

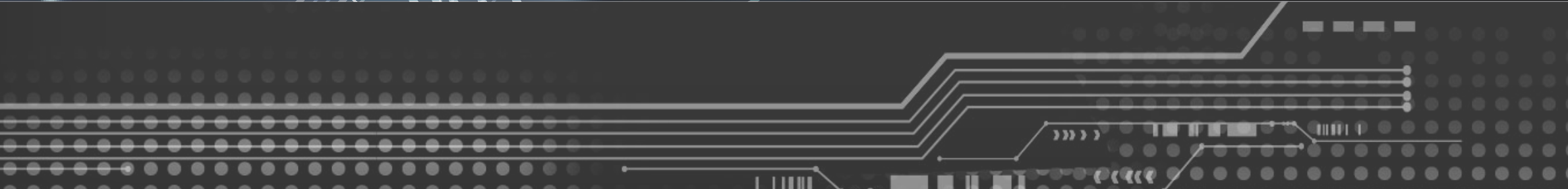


3RD ANNUAL OPTUM SURVEY ON AI IN HEALTH CARE





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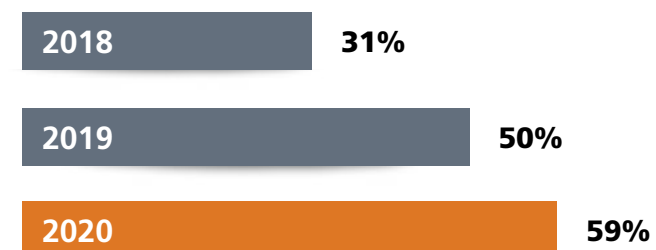
Executive summary

Return on intelligence: Getting more from AI

As artificial intelligence (AI) evolves into a must-have technology in almost every industry, health care organizations continue to develop — and even accelerate — their AI strategies in 2020: **83% have an AI strategy in place, and another 15% are planning on creating one, according to the third annual Optum Survey on AI in Health Care.** In fact, 56% say they are accelerating or expanding their AI deployment timelines in response to the novel coronavirus (COVID-19) pandemic, demonstrating the importance of this business tool during the most stressful times. Furthermore, senior health

care executives are increasingly optimistic that their AI investments will soon pay dividends, with **59% anticipating AI delivering tangible costs savings within three years — a 90% increase since 2018.**

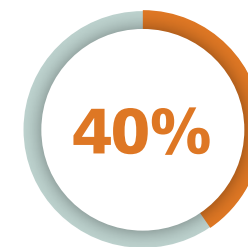
Percentage of execs who anticipate achieving return on AI investments within 3 years



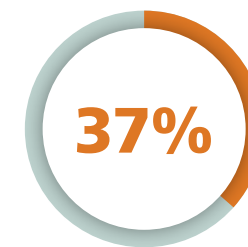
The third annual Optum Survey on AI in Health Care showed that optimism about AI is fueled by seeing more and more tangible benefits, including improving health care outcomes and business performance.

Most importantly, these insights demonstrate that as those in late-stage AI implementation grow more familiar with AI — as well as the benefits it yields — they in turn become more comfortable and confident, generating momentum in which AI grows more beneficial more quickly. With AI, the more quickly organizations in early or middle stages of AI deployment move forward, the sooner they will overcome uncertainty and unlock the rewards of this powerful business tool.

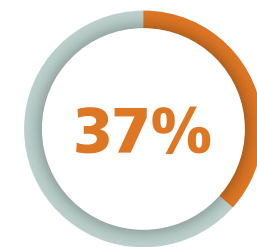
The survey also found the top three applications health care execs plan to tap AI for include:



Monitoring data from Internet of Things devices, such as wearable technology



Accelerating research for new therapeutic or clinical discoveries



Assigning codes for accurate diagnosis and reimbursement

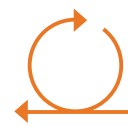
All three pose advantages in the post-COVID world. Internet-connected remote patient monitoring devices enable more complete virtual health offerings, and AI can identify signals and trends within those data streams; AI can help prioritize potential investigative targets for treatments or vaccines; and automating business processes can enable organizations to achieve more even when resources are under duress.


Key findings


-  **56%** 56% of health care executives reported that their organizations accelerated their AI plans in response to the COVID-19 pandemic.
-  **57%** Confidence in seeing a return grows as organizations more fully implement their AI strategy: More than half (57%) of organizations in late-stage AI deployment believe they'll see savings in as soon as two years.
-  **55%** Health care execs report an AI strategy striving for consumer-centric outcomes: Over half of execs rank improving health outcomes (55%) or patient experiences (55%) as the greatest impact of their investment in AI.
-  **56%** 56% of health care executives believe AI deployment will create jobs, not destroy them, including 76% of those in the late stages of AI deployment.



Key findings

 **20%** While the benefits of AI are clear, most of the health care industry still sees itself as behind the curve, as only 20% are in the late stages of deployment.

 **92%** Health care organizations are prioritizing AI experience and knowledge, as 92% of executives expect that members of their staff who see AI-driven insights should have some understanding of how it works — including over a third (34%) who expect that staff to have a full understanding.

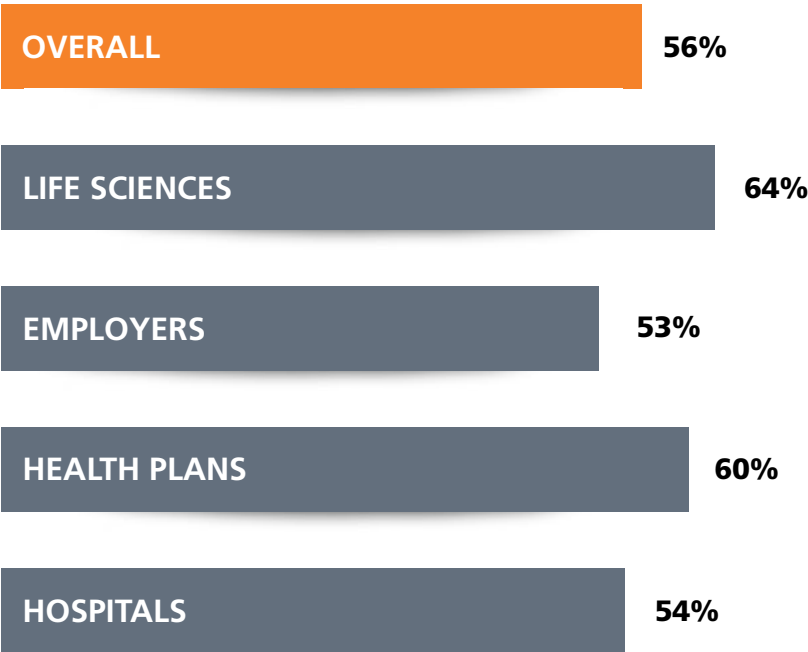
 **51%** As for the specific AI skills they seek in employees, health care executives are split: 51% are interested in hiring employees who can develop AI, whereas 49% are interested in employees who can apply the results.



Section 1: Investing in AI — act fast, benefit faster

Not only do 98% of the executives surveyed say they are implementing or planning to implement an AI strategy; of those, **56% have moved beyond early stages and have already deployed AI at their organization to varying degrees.** As a result, leaders across health care expect to see **a return on investment in just 3.6 years, down from 4.7 in 2019,** showing that AI implementation continues to move in a positive direction. And health care executives point to 2020’s unprecedented circumstances as fueling their desire to move ever more quickly on AI: **56% say their response to COVID-19 has led them to accelerate or expand their AI deployment,** transforming a quickly evolving technology into an even faster-evolving necessity.

Percentage of execs whose companies have accelerated or expanded their AI plans in response to the COVID-19 pandemic



More importantly, the further along a health care organization is in its AI deployment, the more bullish it is on reaping those rewards as soon as possible. **Over half (57%) of those in late stages of AI deployment believe that they will see savings in as soon as two years,** compared to those in early (33%) or middle stages (26%) who say the same.

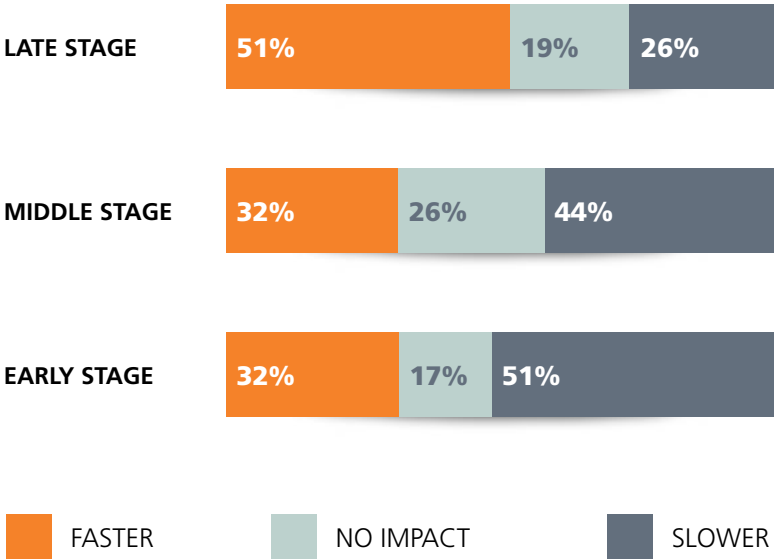
With so many health care organizations pressing forward with AI, those who take too long to act are at risk of being left behind. In fact, the highest-revenue companies are now setting the standard: Companies with \$1 billion+ in revenue are far more likely (55%) to have an AI strategy in place and to have implemented it than their peers with lower revenues (37%).

Executive perceptions in the wake of COVID-19

The need to have a strategy in place may have come into sharp focus during the COVID-19 pandemic, when organizations scrambled to use every tool at their disposal to overcome the unprecedented strain being placed on the industry. AI’s ability to automate workflows and help simplify the communication and analysis of complex data can help alleviate that burden. Depending on where organizations sat on the AI maturity curve, their pre-COVID-19 AI plans may have made an impact: Of those who reported being in the late stages of AI deployment, 51% believe they’ll achieve a return on their AI investments faster due to their pandemic response.

Meanwhile, 68% of respondents in both the early and middle stages of deployment reported that it would take longer to recoup their investments in the wake of COVID-19, or that the pandemic had no impact on the timeline. Not only do the majority of early adopters believe they are going to break even faster, they also have additional tools available to them to help weather the storm.

Effect of pandemic response on timeline to achieve ROI



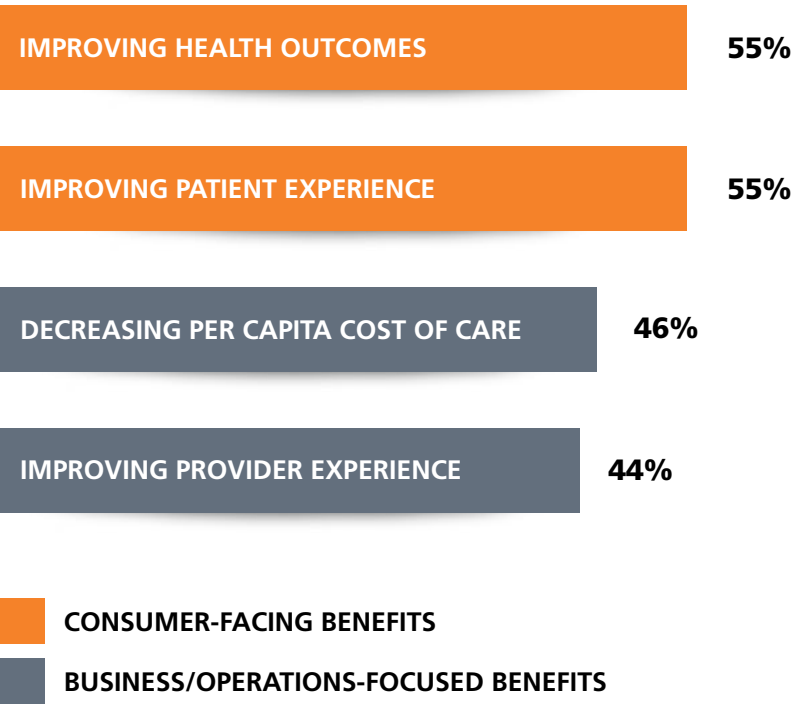
Section 2: Seeing results

An accelerated timeline for return on investment is certainly welcome news, but health care executives remain laser-focused on their consumers and how investing in AI can dramatically improve individuals’ well-being. This is why, **among health care executives at organizations with an AI strategy or plans to create one, over half rank improving health outcomes (55%) or improving the patient experiences (55%) as the greatest impact of their investment in AI.** The prospect of these benefits is even more keenly felt at organizations in later stages of AI implementation, where 76% say improving health outcomes will be one of the top-two impacts of AI (compared to 56%








in middle phases and 43% in early phases) and 66% say improving patient experience will be (compared to 53% in middle phases and 52% in early phases).

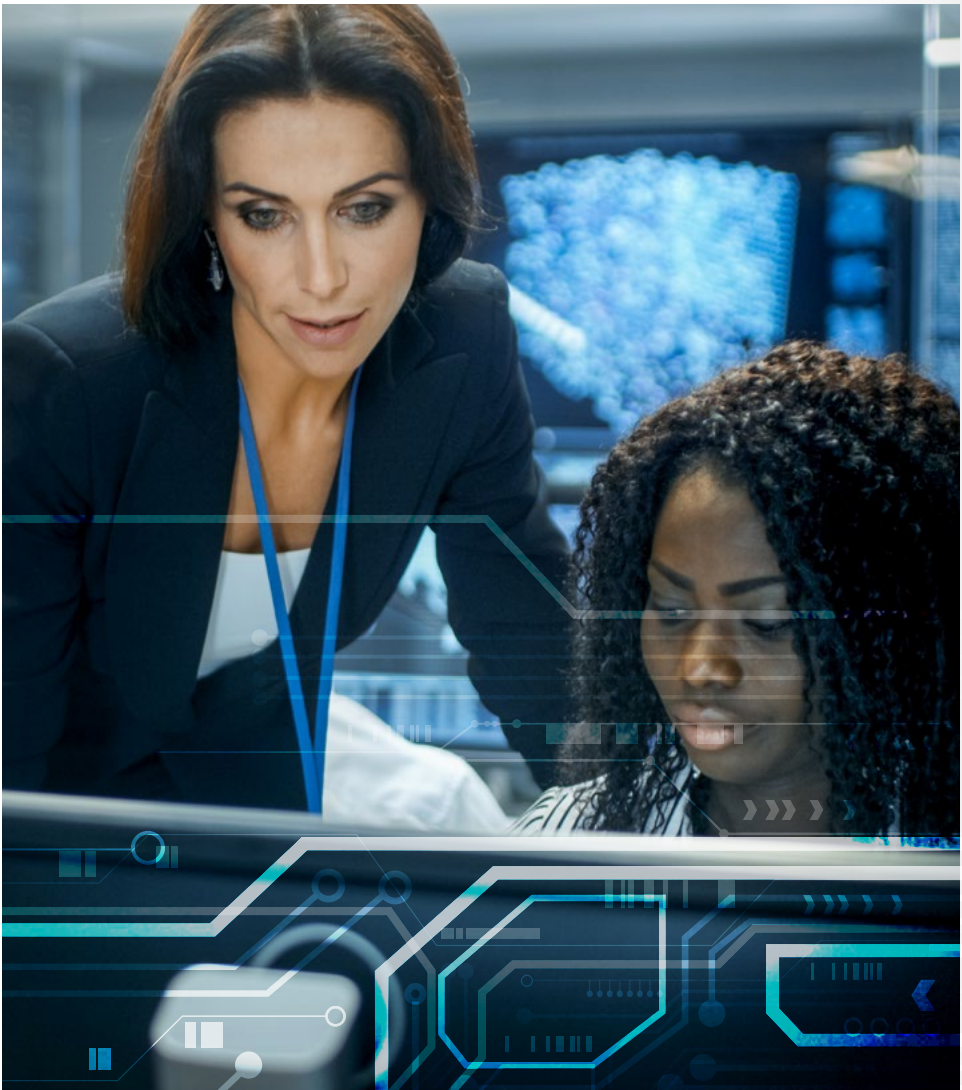
Health care executives also understand how their own enterprises can enjoy the benefits of AI: Decreasing per capita cost of care (46%) and improving the provider experience (44%) are also places where they see the potential impact of AI. But executives’ emphasis on the consumer-focused benefits serves as a reminders that health care is first and foremost an industry focused on the well-being of those it serves — and that AI has implications for real people most in need.

Where will the investment in AI have the greatest impact?



Top 3 priorities for AI deployment, by sector

	 HOSPITALS	 HEALTH PLANS	 LIFE SCIENCES	 EMPLOYERS
Priority 1 	Improve reimbursement coding 45%	Improve reimbursement coding 40%	Accelerate research 47%	Monitor IoT data 47%
Priority 2 	Monitor IoT data 38%	Automate administrative processes 40%	Identify patients for trials 44%	Accelerate research 45%
Priority 3 	Accelerate research 36%	Detect fraud, waste and abuse 39%	Enable personalized communications 39%	Enable personalized communications/ Automate administrative processes 35% each



These benefits can be realized through a variety of AI applications that health care executives are interested in, with 40% pointing to monitoring data from Internet of Things (IoT) devices such as wearable technology as a top-three benefit, followed by accelerating research for new therapeutic or clinical discoveries (37%) and assigning codes for accurate diagnoses, facilities and procedures (37%).

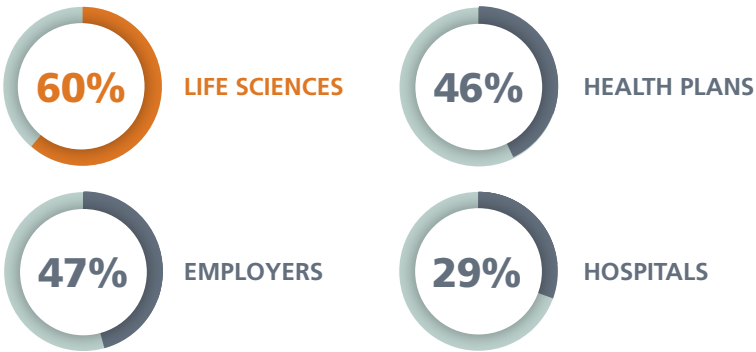
While these applications received broad support across the industry, important distinctions are found at the sector level.

Hospitals, for example, want help achieving the appropriate level of reimbursement for the services they render, and are therefore

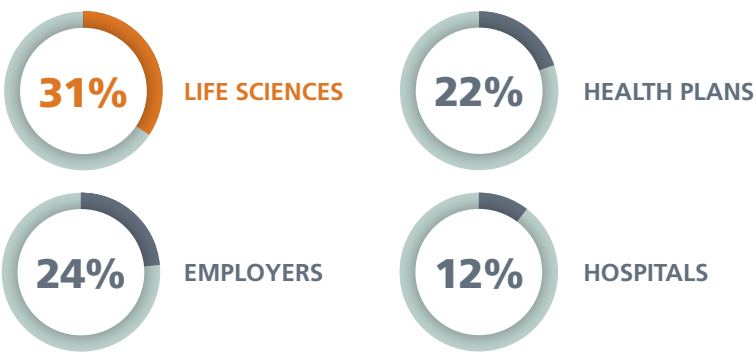
most interested in using AI to help review documentation and assist with coding (45%). Employers, on the other hand, want help garnering insights into their employees' well-being and tracking incentives and participation in wellness programs by monitoring data from IoT devices (47%).

Again, companies in later stages show how familiarity with AI gives executives room to think in longer terms: 64% rank accelerating research among the top three applications for AI, revealing larger ambitions powered by confidence in the AI strategy they have spent time developing and implementing.

Uniquely among the sectors surveyed, a strong majority of life science executives report their organization has implemented their AI strategy ...



... and among those with a strategy or planning on implementing one, life science companies were significantly more likely to be in the late stages of development.

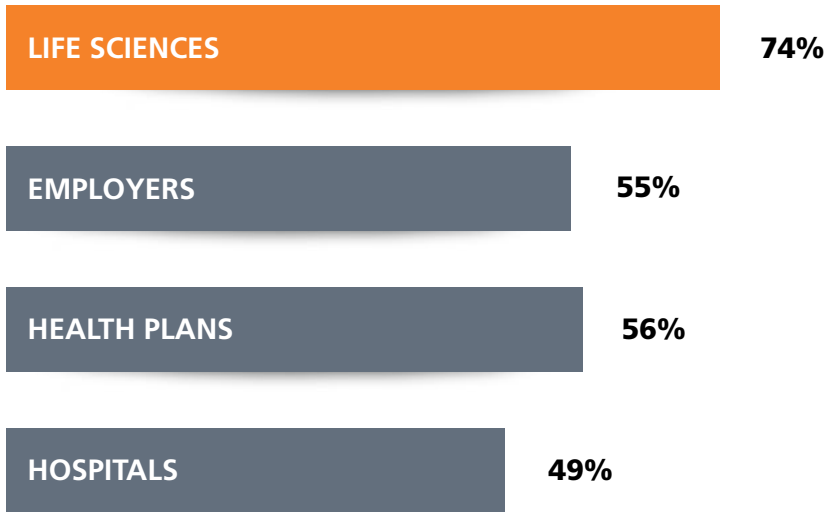


Companies in early stages nonetheless see much to gain from their AI deployment, with a greater focus on day-to-day applications. Their top three benefits are assigning codes (42%), automating administrative processes (38%) and monitoring data from IoT devices (36%) — exhibiting AI’s practical applications in addition to the broader goals of an organization.

This cross-functional application for AI is also supported by the 80% of health care executives who trust AI to support clinical decisions and 70% who trust it to support administrative tasks — and most importantly, the 52% who trust it to support both.

As with interest in using AI to increase research, trust in AI also increases as organizations enter later stages of deployment: 88% of executives at organizations in late-stage development trust AI to support clinical decisions and 78% trust it to support administrative tasks. Familiarity with AI not only reveals its benefits: It encourages health care organizations to dream bigger.

Nearly 3 in 4 life science execs expect AI investments to pay off within 3 years — significantly more than other sectors.



Section 3: Lessons learned

Deploying AI — as beneficial as its applications and insights can be — is not an easy or straightforward task, especially at organizations as complex as those dealing with health care. Only 44% of health care executives say they have an AI strategy that they have begun to implement, compared to another 39% who just have a strategy in place — in turn compared to 17% with no strategy at this time. Meanwhile, as the timeline for AI's return on investment accelerates, many still consider themselves to be playing catch-up: **Only 20% consider their AI strategy to be in late-stage deployment with AI fully or near fully deployed.** While the benefits of AI are clear, most of the health care industry still sees itself as behind

the curve, and in need of solutions to take them to the next level.

One such barrier is trust in AI: When health care executives who had expressed doubt or concern about AI were asked why, **73% selected a lack of transparency in how the data is used or how the technology makes decisions, and 69% selected the role of humans in the decision-making process.** The uncertainty surrounding how AI works and how humans should interact with it is particularly salient in a field that has long prized evidence-based decision-making and deep industry expertise. As executives prepare to infuse AI into their operations, they should ask system



designers to include an explainable interface whenever possible to help recipients of AI-driven predictions better understand what's influencing those recommendations. Likewise, while routine processes can be targeted for automation, complex decisions should always include a human perspective within the workflow. That means the AI is augmenting human capabilities and helping individuals work at the top of their license. People's judgment remains the deciding factor and the human touch of health care is maintained.

Leaders are bullish on the impact of social determinants data

There has been growing recognition across health care that factors outside of medicine's traditional scope — things like where a person lives, learns,

works and plays — have a large influence on an individual's health. These factors are collectively referred to as social determinants of health, or SDOH. When SDOH data is combined with traditional information sources like electronic medical records and claims, it contributes to the complex, diverse and large-scale data that AI is well-suited to analyze.

That trend was confirmed by respondents to the 2020 survey, 59% of whom have already incorporated SDOH data into their AI plans to help improve predictions about future health needs. Another 36% plan to do so, meaning that nearly all health care executives acknowledge the value of SDOH data.

Nearly 3 in 5 execs have incorporated SDOH data to help improve predictions about health needs



Section 4: Artificial intelligence, real talent

Given the ever-quickenning pace of AI deployment and advancement in health care, organizations are going to need the right expertise to make the most of this game-changing technology. **As a result, 95% of health care executives say hiring talent with experience developing AI is a priority — including 66% of health care executives in late-stage AI deployment who believe strongly that this is the case.** In fact, AI is set to become such a critical part of employees' lives that 92% of executives have an expectation that any member of their staff who will see AI-driven insights should have at least some understanding of how AI works — including over a third (34%) who expect staff to have a full understanding.

As for the specific AI skills they seek in employees, health care executives are split: **51% are interested in hiring employees who can develop AI, whereas 49% are interested in employees who can apply the results.** Even companies in late-stage development demonstrate this split, 45% to 55%.

While the skills needed might be split, one trend that grows with time is the need for AI talent among every employee whose job involves interpreting and applying AI insights. **Health care executives with late-stage AI (52%) are more likely to expect a full understanding of how the AI works than those in early (32%) or middle stages (30%).**

Execs are split on their hiring priorities: between hiring the people who make AI or those who apply its results...

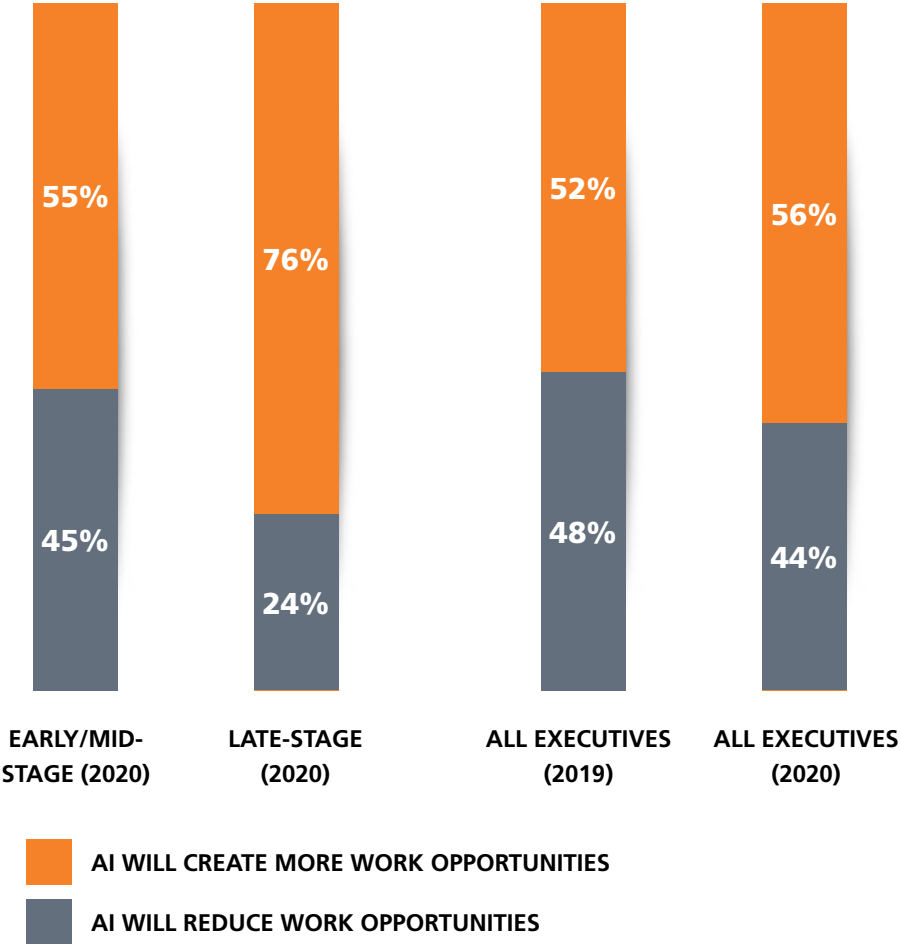


In both cases, the interest in employees who are adept at interpreting AI findings points to how those most interested in deploying AI expect its preponderance to grow exponentially within their organization.

The interest in hiring has implications not just for organizations, but for their entire industry as well: 56% of health care executives believe that AI deployment will create jobs, not destroy them. This is especially true among senior executives who aren't C-level — which means they are closer to the day-to-day implementation and are more likely to say that AI creates job opportunities (61%, compared to 45% of their C-suite peers). Companies with

implemented strategies know from experience how AI can promote job opportunities, with more than two-thirds (68%) in support compared to 46% of those at companies where AI is not yet implemented — and optimism around economic opportunities grows even more at organizations in late stages of AI implementation (76%) compared to those in middle- (57%) or early- (51%) stage deployment.

Impacts from investing in AI



Conclusion

As AI grows more and more popular across all industries, health care executives will see increasing opportunities to capitalize on the insights it offers, setting the stage to radically alter their industry — from the bottom line all the way to patient experience. The 2020 Optum Survey on AI in Health Care captures not only how AI is becoming increasingly the norm at a more rapid pace, but how its benefits — as well as the ways in which the industry can overcome pitfalls — will be more widespread as familiarity with AI grows.



The overall anticipated time frame to achieve ROI was 3.6 years in this year's survey, down from 5.3 years in 2018 and 4.7 years in 2019. Moreover, a deeper look at where organizations stand on the AI maturity curve attributes the shorter time frame to a growing sense of confidence in AI to deliver value, and not merely an annual progression. The 2020 survey sample included 42% more respondents in the early stages of AI deployment compared to the 2019 survey — yet the overall time frame to achieve ROI still dropped.



Conclusion



In response to the COVID-19 pandemic, 56% of health care executives reported that their organizations accelerated their AI plans. In fact, a majority within each of the four sectors of health care accelerated those plans, indicating widespread belief in the potential of AI to help businesses operate more efficiently and enable better outcomes even when faced with unprecedented pressure.



Of the leaders who expressed doubts about AI, 73% attributed their concern to issues about transparency, and 69% cited the role of humans in the decision-making process. The inclusion of explainable interfaces to better understand what's influencing AI-driven recommendations and deploying AI to help individuals work at the top of their license are effective ways to mitigate those concerns.



Combining social determinants of health (SDOH) data with traditional information sources like electronic medical records and claims forms the complex, diverse and large-scale data that AI is well-suited to analyze. 59% of survey respondents have already incorporated SDOH data into their AI plans to help improve predictions about future health needs, and another 36% plan to do so.



The rise of AI has 56% of health care executives predicting a rise in job opportunities and an overwhelming 95% prioritizing hiring AI talent — in fact, AI is so expected to be a part of every employee's life that 92% of AI executives expect any employee implementing AI-driven insights to have some understanding of how AI works.



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