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# Real-World AI Transforming Healthcare Now

SCOTTSDALE INSTITUTE **2022 ANALYTICS CIO SUMMIT**

**November 17-18, 2022 | Westin Kierland Resort, Scottsdale, AZ**

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# Executive Summary

In an early Forbes article, "A Very Short History of Artificial Intelligence (AI)," writer Gil Press outlined, among other instances, how Nikola Tesla demonstrated the world's first radio-controlled vessel in 1898. During an electrical exhibition at Madison Square Garden, the inventor and futurist claimed the boat was operational thanks to "a borrowed mind."

Mirroring this perspective as captured in this white paper's cover image, we humans have since stood apart from AI's seemingly limitless possibilities, studying opportunities and connecting potential dots. For this Scottsdale Institute (SI) Analytics & CIO Summit, held in Scottsdale, AZ, on November 17 & 18, 2022, 13 Members and guests from 11 healthcare systems collectively sought to learn about, and from one another, the possibilities of AI in "**Real-World AI Transforming Healthcare Now**."

Summit topics included:

- **Building the AI-Powered Organization** and how health systems are utilizing AI to move forward—in similar and disparate ways;
- **Getting AI to Scale: *Domain-Based Transformation*** and how technology, methods, infrastructure and abilities have changed to process massive amounts of data;
- **Sharp HealthCare's Transformational AI Framework**, which facilitates Data Science as a Service, among other options, to ensure beneficial projects keep moving forward; and
- **Where the Healthcare AI Market is Headed**, and why the future is all about finding value, reducing costs and increasing revenue—regardless of building or buying, solo efforts or partnering.

## SUMMIT PARTICIPANTS

**Joycee Berin**, Director of Enterprise Analytics, UCLA Health

**Sha Edathumparampil**, Chief Data Officer & Corporate VP of Digital, Baptist Health South Florida

**Will ElLaissi**, Managing Director, Emory Healthcare Innovation Hub (Guest)

**Chero Goswami**, MBA, System VP & CIO, UW Health

**Raj Iyer**, MBA, System Director, BI & Analytics/Chief Data and Analytics Officer, NorthShore Edward-Elmhurst Health

**Jason Joseph**, MBA, Chief Digital and Information Officer, Corewell Health

**Jon McManus**, VP, Chief Data & Software Development Officer, Sharp HealthCare

**Ellen Pollack**, MSN, RN-BC, CIO, UCLA Health

**Sameer Sethi**, SVP, Chief Data & Analytics Officer, Hackensack Meridian Health (Guest)

**Dave Torgerson**, MBA, VP, Enterprise Analytics, Sentara Healthcare

**Yohan Vetteth**, MBA, VP & Chief Analytics Officer, Stanford Medicine

**Meng Wei**, MBA, BSN, Chief of Clinical Analytics, UCLA Health

**Brian Young, MD**, MBA, MS, Enterprise Physician Informaticist, CommonSpirit Health

## CONVENER

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**Impact Advisors**
**Moderators:**
Liam Bouchier, VP Analytics, and Lisa Bragg, RN, BSN, MBA, Managing Director plus Joe Christman, AI Digital Transformation Expert, Chicago Pacific Founders (Guest)

**Member Discussion Hosts:**
Sha Edathumparampil, Baptist Health South Florida; Jason Joseph, Corewell Health; Dave Torgerson, MBA, VP, Enterprise Analytics, Sentara Healthcare; Jon McManus, Sharp HealthCare; Yohan Vetteth, Stanford Medicine; Brian Young, MD, CommonSpirit Health

**Writer:** Karen Sjoblom

# Introduction

In an early Forbes article, "A Very Short History of Artificial Intelligence (AI)," writer Gil Press outlined, among other instances, how Nikola Tesla demonstrated the world's first radio-controlled vessel in 1898. During an electrical exhibition at Madison Square Garden, the inventor and futurist claimed the boat was operational thanks to "a borrowed mind."

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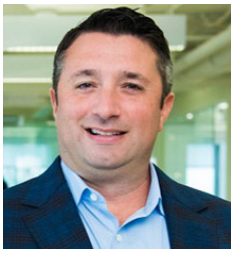

**Liam Bouchier**, Vice President Analytics, Impact Advisors, (*top right*) and **Joe Christman**, AI Digital Transformation Expert, Chicago Pacific Founders, (*bottom right*) opened the Summit by asked attendees for their awareness of the Turing Test. Bouchier explained the test proposed by Alan Turing (British Mathematician) in 1950, was designed to determine if a computer can "think". The test involves an integrator who asks questions to respondents in two separate rooms, but none of the individuals can see each other and one of the respondents is a computer. To date, no computer has passed the test, despite the 50 percent pass threshold.

"The concept of AI has been around for a very long time and yet everyone has a slightly different take on how to define it," Bouchier summarized. "What are your definitions?"

***People think that machine learning (ML) and predictive analytics are also AI, but advanced analytics/ML is more about getting predictable results from an algorithm built on a large dataset, while AI is what happens as it adapts. It's finding the algorithm for you, based on patterns and data, and it can be very unpredictable.***

**–Jason Joseph, MBA, Chief Digital and Information Officer, Corewell Health**

***We have the same problem we used to have with the term big data. AI is commonly thrown around as a standard feature in most products. It is critical folks understand the fundamental differences of a rules-based system, deep learning, ML and AI. A lot of people think it's straight algorithms with AI, but rather it's applying machine-oriented abilities to a simulation. There's a huge chasm between core ML and what people are going to start labeling as AI. When I hear AI, I tend to lean people into large language models and how they were developed to help highlight the difference.***

**–Jon McManus, VP, Chief Data & Software Development Officer, Sharp HealthCare**

***Since the advent of neural networks there's been this tradeoff problem with predictive analytics—namely that classical methods like regression result in models that are pretty easy for end users like clinicians to understand, but are limited in their ability to handle complexity, whereas more advanced AI/ML methods handle complexity really well, but are difficult if not impossible for end users to understand, and by extension, to trust.***

**–Dave Torgerson, MBA, Chief Analytics Officer, Sentara Healthcare**

**Joycee Berin**, Director of Enterprise Analytics, UCLA Health

**Sha Edathumparampil**, Chief Data Officer & Corporate VP of Digital, Baptist Health South Florida

**Will ElLaissi**, Managing Director, Emory Healthcare Innovation Hub (Guest)

*We've got to bring the subject matter experts (SMEs) along in this process and then use a very tangible model/technique that can open that black box. It's tough to describe something that's not sentient, not all ones and zeroes, not showing some form of intelligence; it's kind of creepy, honestly. But we're seeing more and more of those types of examples in everyday life, like the new field of Artificial General Intelligence (AGI). AI today has focused on a single problem, while AGI is mimicking the same kind of general intelligence that humans have.*

**–Joe Christman**

# Building the AI-Powered Organization

For session one, discussion hosts **Jason Joseph** and guest **Sameer Sethi**, SVP, Chief Data and Analytics Officer, Hackensack Meridian Health, joined moderator **Joe Christman** to share how their respective health systems are utilizing AI to move forward—in similar and disparate ways.

Joseph's Corewell Health comprises over 60,000 team members, 1.2M health plan members, 22 hospitals, 300 ancillary facilities and $100M each in Health Equity- and Venture Capital funding, over 10 years. Their digital service focus, depicted at right, shapes how they view the role of technology in healthcare so that it:

- **Offers consistently high quality and safety,**
- **Improves efficiency and affordability,**
- **Simplifies and reduces complexity for teams,**


- **Expands digital and virtual health, and**
- **Innovates at scale.**

Sethi's Hackensack Meridian Health (HMH) is a leading not-for-profit healthcare organization encompassing 17 hospitals, including academic medical centers plus children's-, community-, behavioral health- and rehabilitation hospitals, plus over 500 patient care locations throughout New Jersey. With 36,000 team members and over 7,000 physicians, it's a distinguished leader in healthcare philanthropy and has partnered with Memorial Sloan Kettering Cancer Center to reveal cures faster while ensuring the highest quality care. HMH focuses on three main pillars (its technology, organizational design and operating model) to support its AI talent strategy.

**Chero Goswami**, MBA, System VP & CIO, UW Health

**Raj Iyer**, MBA, System Director, BI & Analytics/Chief Data and Analytics Officer, NorthShore Edward-Elmhurst Health

**Jason Joseph**, MBA, Chief Digital and Information Officer, Corewell Health

## TWO DIFFERENT TAKES ON INCORPORATING AI

**Christman:** *What AI is—and what it could be—is both scary and exciting, but what are you doing today? What are your struggles in putting in valuable AI solutions that could have an immediate impact on your organizations? Most folks are in different parts of the journey: They've stood up basic architecture, have some clean data feeds coming in and enjoy true sponsorship within their organizations. That foundational piece is incredibly important: Getting data in order, ensuring the foundation is in place, defining actionable problems, and utilizing a cross-functional team to solve. But what comes next?*

**Joseph:** *We believe AI will be highly disruptive, offering great opportunity but also entailing great risk. We're looking for use cases in which we believe AI can be used, and then determining how to govern it all. Some overarching use cases include imaging and diagnostics to augment the human ability to make diagnoses. Another example would be for tracking supplies: Currently we have a single camera in a storeroom to monitor who's coming in and out, what's being drawn and measured, etc. But for how many more events could AI be used to provide additional vision or perspective by reading machines, watching patients for falls and more? We're now wanting to build AI into the background.*

*We're at level 3/Operational on the Gartner Maturity Model and are still trying to push further toward higher levels (Systemic and Transformational). Our AI is in production and our organization is evolving: We have an AI Community of Practice/Center of Excellence combined with advanced analytics, and use agile for most of our software approaches.*

*People think about algorithmic analytics as AI. Maybe yes, maybe no: I think, "Can we find out where a collection of data exists that can garner greater intel?" Plus, conversational AI—like voice-activated conversational devices in rooms—provides predictive monitoring via identifying a risk, offering personalized assistance and more. AI impacts patients via predictive modeling and conversational AI, and also can act as healthcare advisor and personalized assistance all at once. We did a pilot with students last year trying to use AI to triage a patient. It wasn't very successful but at some point in the future, someone will be able to say, "Here's my history, here are my symptoms, can you predict with strong accuracy what my diagnosis might be?"*

**Sethi:** *HMH is organized within capabilities areas that drive value from within the organization and collaborate with others to deliver impact to the network as a whole. While the details are proprietary, we bring common competencies together and build for that capacity, while work is done in smaller groups comprising various engineers, architects, scientists, owners, SMEs, analysts, and more. "Translators" help bridge the gaps between teams while keeping aligned with stakeholder needs. Plus, our development process promotes agile ways of working—ensuring we're building the right thing at the right time and promoting adoption.*

*We are getting our clinicians and hospital operators involved in building the right thing—things that are able to meaningfully intercept their workflow, and assist them in delivering better and sustainable care. We don't have "AI conversations" with them; rather, we have "problem conversations," asking, "What's the problem, and how can data-driven insights and AI help?"*

*Recently, we built a Serious Illness Care predictive model that provides decision support to clinicians in the form of a score and a nudge within their clinical workflow. Engaging users upfront (in this case, the clinicians) and keeping them involved in the build process with our human factor engineers allowed us to deliver a capability that has true purpose and adoption.*

## CONTINUING THE CONVERSATION…

Some clinical groups are more engaged in wanting to use AI/ML. Our Population Health group has taken this on and partnered with us and different school of medicine departments in this space. If something goes wrong that could put you on the front page of *Los Angeles Times*, then maybe it's not something we want to do. But with every model being deployed right now, there's a human involved, making decisions. Leaders trust that.

**–Joycee Berin, Director of Enterprise Analytics, UCLA Health**

If you automate the process, people can feel their jobs are in peril. Some may worry that their jobs can be replaced by automation. But we are problem-solvers: "Tell me your problem, and we'll try to find a solution for you by automation."

**–Meng Wei, MBA, BSN, Chief of Clinical Analytics, UCLA Health**

You will need to be a good relationship-builder first, and the rest of the things will fall into place. You'll have to solve a problem that they have been trying to solve for years, present solutions back to them, and win them over. When they have faith in what you're building for them, they will become your ambassadors.

**–Raj Iyer, MBA, System Director, BI & Analytics/Chief Data and Analytics Officer, NorthShore Edward-Elmhurst Health**

# Getting AI to Scale:

## Domain-Based Transformation

Back in the olden days (2009), discussion host **Dave Torgerson** had a modeling team that assembled datasets together the old-fashioned way—*painfully*—and the majority of time was spent doing data preparation in advance of a pretty short process of actually building a model. He recalled a new vendor pitching a product that, unlike most popular modeling suites, focused not on the power of the modeling algorithms themselves, but on streamlining data prep—automatically scanning and reformatting a variety of data types. In fact, the product employed only one nonlinear regression algorithm. The idea was a model that could easily take advantage of more data would perform better than more sophisticated algorithms working on smaller, painstakingly assembled datasets.

To put the product through its paces, he and his team gave the vendor a laptop and the same dataset a modeler had worked with for six months to hone a churn model. In Torgerson's words, "He came back in two days with a churn model that beat the crap out of our model; he also built another 10 cross-sell/upsell-models using the same dataset. We adopted that vendor, ultimately building a modeling factory with auto-monitoring, drift testing and more such that we were ultimately running hundreds of models in a production environment. Point being, what we're talking about is scale: The basic idea of what we're trying to do—predict and prescribe—is the same as always. What's changed is the technology we can throw at it. We have better methods now, and better infrastructure, and better abilities to move through massive amounts of data. With the cloud, our ability

**Jon McManus**, VP, Chief Data & Software Development Officer, Sharp HealthCare

**Ellen Pollack**, MSN, RN-BC, CIO, UCLA Health

**Sameer Sethi**, SVP, Chief Data & Analytics Officer, Hackensack Meridian Health (Guest)

to ramp up and down to what we need means our capital investment can be minimized and managed dynamically."

Kicking off Summit session two, Torgerson invited presenters **Brian Young, MD**, MBA, MS, Enterprise Physician Informaticist, CommonSpirit Health, and **Yohan Vetteth**, MBA, VP & Chief Analytics Officer, Stanford Medicine, to share their thoughts around AI and where organizations are going.

## AI'S IMPACT ON SCALE

"I think maybe only 25 percent of organizations have implemented something involving AI, but there's not a lot of success to show for it, or they don't speak out about it. Our team is focused on getting our current solutions up to 140-hospital scale…only one of which involves AI in the form of natural language processing (NLP). Lately, with so many things in flux—immunity, supply chain, new drugs, low margins, staffing challenges, delayed health screenings—it's been hard to hit those moving targets with AI," Young stated. "The more demands we have on our health systems—from COVID to value-based care—the harder it is to implement at scale. We don't always know what or where the most feasibly attainable value proposition is."

Young described a number of challenging factors at play that limit successful implementation of AI, including:

- **CEO (aka Chief Exodus Officer) departures recently in record numbers, and at younger ages, such that digital doesn't get the traction it needs from sustained leadership support**
- **An ongoing culture struggle between IT and Clinical staffs that feeds a continual tug of war…Agile versus Fragile (as in *risk-averse*)**
- **The "faulty chassis" of intermediated fee-for-service (still the cash cow) that uncouples market-efficient supply and demand**
- **Limited competition with EHRs: We are inexorably bonded to this oligopoly…if we allow ourselves to be**
- **Immature data and AI literacy among both clinicians and patients: Tech-knowledge diffusion moves way faster than common knowledge as they compete for attention**
- **Increasing technical debt around AI projects and solutions, all of which require sustained monitoring, maintenance, support and staff training/retraining**

"If you've implemented one AI solution…you've implemented one AI solution. That's all. So, trying to implement solutions with palliative care folks is entirely different than with hospital operations folks—the differing cultures limit scale," Young explained. "And AI takes so much data that the paths are different than with legacy technologies. You might be able to start with small pilot efforts, regarding AI solutions and the problems you're trying to solve, but you need some big software and hardware architectures and the teams to get stuff done."

Young used a biblical reference to the Tower of Babel—when different languages and nomenclature caused confusion to reign—that also mirrors today's challenges: The views regarding the tasks of AI work change between academic-, community-, medical- and nonprofit centers such that no one can understand what others are doing, or why.

**Dave Torgerson**, MBA, VP, Enterprise Analytics, Sentara Healthcare

**Yohan Vetteth**, MBA, VP & Chief Analytics Officer, Stanford Medicine

"Implementing Agile development can actually slow down your organization's strategy if it's not done both timely and right, because it takes a village underneath the front-end, 'shiny object' solution to make it happen well. For example, our organization gave $100M to a historically Black college to promote STEM careers in the healthcare space, and that is great but, presently, we don't even have a single repository for our basic EMR and associated systems' details yet. This said, across our health system, via some Agile dev process, we could make it so," Young explained. "In our current state, STEM graduates—or anyone for that matter—would arrive unable to detect and see systemic inequality at scale across our system's data in order to address and improve it. The rhetorical questions arise, then: Might it be better, perhaps, to invest $100M to align an Agile dev process around a program focused on the goal of rooting out inequality? Should we create the foundational infrastructure via agile methods first and build upon that, prior to social cause investing, so we'd be able to offer more interesting, mission-aligned jobs and opportunities for targeted recruiting efforts to STEM graduates, Black or otherwise, going forward?"

## CONTINUING THE CONVERSATION...

It's hard to run a technology profession in a company that's not a technology company.... We've been trying to focus on value creation and efficiency. I want to see that drafted into development, in parallel with the tech piece, to ensure alignment.

**–Jon McManus, VP, Chief Data & Software Development Officer, Sharp HealthCare**

I don't think it's only the CMIO's job to do this; you cannot separate data and AI from human-centered design. Nobody wants to hear that a machine is smarter than a human. How are we bringing the human factors in to play?

**–Chero Goswami, MBA, System VP & CIO, UW Health**

This has more to do with building the right products, versus building the products right. A relationship- and necessity-paradigm is what shapes the right product.

**–Dave Torgerson**

*With technology and AI, we've grown to the place where your refrigerator might be smarter than your fifth-grader.*
***–Brian Young, MD***

## A MORE DISTRIBUTED APPROACH

Offering another vantage point regarding Analytics organizational models, Vetteth explained that Stanford's Chief Analytics Officer serves all departments, not just clinical. Alongside a lot of organizational change in the past five years, analytics needs that were relatively well-centralized are now met by a lot more distributed analytics groups. Stanford is launching a new analytics strategy that includes an "aligned autonomy" framework to optimize distributed analytics and help the various distributed analytics groups operate at the top of their capability with collaboration and independence when needed. "Analytics is a team sport!" underscored Vetteth.

In thinking about AI/ML, Stanford is considering not just the **building** of AI models but also **understanding** the intervention and the user's ability to **act** on the predictions. These three pillars drive useful, reliable and fair AI-guided care.

Stanford organizes its efforts via a **Data Science Executive Committee**, which provides the vision, guiding principles and prioritization of problems to address for the Data Science Team. The core **Data Science team**, led by the Chief Data Science Officer, is supported by an extended team that includes enterprise systems, EHRs, imaging, cloud infrastructure, business operations and enterprise integration; these groups assess model demand, flesh out use cases/feasibility, inform platform build, integrate resulting solutions into clinical workflow and share progress and infrastructure.

"We're starting with the problem that the model should solve. Assuming it works great, then what action should we take? We don't start a model until we have all those conversations," Vetteth said. "I think we're set up for success. We're not facing the same headwinds as those who do not believe in the value of AI."

As to who owns driving AI solution development and deployment at Stanford, Vetteth outlined the following:

- **These are workflow changes, so it's critical to have a clinical champion or business owner driving adoption and need.**
- **Ideally a shared enterprise platform is in place to provide infrastructure and support for monitoring/reporting.**
- **Deployment and operations can be handled centrally to minimize one-off support challenges.**
- **Development may come centrally or from specific departments, vendors or research.**

"It's unreal how many opportunities there are. Whether you call it AI, predictions or correlations, there's so much we can do," emphasized Vetteth.

# Sharp's Transformational AI Framework

As San Diego's leading healthcare provider, Sharp HealthCare's mission is to improve the health of every person they serve through four acute care and three specialty hospitals, three affiliated medical groups, a health plan and over 19,000 employees. Among its timeline of medical "firsts," Sharp Grossmont Hospital's Burr Heart & Vascular Center clinicians developed an algorithm in 2021 to treat cardiogenic shock (a rare form of heart failure) and was the first hospital in San Diego County to improve survival outcomes by implementing such an approach. And this is only the beginning of what Sharp hopes to achieve.

Presenting Summit session three, Sharp's VP, Chief Data and Software Development Officer, **Jon McManus** lives and breathes all that's possible—via technology and treatments—by determining and defining repeatable AI templates for both clinical and administrative purposes. In his words:

*We have the largest inpatient discharge market share in San Diego, and health equity is a huge focus for us. We position our services strategically to help provide more equitable access to those in greater need. Toward this end, data and analytics increasingly trigger and lead to new experiences and opportunities. Our three-point plan right now entails continuing to deploy a next-generation, cloud-based analytics platform; leveraging a connected low code AI/ML augmentation tool for rapid model assisted deployments; and focusing on data literacy, communications and organizational buy-in for more consumer-friendly engagement.*

*For our current activities, our auto ML tool and concierge service offers initial project turnaround in four weeks. For future activities, we've differentiated specific deliverables and are pushing the envelope on new things. Right now we have multiple clouds deployed (Azure, AWS, etc.) with our core analytics platform on AWS, DBT and Snowflake. DataRobot is our low-code AI/ML augmentation tool that provides a core set of services that is targeted toward better patient experiences.*

## HOW SHARP MAKES IT WORK

*We are asked about new models/projects all the time and have had to learn to be sensible about what we do, when, and under which conditions. We look at facilitating Data Science as a Service (DSaaS) as a little like riding a roller coaster at a theme park: You don't get to just jump on the ride but rather experience the following:*

1. *There's only one entry point.*
2. *There are clear expectations on wait times. We can turn around simple models, with caveats, in four weeks.*
3. *There are rules to follow; participants have to be available for sprints during that period.*
4. *We educate as we go, with wayfinding/literacy signs as folks "move through the line."*
5. *We'll define clear expectations on deliverables: We do not agree we'll implement a model in four weeks. Rather, we'll give people the Proof of Concept of that model with statistics, performance notes, etc., within that timeframe. Many models take months to implement; the hardest part is not the technology but the clinical protocol and interventions. Our team doesn't get into that.*
6. *We consider basic data literacy as the "You must be this tall to ride" sign. People must understand the basic building blocks so we offer an intro to Data Science terminology and methodologies.*
7. *Those making requests must have four hours per week available to attend daily scrums and support the build and design. We make that expectation clear up front.*
8. *We won't build models that are already offered by other vendors (e.g., we won't build a sepsis model if it's already offered in Epic).*

## SHOWING WHAT'S POSSIBLE

*Sharp Launchpad consists of our in-house-built AWS front-end system with Jira™ behind the scenes: This is our version of ServiceNow®, intact. We have three core services: robotic business process automation, data science conceptualization/DSaaS, and analytics as a service (AaaS). We use these for those who say they have ideas to add efficiencies/enhancements to their work and those who want to predict outcomes. For DSaaS projects, we've embedded a video and deployed a training class, which is required. For example, we don't teach Python; we teach nomenclature. We do refreshers.*

*Another parameter is that we require folks to have their datasets ready to go; you can't get in line if you're not prepared. We couldn't offer a four-week turnaround if the data wasn't ready to go. But we'll also help folks get their data where it needs to be before they get in line with their dataset. We offer learning objectives and will recommend training for those who wish to take it. We're not trying to teach people to become developing data scientists, but rather we help them identify business problems that need to be solved, create projects in DataRobot, build models, evaluate performance and test new predictions.*

**Meng Wei**, MBA, BSN, Chief of Clinical Analytics, UCLA Health

**Brian Young**, **MD**, MBA, MS, Enterprise Physician Informaticist, CommonSpirit Health

*With Sharp's major focus on data literacy, developing our e-learning module was key. We partnered with a local academic group (for execution) because we had great contributors for the curriculum. As people click through each section, they get a tour of the tools, plus embedded TED talks or salient YouTube videos that teach how to do things like creating a report in Workday or Cerner. Finally, we've packaged e-learnings that are tool- and topic-specific for professionals, with continuing education credits available. A lot of our data literacy is about navigating our organization and the tools we have. We do not currently have an integral part of "What is AI?" that's different than linear progression, but for us, literacy training must correlate to tangible examples to the health system. We will be adding an AI section in the future.*

***McManus: Has anyone else addressed data literacy in their organizations vis-à-vis AI?***

*We've begun with AI workshops for each business group within the system and have followed those up with lunch-and-learn sessions with AI/ML experts that are open also to attendees from outside the system; both have been quite popular and well-attended. These are primarily focused on applied AI/ML, but the discussions tend to cover a wide variety of related topics, such as using enterprise data assets, cataloging to promote re-use, or using capabilities like an Idea Hub to promote innovation around AI.*

**–Sha Edathumparampil, Chief Data Officer & Corporate VP of Digital, Baptist Health South Florida**

*In terms of data literacy, our system is working to put together a more comprehensive training program. Today we incorporate critical topics like data governance and security into a few key company touchpoints like new hire training, but to really make a literacy program successful 1) you need a clear message from the top that this is a priority and 2) you need to force it into a repeated cadence in the business (e.g., annual training, continuing education, etc.)*

**–Dave Torgerson**

*Every month we offer Tableau dashboard training; we have a monthly Zoom meeting at which we've invited users and have had 40- to 70 people join us. We've been doing it for several years, and it works well for us. Early on, people asked simpler questions like, "What's a Tableau dashboard?" Now, they're asking if we can do more using Tableau. Similar information sharing processes will help people to not be intimated by AI.*

**–Meng Wei**

*I believe people can attend all the training in the world, but if they don't have any skin in the game, they won't use the technology. We focus on use-case scenarios and help folks understand that we're an extension of them. I call it Empathy 360: We empathize with them, and they are with us. For example, I have my team observe the day-to-day process at the emergency department to learn more about what's happening; after that is when they can deliver and build a solution/product.*

**–Raj Iyer**

# Where the Healthcare AI Market is Headed

"Diagnosing conditions, personalizing treatment pathways, and other such clinical uses for AI will likely continue to grow," said **Sha Edathumparampil**, Baptist Health South Florida's (BHSF's) Chief Data Officer and Corporate VP of Digital. "Ultimately, the future of AI in healthcare will be decided by one thing: ability to create value. Optimizing operations and improving consumer/patient experience are areas where AI has proven its value in other industries, and I think a lot of us are focused on this area for the near future."

BHSF experiences nearly 2M patient visits annually through its 12 hospitals, utilizing over 26,000 employees and some 4,000 physicians. Outpatient, cancer, cardiac, orthopedic, neuroscience and international services round out BHSF's offerings but, like so many other healthcare systems, they face the same financial constraints that necessitate out-of-the-box thinking around technology such as AI. As Edathumparampil noted, providers can benefit greatly

from the predictive capabilities that AI offers by using it to optimize hospital operations as well as better manage patient care.

"Healthcare technology vendors are starting to launch packaged AI-based solutions for everything from imaging to revenue cycle management but so far, the costs to acquire and implement some of these solutions are so high that the value just isn't there," he explained. "In the heavily margin-constrained environment that we are operating in, it is difficult to justify investing in solutions that are expensive and take a long time to return value."

## BALANCING EFFORT AND IMPACT

BHSF considers a buy-versus-build argument for its advancements. For example, Edathumparampil's group has built solutions around care assistance and bettering the patient experience because they are immediately useful, much faster to build and less expensive to manage. Now, there are products such as imaging solutions with built-in AI that can diagnose certain conditions and alert the care team automatically; these are highly complex, integrated systems that are not best suited for most healthcare providers to build in-house.

"Sometimes a partnership or joint development with a technology solution provider works well; the partner may bring investment or special skills and expertise and, in return, get a proven product that they may take to the market. Our future roadmap consists of capabilities from all three of these categories: Build, buy and co-develop. Ultimately, it's a decision based on which option brings the highest value, fastest."

## ASSIGNING PRIORITIES

While Edathumparampil said their process is "value-based" and his team has mapped out a roadmap of capabilities supporting different business groups and functions, prioritization is an ongoing process that balances business need and effort.

## CONTINUING THE CONVERSATION...

The quad graphic (which balances high/low effort against high/low impact) is really the beginning of a conversation. From an effort position, only building of the model is considered here and not the implementation of the workflow changes to harness the benefits. The hard part about estimating impact is not just agreeing on the financial savings or increased top line but also calculating the financial impact from important benefits like reducing burnout or improving patient satisfaction.

**–Yohan Vetteth**

Having a strategic roadmap of capabilities to be developed for the next 12- to 24 months helps articulate the benefits and value in the larger business context which helps keep all stakeholders aligned and excited about the future.

**–Sha Edathumparampil**

"Strategic priorities at the system level help set the direction at the highest level. Our roadmap is developed via workshop exercises that aim to match the art of the possible with strategic business goals, value and feasibility," he explained. "Agility and the ability to learn and adapt to feedback also are critical, so you may split capabilities into smaller features and prioritize the highest-value features for initial delivery and then iterate. You also need to be nimble enough to change course and respond to urgent needs—for instance, pandemic-related impacts to supply chain led us to prioritize predictive tools to assess medical supplies' demand and lead times. An agile delivery model allows you to go through this process efficiently."

Further, KPIs must be identified up front to track adoption and associated value generated. For this, Edathumparampil and his team use a metrics command center (i.e., a set of dashboards). Finally, no model is considered complete until it is plugged into the front end or end user point of use (e.g., screens in the EHR).

## FUTURE POSSIBILITIES

Edathumparampil said BHSF is rapidly embracing this technology, noting that demand still outstrips supply by a wide margin. "Very few providers, if any, have the bandwidth and resources to build all the capabilities they need in-house. I expect a robust healthcare AI technology vendor ecosystem to evolve that offers quality solutions to some of the most common needs at the right cost," he determined. "This will allow internal teams to focus on solving gnarly problems or building new capabilities that help them best serve the unique needs of their business and the communities they serve."

# Conclusion

In the end, despite all the promise and excitement AI holds, a very human requirement remains: *Trust*. "The consequences of being wrong in healthcare can be really significant, even life or death. It may be the case that we see more progress and successes early on in healthcare on the back end where the risk of being wrong is not as acute, versus the front end, when the immediate consequences are higher," Torgerson mused. "All we know for sure is that the 'why' matters, especially for clinicians. People will not believe in AI or let it guide their behavior if the baseline trust is not there. So that's an equally important part of our jobs, moving forward: Building that trust."

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