OUR TAKE

for U.S. health care providers

Maximizing the Value of Investments in Automation

Leveraging intelligent automation to deliver on strategic goals

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Intelligent automation combines two powerful tools – artificial intelligence (AI) and simple process automation – to create a digital "workforce" capable of removing the friction from health care delivery. AI technologies are increasingly capable of replicating human brain functions while performing them much faster – and more accurately – than humans themselves. But in today's lexicon, "automation" is nearly synonymous with robotic process automation (RPA). And by and large, the ambition for automation in health care starts and ends with point solution efficiency.

This thinking limits the impact automation can have. Other industries have successfully embraced intelligent automation beyond streamlining business functions to help them achieve their strategic goals. Here's our take on four shifts health care leaders need to make in order to do the same.

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What is intelligent automation?

AI-enabled process automation.

Intelligent automation combines adaptive elements of AI like predictive classifiers, natural language processing, and computer vision with execution-focused capabilities of RPA to perform repetitive, logic-based tasks.

It uses AI capabilities to take in and act on structured and unstructured data in a human-like manner and learns from historic data to improve accuracy and efficiency.

The conventional wisdom

When providers think about automation, they think narrowly. They think about revenue cycle—as a single siloed function to be streamlined and accelerated. They think about other fundamental business functions like supply chain—because of the obvious ROI. They may think more broadly about robotic process automation (RPA)—but often only in terms of labor arbitrage.

This thinking isn't necessarily wrong. Automation can and should make back office functions more efficient, and RPA can produce real financial rewards for low-margin provider businesses. And most providers have plenty of running room for improvement.

Health care leaders' conservative approach to using automation is also easy to understand. Unfulfilled promises of previous technologies—including but not limited to the EHR—make providers hesitant to wade into advanced automation solutions. When they do, it's usually in the form of small pilots that are easily measurable but have limited impact (and may even exacerbate pain points in adjacent workflows). In other words, some health care leaders are choosing to hold off on investing in automation, and some are investing in point solutions. Neither approach solves the problem of enterprise-wide efficiency or, consequently, experience in health care.

Source: Advisory Board interviews and analysis.

Our take

By focusing automation efforts solely on improving targeted efficiencies and reducing cost, provider organizations are inadvertently blinding themselves to the transformational potential intelligent automation holds to help them execute against their core organizational goals. AI-enabled automation, or intelligent automation, has the potential to alleviate administrative burden and achieve financial wins while also optimizing the care delivery experience.

Other industries have already turned to intelligent automation to ensure that their consumers are able to effectively access and navigate their services. Think about managing your investment portfolio, checking in for a flight, or filing your taxes. Those experiences are setting, meeting, and even elevating consumer expectations around how to interact with those organizations. And their consumers are your patients.

Health care is often behind the curve when it comes to adopting technology—and that's not surprising given that providers' margins are so thin, and their existing tech infrastructure is often cumbersome. But this is a gap that must close. Without a clear focus on the end user, the endemic problems of clinician burnout and turnover will persist unaffected at best and accelerated at worst. Patients will disengage, seek care elsewhere, or avoid care altogether if they can't interact meaningfully and conveniently with their providers.

Automation must be more than a series of disconnected IT point solutions. As AI technologies improve, they have made automation nimbler and more productive. Intelligent automation can now learn from its "experiences" to more effectively enhance provider operations. It is more robust and adaptive than legacy process automation solutions.

This presents a new opportunity in health care. Making the most of it requires a new point of view: providers need to look upon automation as a lever to improve the health care experience at all stages of the journey for both patients and staff.

Source: Advisory Board interviews and analysis.

Four approaches to maximize the value of investments in automation

Changing mindsets is easier said than done, but it's a non-negotiable first step toward innovative transformation—and that's what the move toward intelligent automation is. Providers don't need a new strategy around automation. They need to think differently about how automation can help them achieve their existing strategic goals.

We've identified four specific ways health care leaders need to push their thinking in order to maximize the value of their investments in automation – and the first steps they should take to turn thought into action.

01 **APPROACH**

Set improving user experience as your primary ambition for automation

02 **APPROACH**

Don't limit evaluation to financial metrics

03 **APPROACH**

Think of the digital workforce as "additive" rather than "substitutive"

04 **APPROACH**

Fill the accountability void around automation

Source: Advisory Board interviews and analysis.

01 Set improving user experience as your primary ambition for automation

Providers should deploy automation as a tool to deliver on their strategic goals broadly rather than limiting their focus to cost reduction. Automation can improve efficiency by reducing per unit costs. But taking a problem-oriented approach – targeting point solutions to individual, inefficient workflows – guarantees that the benefits will not extend beyond the endpoints of those problems. It constrains both the use case for and ultimate impact of automation.

Providers that look at automation as a means of improving user experience broaden their opportunity for impact. These providers are using the same technology to address both the process *and* people sides of their greatest ambition: delivering high-quality, low-cost patient care. The result? A better patient and provider experience in addition to streamlined workflows and financial benefits. In other words, they get a bigger bang for their buck.

Taking a goal-oriented approach forces providers to look beyond the back office toward improved experience for patients, staff, and clinicians.

Source: Advisory Board interviews and analysis.

Improved patient experience

Every provider we spoke with pointed to a service like TurboTax or online banking and said, "we should be able to offer that kind of experience."

This user-friendly experience was Intermountain's goal: after working for two years on EHR-based solutions to try and increase the completion rate of patient intake forms, Intermountain achieved only an 11% completion rate. Automating the patient intake experience – including extracting information from the EHR and auto-populating it for the patient to sign off on, rather than manually input – increased that number to 70%.

Offering an integrated, seamless experience has multiple downstream benefits. Taking patient registration as an example, successful registration improves patient satisfaction and retention, both of which have positive implications for clinical outcomes. It's associated with decreased denials, which means a healthier revenue stream and less downstream administrative work. And making the registration process user-friendly removes barriers to patient access. Deploying automation to improve experience yields holistic returns.

Lowell Community Health Center focuses on patient experience to improve access and health equity

Lowell Community Health Center, an independent FQHC[1] serving Lowell, Mass., is using intelligent automation to improve access to care for all patients, regardless of demographic or socioeconomic background. Lowell CHC serves a diverse community: 40% of its patients are best served in one of over 60 languages other than English, including Spanish, Portuguese, Khmer, Swahili, Arabic, and Vietnamese. The system relies heavily on community health workers (CHWs) to engage patients outside the walls of the health center. With a growing patient population, Lowell CHC needed a solution to scale the capacity of each CHW while preserving their ability to cultivate personalized relationships.

Lowell CHC invested in an intelligent automation solution to streamline patient registration, from anywhere. So far, it has used the platform to facilitate patient intake and maximize registration for COVID-19 vaccines among under-represented groups. Consistent with its commitment to health equity, Lowell CHC has deployed the platform in multiple languages to best engage its community members, minimize language- and ethnicity-based health disparities, and improve population health.

Since deploying the intelligent automation solution, Lowell CHC has seen an increase in digital patient engagement, including successful completion rates for end-to-end registration and scheduling.

> "
> Traditional workflows have been one of the biggest barriers to patient access. If we can't meet our diverse patient needs, we will never deliver on our promise to provide an equitable health care system.
>
> Brenda Rodriguez
> CFO/CSO, Lowell CHC

1. Federally Qualified Health Center.

Source: Advisory Board interviews and analysis.

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SET IMPROVING USER EXPERIENCE AS YOUR PRIMARY AMBITION FOR AUTOMATION

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Improved staff experience

Documentation burden is one of the primary drivers of staff dissatisfaction, burnout, and ultimately turnover. Not only does it involve ample below-license work, it distracts from patient care. Our research contacts pointed out that provider organizations regularly have over 10,000 work queues in their EHR; there are hundreds of acceptable ways to denote "take one tablet by mouth daily" and over 80% of EHR data is unstructured. There are terabytes of information inundating staff every day, but it's nearly all noise and very little signal. Staff-facing intelligent automation can minimize the number of manual touchpoints required per task across each use case. The result is staff and clinicians working at top of license.

Staff experience-driven use cases for automation

Task type	Sample tasks		Example
Administrative	• New patient registration • Insurance verification • Consent forms	• Scheduling • Payment collection • Prior authorizations • Denials management	▶ **Reading insurance cards** Bots can use computer vision to extract payer and plan data from pictures of insurance cards. They then use RPA to export this data into the EMR, effectively eliminating scanning and manual data entry.
Care coordination	• Care gap closure • Patient triage • Appointment reminders	• Patient reported outcomes	▶ **Facilitating outreach** Bots parse multiple data sources to identify and risk stratify patients with care gaps and send personalized digital intakes to assist with scheduling new visits. For high-risk patients, bots can surface key information to equip staff to conduct more effective care coordination.
Care delivery	• Clinical history taking • Family and social history review • Medication reconciliation	• Clinical notes • Patient education • Remote patient monitoring	▶ **Enhancing clinical care** Bots can pre-write parts of clinical visit notes, propose clinical orders (e.g., for prescriptions or to close care gaps), and digitally provide patients with care instructions in follow up, helping providers save time and improve performance.

Ultimately, these are three flavors of the same thing – the same technology applied to meet individual stakeholder needs. Taking a goal-oriented approach doesn't mean provider organizations forego the financial benefits of automation. Rather, it means they're not limited to them.

Source: Advisory Board interviews and analysis.

02 Don't limit evaluation to financial metrics

Even when providers deploy intelligent automation as a tool to improve experience, they don't always measure it that way. Many providers are stuck in the mindset of "returns" referring exclusively to financial outputs.

If providers deploy automation to improve experience but exclusively measure success in terms of cost savings, their efforts will meet the same fate automation initiatives often meet of "death by pilot." Providers need to assign metrics that reflect the broader, more transformational ambition they set for intelligent automation in order to quantify a true return from the get-go.

Approaches to measuring ROI when automation is deployed to achieve broad aims

Exclusively measuring financial return	*Prioritizing financial return*	*Measuring holistic impact*
✖	✖	✔
"**We don't look at intelligent automation as 'real' ROI** but as something we need to do to make the experience better…we stink at measuring patient experience…**in order to make an investment, we need to see a demonstrable, hard dollar ROI.**"	"The goal is to build something that impacts the largest population, or has a material impact on our bottom line…**the projects that get approved are the ones that show hard dollar impact on the bottom line**"	"Our strategy around intelligent automation isn't based on cost reduction. **We measure it in terms of increased quality, accuracy, consistency, productivity, and employee morale**…That's straight from the CEO, Chief People Officer, and CFO."
Physician leader at a large system in the Northeast	IT leader at a mid-sized system in the mid-Atlantic	John Tippetts, Chief Architect, Intermountain Health

Source: Advisory Board interviews and analysis.

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Because most provider organizations are not yet deploying intelligent automation with a broad ROI in mind, there aren't industry standards to follow for measuring impact beyond financial return. But we've compiled a starter list of the kinds of metrics providers need to track when deploying automation to meet their strategic goals.

Sample metrics to holistically evaluate impact of intelligent automation

- Patient/staff satisfaction
- Patient/staff engagement
- Patient leakage
- Adherence to care protocols
- Drug prescription fill rate
- Patient form fill rate
- Copay collection rate

- Staff turnover
- New patient enrollment
- Clinician panel capacity (e.g., care coordinators)
- Clinician hours spent on documentation
- Staff time spent on basic data entry

- Duplicative patient outreach
- Erroneous patient outreach
- Care gap closure
- Avoidable acute care use
- Medication errors
- Adverse drug events

By taking this approach, provider organizations have achieved robust outcomes to serve a range of strategic goals.

Sample outcomes

70% — Pre-visit intake completion rate (Intermountain/Notable)

28% — Decrease in prescription abandonment rates (Hospital/DrFirst)

40mins — Saved per MA per day from removing basic data entry (Intermountain/Notable)

15-30s — Saved per medication during medication reconciliation (Hospital/DrFirst)

25% — Increase in care manager capacity (Intermountain)

50% — Increase in pharmacy technician panel for medication history (Hospital/DrFirst)

03 Think of the digital workforce as "additive" rather than "substitutive"

Provider leaders who ask "how many positions can I cut by using automation?" are asking the wrong labor question. The right question is, "how much more value can I get out of my employees?" The answer is "a lot."

The notion that bots and humans have an either/or relationship is flawed. Automation technologies are most effective when used to enhance the quality and productivity of human labor. Most health care workflows require some element of human involvement. But with effective intelligent automation, humans operate only at top-of-license: that means the fewest touchpoints possible with automatable workflows, and time spent on the tasks – or patients – that most need their attention.

> " I need processes that can be turnkey, to *be* turnkey, to lift the operational burden off of staff and allow them to focus on things that deliver immediate impact and outcomes for patients.
>
> **CFO**
> Community-based health care provider

Beyond efficiency, this increased productivity means organizations can create and sustain volume growth without adding (human) FTEs.

Source: Advisory Board interviews and analysis.

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THINK OF THE DIGITAL WORKFORCE AS "ADDITIVE" RATHER THAN "SUBSTITUTIVE"

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RPA can be used to perform strictly repetitive tasks that don't require human intelligence, allowing staff to spend time on more complex tasks. AI-enabled RPA, or intelligent automation, takes it a step further by using machine learning to perform tasks that do require human intelligence. Bots trained with intelligent automation continually learn from their "experiences" (i.e., data inputs) over time. This enables them to improve the quality and reliability of their outputs, making them increasingly valuable to their human counterparts. For example, bots can learn to predict which clinical orders are most apt for a particular patient by observing the provider's ordering habits over thousands of comparable encounters.

How productivity gains from intelligent automation enable growth

DrFirst helps hospital increase pharmacy technician panel

Health technology solution vendor DrFirst helped a mid-size hospital optimize medication reconciliation. Typically, a pharmacy technician spends 30-45 minutes per patient manually searching for and entering medication histories. Using intelligent automation, DrFirst's solution parses multiple national data sources, local pharmacies, and health information exchanges to create more complete histories. Then, it translates the free text, infers missing information, and adapts terminology to match the receiving hospital's EHR. The result for this hospital was more accurate medication histories, reduced manual transcription errors, and improved staff satisfaction. And with the time saved, each pharmacy technician increased the number of medication histories performed daily by 50%.

A large regional health plan increases care manager panel

When a large, regional health plan started using intelligent automation to support care management, nurse care managers were spending 60% of their time mining patient data rather than connecting with patients themselves. Intelligent automation not only surfaced the relevant data for the care managers, it prioritized which patients required active outreach and which could be passively monitored. Care managers were able to increase their panel capacity by 35%.

Automation vendors echo the sentiment that good automation solutions result in FTE offset. They also acknowledge that "offset" almost always means improved productivity and ability for the provider to grow volumes without adding employee requisitions – not a workforce reduction.

Source: Advisory Board interviews and analysis.

Get your staff on board

The first step is for leadership to get on board with this idea that a digital workforce should augment, rather than replace, a human workforce. But the preconception of "humans vs. robots" doesn't end at the c-suite. Leaders can't expect staff to adopt solutions they don't understand without acknowledging staff members' reservations. And without end user adoption, these solutions become theoretical. Specifically, leaders need to assuage their teams' fears of job replacement and diminished clinician autonomy.

"

It's important to communicate benefits of this to staff, make them feel comfortable, part of it. There's a low technical barrier to using RPA and intelligent automation– but staff have to feel like it's working with or for them, not replacing them."

John Tippetts, Chief Architect
Intermountain

"

Source: Advisory Board interviews and analysis.

04   Fill the accountability void around automation

Provider organizations need to establish governance around automation in order to fully take advantage of it as a business tool, rather than a side project of a self-identified champion. Digital capabilities underpin the majority of providers' strategic goals – as an industry, we need to move past the days of considering "digital" to be synonymous with "IT." Digital technologies like intelligent automation are business solutions intended to alleviate business challenges.

That's good news, because it means intelligent automation can serve any stakeholder. (See examples of improving user experience, pages 7-9.) But that flexibility may make it difficult for health care leaders to assign effective ownership over and accountability for automation initiatives. A failure to coordinate and manage projects at scale results in redundant, competing, or siloed investments in automation solutions. As one automation vendor put it, "dabbling is not a viable path to scale."

Compare automation to interoperability or telehealth

Automation is something that is applicable to everyone, but for which accountability isn't de facto attributed to anyone. Like interoperability, responsibility for automation is often relegated to IT, which limits end user input into how it's used. Like telehealth, automation can be deployed across multiple business lines, so providers run the risk of making duplicative or otherwise uncoordinated investments.

Source: Advisory Board interviews and analysis.

Intelligent automation initiatives are often driven by individual champions with personal interest in or experience using AI. Champions play an important role. But providers need to establish clear governance and accountability to orchestrate effective implementation, monitoring, and scale of the technology. Organizations that recognize the opportunity automation presents have done just that, with varying levels of investment.

On one end of the spectrum, organizations create **multidisciplinary governance bodies** to drive utilization and continued refinement of intelligent automation solutions to meet business needs. This was the case at WVU Medicine West Virginia University Health System.

> The most important thing for anyone that decides to embark on using automation is to have a good governance model, participation of leadership in areas you want to make an impact, and good partnership between IT and the areas where you're trying to use it."

Ilo Romero, VP and Assistant CIO
West Virginia University Health System

West Virginia University Health System scales from champion to organized governance

At the West Virginia University Health System, automation started as a champion-driven initiative around AI. The champion (the Assistant CIO) got CEO and senior executive leadership buy in and took the helm in an expanded role to drive the use of AI and automation across the enterprise. The team includes a data scientist, an architect, machine learning engineers, and partnerships with the business lines they support, as well as the Health System's analytics team. They were able to elevate automation – including intelligent automation – from an individual-driven pilot to an established business function being deployed to meet both strategic and operational needs.

Source: Advisory Board interviews and analysis.

On the most sophisticated end of the spectrum, some organizations have embraced the transformational potential of automation as a strategic imperative to serve every area of the business and invested in creating a **formalized enterprise function**.

Intermountain's Center of Enablement ensures effective, enterprise-wide use of automation

Intermountain created the Center of Enablement in response to a goal established by the Board of Directors to expand the use of automation across the enterprise. The Center of Enablement includes architects and data scientists who work alongside staff that elevate opportunities for automation to identify whether existing tools can meet the business need or if they should consider investing in or developing a new tool. The stated goals of deploying automation across Intermountain include improving quality, accuracy, productivity, and employee morale. Not only is executive leadership unanimously in support of those goals, the Chief People Officer is personally accountable for reporting on the Center's progress to the Board. Intelligent automation is necessarily leveraged as a core tool to meet Intermountain's strategic goals.

Source: Advisory Board interviews and analysis.

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Parting thoughts

Automation can improve backend efficiency to achieve cost savings, but it can do so much more than that when deployed to improve patient and provider experience. Health care leaders have been thinking too narrowly about the role automation can play in helping them meet their strategic goals. As automation technologies improve and become more prevalent, providers need to broaden their thinking about how to leverage intelligent automation.

Health care leaders are afraid to be the "tip of the spear" when it comes to deploying intelligent automation in patient and staff-facing ways. But that thinking may soon be outdated: the number of providers using automation more than tripled in the past year alone. Investment in automation on some level is inevitable; the question is no longer whether to invest in automation, it's how to guarantee your investment has the broadest possible impact.

Focusing on improving the health care experience is a good place to start. Consumers expect a more seamless experience: paper-based processes just won't cut it anymore. And every point of friction in the experience is an opportunity for a patient to fall through the cracks. When the goal is to simplify the experience for the end user, health care leaders are forced to consider processes holistically. In doing so, they can realize benefits beyond just the cost savings for which they usually aim.

The past year has seen providers innovate in shoots and starts, out of necessity. Several used intelligent automation to stand up emergency Covid-19 outreach centers to field patient calls and orchestrate Covid-19 testing and vaccination. Leaders need to take advantage of this spirit of innovation and build on it. Intelligent automation shouldn't just be employed when crisis strikes – it should be woven into the fabric of doing business in health care.

Source: Advisory Board interviews and analysis.

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