branch, the image is uploaded to a central cloud. The AI reads it first and marks suspicious areas, and a human radiologist then reviews the case.

The radiologist still reads the full scan and does not simply sign off on the AI marks. The difference is that the image now comes with an initial set of marks. In the traditional model, the radiologist had to look for abnormalities from scratch. In the new model, the AI has already flagged areas that may need closer review. The radiologist checks those areas, looks over the rest of the image, and makes the final judgment.

Because every scan now began with the same AI first pass, the work became faster and more standardized. iKang estimates that reading time fell by about half. With each radiologist now able to read more scans, the reading no longer had to stay at the branch where a scan was taken. That freed-up capacity is what made centralization possible.

iKang then moved much of the remaining review work into 16 regional reading centers. A scan from a nearby branch could be uploaded to the cloud, reviewed by a radiologist in the regional center, and sent back to the branch. Some branches still kept a radiologist on site to meet local rules, but most of the image-reading work moved to the regional centers.

Scans from a smaller branch in Yinchuan or Hohhot used to be read by the branch's own radiologists. After the change, they can be sent to the Xi'an regional center and read by the same

specialist team that served patients in Xi'an. The branch is still local, but the expertise is no longer limited by location. One executive described the change as "borrowing the brain of someone much, much better."

The change also meant iKang needed fewer radiologists. The question became which doctors should remain in the new system. Each region first estimated the basic workload based on actual examination volume. The company then evaluated radiologists based on their professional ability, past performance, work attitude, error rate, reliability and seniority. Generally, those who remained tended to be more experienced radiologists who with a good track record.

iKang changes its compensation system to incentivize the remaining radiologists. With the improved efficiency of image reading, it increased their basic salaries and added bonuses for additional reading. It also sampled a portion of the readings for quality control: errors carry penalties, and sustained accuracy was rewarded. The point was to reward careful reading, not just more reading or more positive findings.

Results

The new model changed iKang's operations in three areas: it improved its service quality, reshaped the roles of radiologists, and lowered the firm's labor costs.

The quality of the radiological readings improved. AI's performance was comparable to that of the most senior radiologists, and combining AI's first reading with the senior radiologist's review decreased the rate of missed diagnoses and misreads. The firm also observed a reduction in the quality gap between its branches in larger and smaller cities. According to the firm, the number of customer complaints decreased by approximately half during the period, although from a small base.

Freed from the first-pass screening, radiologists could now focus on the more difficult tasks of checking and managing more complex cases. In addition, the collaboration with experienced peers makes radiologists' jobs less isolated and enhances their job satisfaction.

The firm also reduced labor costs while maintaining its high volume of image reading. Specifically, it reduced the number of radiologists from 400 to 160 and maintained an annual image reading volume of 8 million. Although it pays the remaining radiologists a higher wage, the reduction in personnel and reorganization of its workforce lower its overall labor costs.

Takeaway

iKang shows one version of Hinton's prediction. AI did not displace radiologists, but made the routine part of image reading easier to standardize. That made senior diagnostic judgment the key scarce asset.

The organizational response was to rebuild around that asset: fewer local doctors, more centralized senior specialists, and more even quality across regions. The deeper lesson is that AI does not only change productivity. It changes the hierarchy of expertise: what can be standardized, what remains scarce, and where scarce expertise should sit.