



INNOVATION TREND REPORT

**IMPROVED DATA USAGE FOR
LEADING EDGE TECHNOLOGIES**

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Digital Health Analytics (DHA) is a global market intelligence and survey research hub for digital health technology. Provided by the College of Healthcare Information Management Executives (CHIME), DHA was created in 2022 as the gateway for provider organizations and companies to better understand how digital technology supports leaders in transforming health and care and delivering data insights that help them make the greatest business impact possible.

The Digital Health Most Wired Survey and Innovation

In the tumultuous landscape of today's healthcare, the annual CHIME Digital Health Most Wired (DHMW) survey is a significant digital health "north star" that healthcare organizations (HCOs) have relied upon for years. Widely known for the annual Most Wired recognition awards, the DHMW survey provides healthcare leaders a comprehensive profile of digital health usage in U.S. HCOs and a reliable resource by which to benchmark their own digital health progression.

Reflecting the digital profiles of approximately 40% of U.S. hospitals, the array of HCOs included in the 2023 DHMW survey is representative of the known US Health System landscape. As such, the survey serves as a critical resource in identifying major themes and shifts in the HCO marketplace. The 2023 DHMW survey findings has identified an overarching theme that can be characterized as **"the acceleration of data usage."**

In a digital health world shaped by Meaningful Use, HCOs have largely moved on from focusing on their *data capture and storage capabilities to improving outcomes*. In this environment, leveraging data emerges as a critical activity in the realization of improved operational and clinical outcomes. It is little surprise then to see evidence of the "acceleration of data usage" in all eight sections of the survey, including the Innovation section.

While organizations are mired in staffing and financial challenges, that has not dulled interest in adopting next-generation technology. In fact, many say that innovations leveraging data are the path to a better future.

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HCI Group: A Leader in Tech Innovation

To help make sense of the Innovation findings in the 2023 DHMW survey and the innovation market in general, CHIME sat down with HCI Group, a global leader in healthcare IT consulting and technology solutions. With an extensive HCO clientele list, HCI Group is well positioned to offer insights from their market vantage point. Using the 2023 DHMW survey as a starting point, we profiled findings from the survey around innovation leadership and structure, innovation practices and innovation focus areas before turning to HCI and its partner HealthNXT to provide context and clarity around the many complex issues HCO leaders must navigate to ensure their organizations adopt innovations which will truly benefit the patients they serve.

Emerging from this effort, we uncover a myriad of factors reinforcing the critical role innovation plays in an HCO's acceleration of data usage. A role poised to grow in importance as innovative technologies are increasingly adopted into the "data digestive system" of care delivery networks.

Defining Innovation

Digital health innovation could be defined as the creation and application of new or improved digital technologies, tools, systems, and processes that bring about significant advancements or breakthroughs in the delivery of patient care and healthcare operations. It involves harnessing knowledge, expertise, and resources to develop innovative solutions that solve problems, improve efficiency, drive progress, and deliver value. In CHIME's 2023 Digital Health Most Wired (DHMW) survey, an HCO's Innovation was adjudicated by assessing the following three factors:

1. Innovation leadership / structure
2. Innovation practices
3. Innovation focus areas

Representing approximately 5% of an HCO's total DHMW performance score, the Innovation section of the survey serves as a valuable barometer of an HCO's potential digital transformation trajectory.

"Data usage in healthcare has accelerated in recent years with innovations like the Internet of Medical Things (IoMT), telehealth and AI-driven diagnostic tools. It's becoming a core competency for healthcare IT leaders to understand the connection between technology and innovation and how to successfully implement both," noted Lorren Pettit, CHIME's Vice President of Digital Health Analytics (DHA), on the weighting assigned to DHMW's Innovation section. "Innovation goes beyond being creative or implementing new technologies. It requires conceptualizing a viable new offering, and ushering it through to implementation. As such, an HCO's approach to innovation offers a strong window into an organization's digital health profile."

That said, innovation is hard to define as it can involve ideas as well as processes. "We consider an innovation as an insight, platform, or capability to harness data in way that has never been seen before and which leads to improved results," said Tom Griga, Senior Vice President of the HCI Group, adding innovation departments need to be on the bleeding edge. "The most important innovations for healthcare are those that lead to improved patient outcomes and safety."

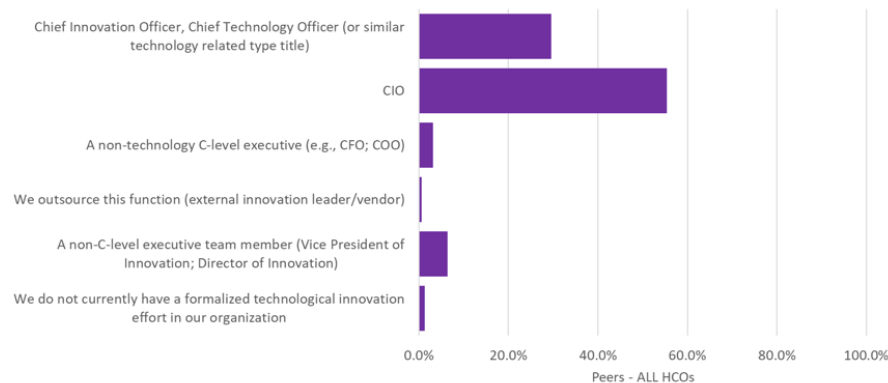
1 Innovation Leadership / Structure

The first category considered in the Innovation section of the DHMW survey addressed the leadership and the structure of the HCO's innovation effort. In this section, two questions were used to assess these factors:

Executive leading Innovation

Question 82

Whom on your executive team is primarily responsible for leading tactical technological innovation efforts in your organizations?

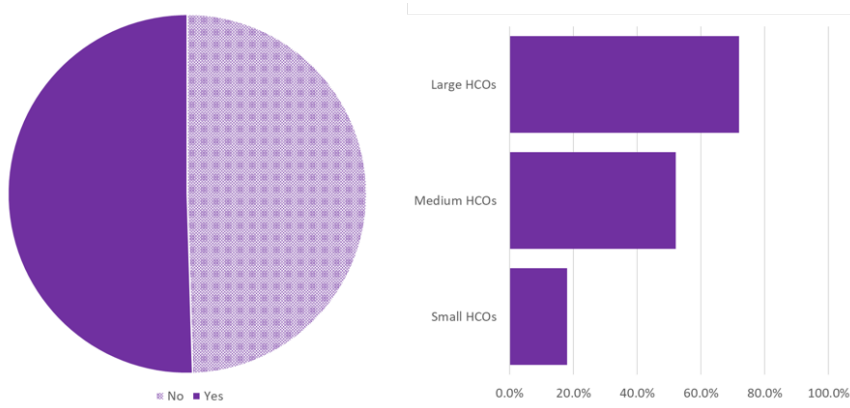


The results show the role of Chief Innovation Officer is gaining prominence in many organizations, Pettit noted, marking a shift from the traditional approach of having the Chief Information Officer (CIO) primarily drive innovation. In most HCOs, the CIO remains at the forefront of steering innovation efforts, orchestrating the integration of cutting-edge technologies to enhance patient care and operational efficiency. However, the likelihood the CIO also owns innovation depends considerably on the size of the HCO. Smaller organizations often rely more heavily on the CIO for innovation, while larger institutions are more likely to appoint dedicated Chief Innovation Officers to spearhead their transformative endeavors.

Formal association with external Innovation Center

Question 82

Whom on your executive team is primarily responsible for leading tactical technological innovation efforts in your organizations?



Historically, the CIO would oversee innovation because it was considered a tech issue, Griga reasoned. As the pace of technology accelerates, forward-looking organizations recognize the need for split roles. "One leader can keep the enterprise technology up to speed," he explained, "while a Chief Digital Officer or Chief Innovation Officer can concentrate on new ways to improve clinical outcomes and operations."

An HCO's size also correlates with its affiliations with healthcare innovation centers, which have emerged as valuable partners to help enhance HCOs' IT capabilities and overall revenue. Innovation centers in healthcare are dedicated spaces designed to foster collaboration, creativity and the development of new ideas and solutions to healthcare challenges. They bring together clinicians, researchers, entrepreneurs and industry partners to work together on a wide range of projects from developing new technologies and treatments to improving patient care delivery and outcomes.

Larger HCOs are more inclined to establish and maintain partnerships with innovation centers; they leverage their broader resources and expertise to foster innovation, refine IT strategies and explore novel revenue streams. In contrast, smaller healthcare entities tend to be more challenged in engaging with innovation centers due to resource constraints.

An innovation center can have many different configurations. Many HCOs for example have innovation centers that are a conglomeration of partners and vendors leveraging different applications and technologies, Griga noted. "Then there are

innovation centers driven by top integrated disease management (IDM) programs looking at specific areas such as cardiology,” he said, referencing the [Cleveland Clinic’s Global Cardiovascular Innovation Center](#). “Children’s hospitals, which are more research-based, are another type of provider likely to have a highly specific innovation center.”

2 Innovation Practices

A second innovation category assessed by the DHMW survey focused on varied aspects of an HCO’s innovation practices. In this section, participants were presented with seven distinct facets of an HCO’s innovation effort (e.g., Leadership; Performance Management; etc.). Within each, survey participants were presented with six statements reflecting progressive maturity (statement 1 = least mature; statement 6 = most mature) and asked to select the statement best reflecting their organization.

The seven facets considered were:

Leadership

Question 83

When thinking about technologies innovation in your organization, which of the following statements best characterize your organization’s strategic management LEADERSHIP approach?



Planning and Executing

Question 84

When thinking about technologies innovation in your organization, which of the following statements best characterize your organization’s approach to the strategic management of PLANNING and EXECUTING?



Process and Tools

Question 85

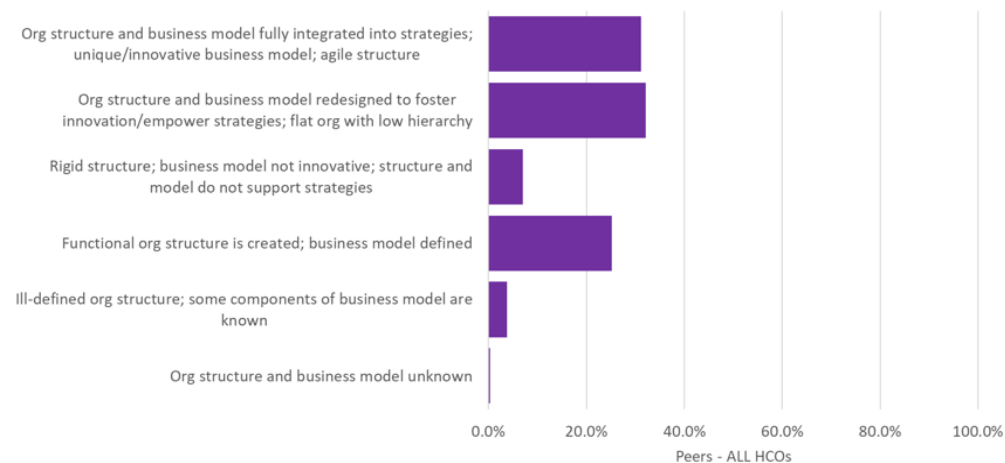
When thinking about technologies innovation in your organization, which of the following statements best characterize your organization's approach to the strategic management of PROCESSES and TOOLS?



Organizational Structure and Business Model

Question 86

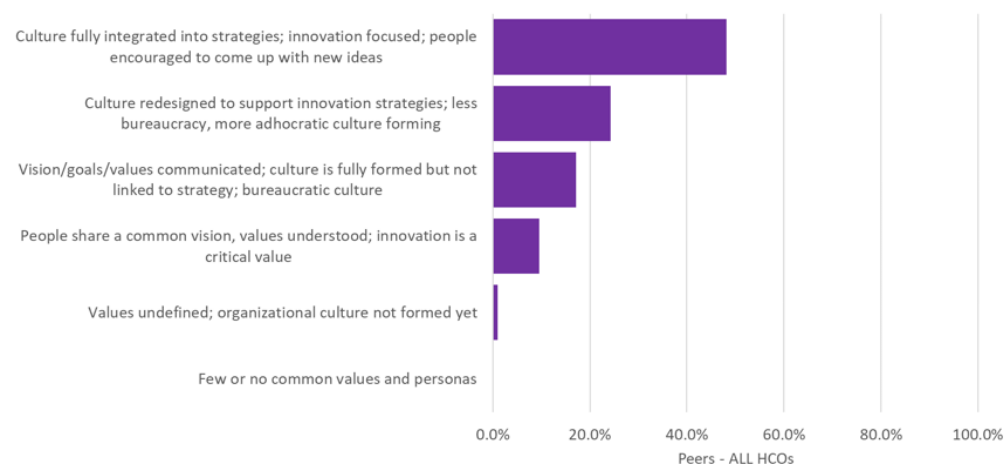
When thinking about technologies innovation in your organization, which of the following statements best characterize your organization's approach to the strategic management of ORGANIZATIONAL STRUCTURE and BUSINESS MODEL?



People and Culture

Question 87

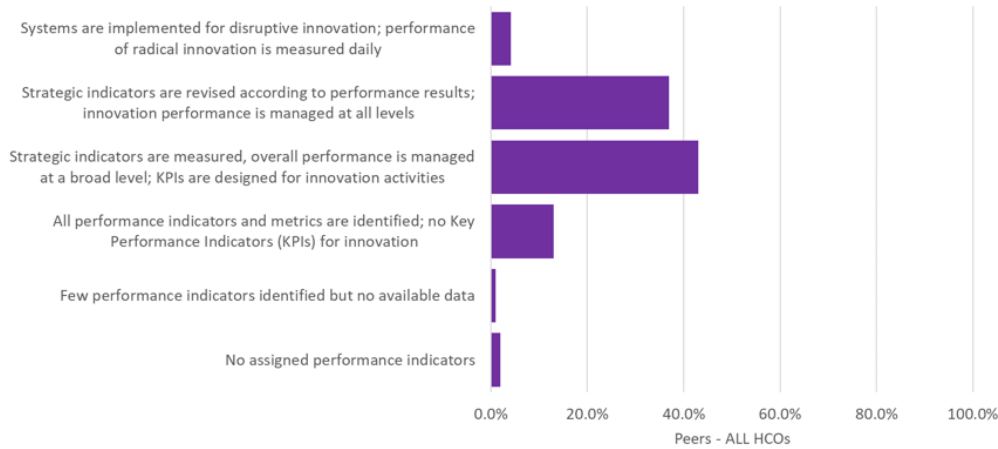
When thinking about technologies innovation in your organization, which of the following statements best characterize your organization's approach to the strategic management of PEOPLE and CULTURE?



Performance Management

Question 88

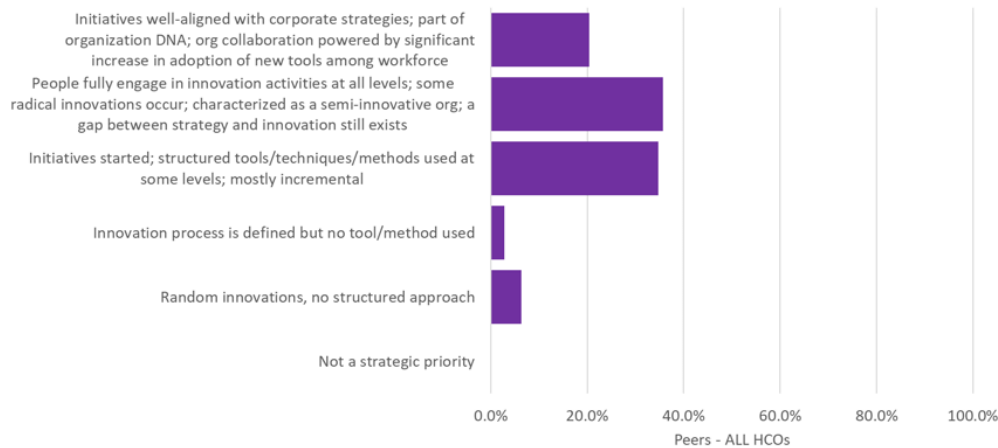
When thinking about technologies innovation in your organization, which of the following statements best characterize your organization's approach to the strategic management of PERFORMANCE and MANAGEMENT?



Approach to Innovation

Question 89

When thinking about technologies innovation in your organization, which of the following statements best characterize your organization's APPROACH to the strategic management of innovation?



As each of these seven attributes were assessed via a progressive maturity model, by averaging the scores all of survey respondents within each attribute, we can identify those areas where HCOs accel and those areas where they are most challenged.

Innovation Profile

Averages of Q83 - Q89



As noted, aspects of the CIO role are being divvied up and allocated to other executive-level positions, accelerating the emergence of specialized roles within organizations. Leadership is considered one of the most maturely developed areas of an organization's innovation effort, followed by strategic planning and execution and organizational culture. Organizations that have optimized these areas drive forward-thinking initiatives and nurture work environments that foster creativity and adaptability.

On the other hand, performance management presents as the least mature area among organizations. HCOs may need to further optimize and refine this area to ensure alignment with evolving priorities and to maximize the impact of innovation efforts.

As an innovation is something that has never been done before, measuring performance is one of the hardest aspects of innovation, Griga noted. "It is very difficult to gauge the effectiveness of innovations, as improvements can be hard to quantify," he explained. "As evidenced by the survey results, organizations are making lasting improvements and moving in the right direction on managing innovation."

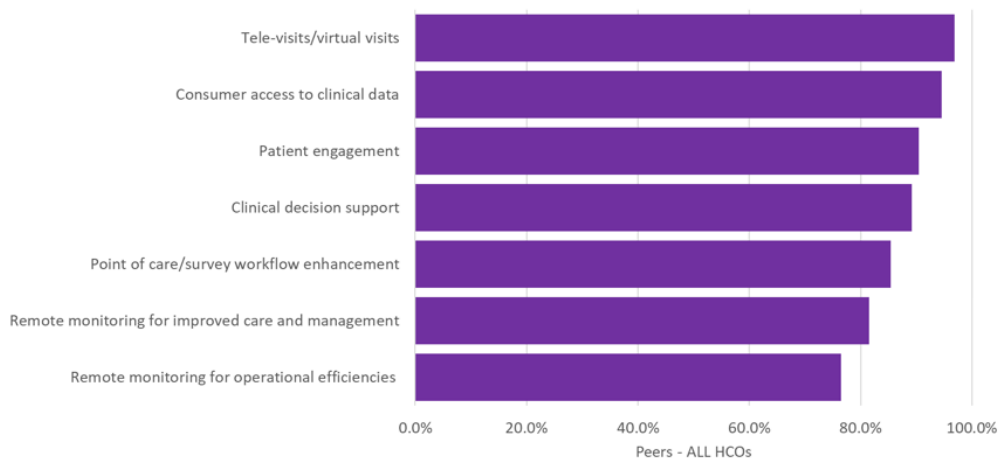
3 Innovation Focus Areas

The third and final Innovation category assessed in the DHMW survey looked at varied innovations HCOs have viewed and embraced in their organization. More specifically, the following two questions were presented:

Innovations assessed within the past three years

Question 90

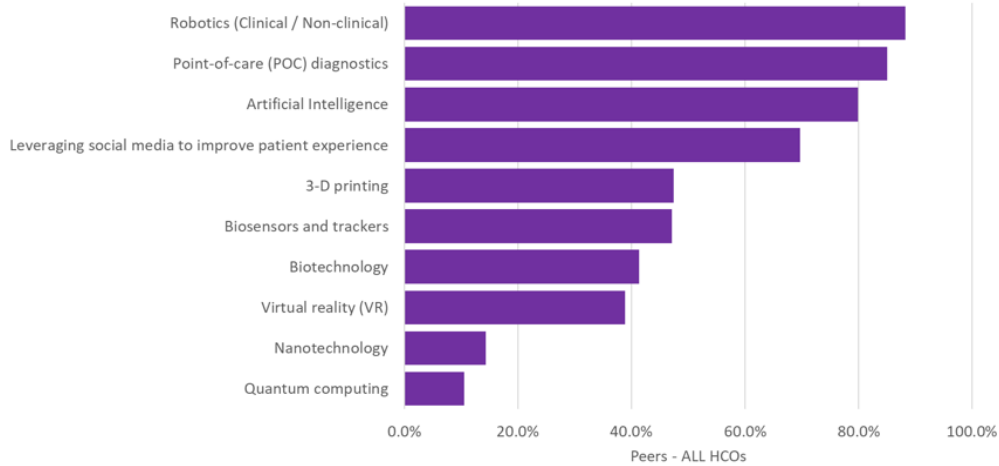
Which of the following types of digital health tools have your technological innovation assessment efforts addressed within the past three-years?



Innovations currently used

Question 91

Of the following types of innovations, which do you currently use in your organizations?



The findings of these two questions are quite understandable given society's recent history, notes Pettit. The pandemic forced HCOs to quickly put together telehealth and other remote/virtual tools, and the rapid rise of artificial intelligence and related technologies across the business and consumer population is clearly driving high adoption of tools such as engagement and clinical assistance tools. That said, Griga found the adoption rate for 3D printing (40%) surprising.

3D printing has emerged as a transformative technology in the field of healthcare, revolutionizing various aspects of medical care and treatment. Healthcare providers are increasingly adopting 3D printing to enhance patient care, improve surgical outcomes and personalize medical devices. Providers are using 3D printers to make customized implants and prosthetics, preoperative planning and surgical guides from medical imaging data, medical device prototypes, educational and training tools and novel drug delivery systems.

However, a variety of materials are needed to 3D print these different items and the supply chains for biocompatible materials is limited. Development of new materials that meet stringent requirements for healthcare use is another challenge to higher adoption rates. A string of other technical, regulatory, and economic challenges limit providers' ability to use this

4 Partnerships for Success

Whether from a multiple-stakeholder innovation center or a small group of internal contributors, impactful innovations emerge from a fusion of ideas, resources and visions. A culture of innovation fosters collaboration amongst clinicians, researchers, entrepreneurs and industry partners propelling creativity and the development of new ideas and solutions to healthcare challenges.

Partnering for successful innovation in healthcare can include:

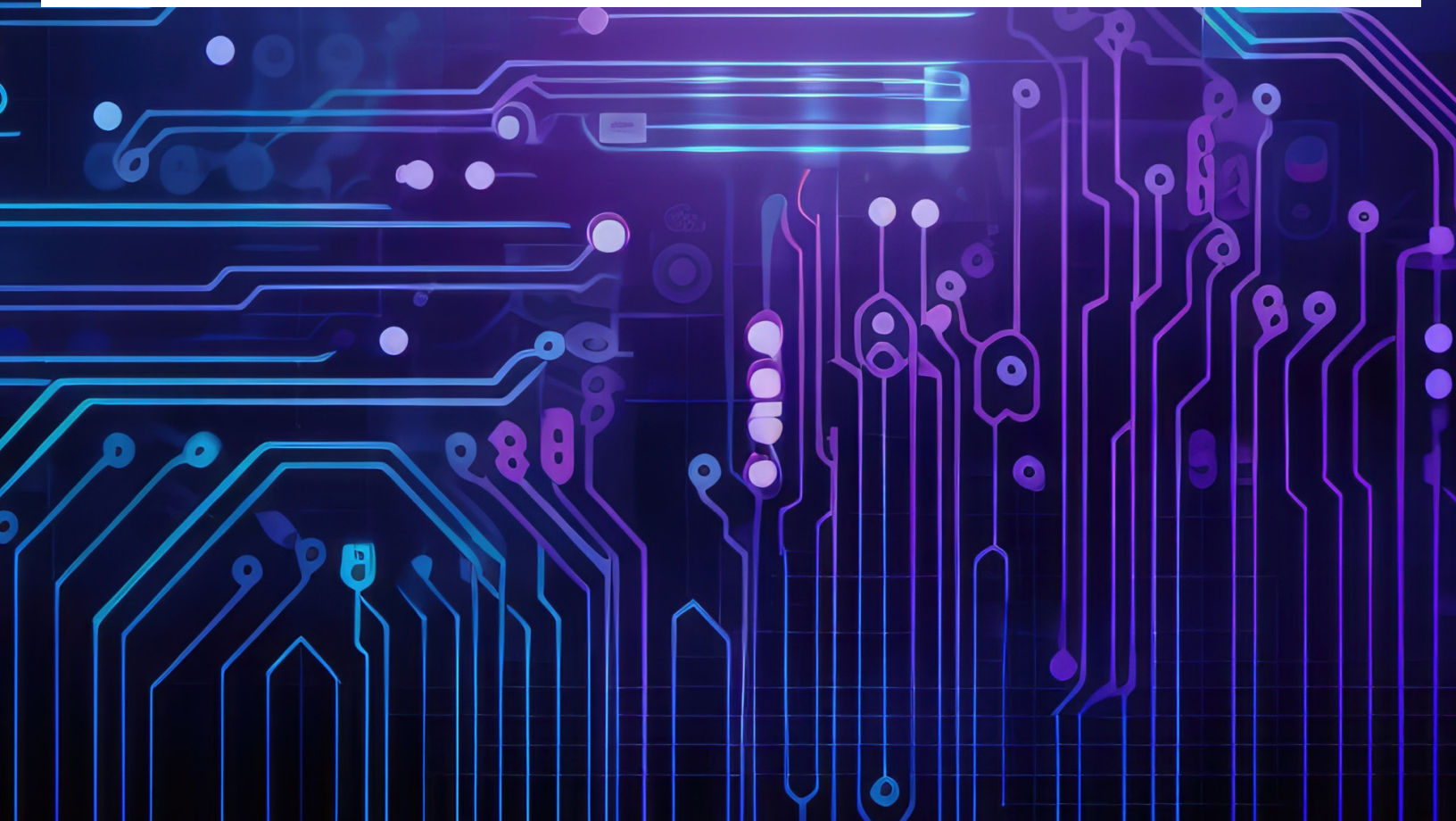
- **Shared goals and vision:** Partners should have a shared understanding of their goals and vision for the innovation partnership. This will help ensure that everyone is working towards the same objectives and that there is a clear path for success.
- **Trust and transparency:** Partners need to be able to trust each other and communicate openly and honestly. This is essential for building a strong relationship and for ensuring that the partnership is successful.
- **Complementary expertise:** Partners should bring complementary expertise to the table. This will help ensure that the partnership has the skills and knowledge necessary to achieve its goals.
- **Shared resources:** Partners should be willing to share resources, including financial resources, staff time, and data. This will help ensure that the partnership has the resources it needs to be successful.
- **Flexibility and adaptability:** Partners need to be flexible and adaptable. This is essential for responding to changes in the market or in the partnership itself.

- **Clear communication and accountability:** Partners should have clear lines of communication and accountability. This will help ensure that everyone is on the same page and that the partnership is successful.
- **Regular evaluation and feedback:** Partners should regularly evaluate the progress of the innovation partnership and provide each other with feedback. This will help ensure that the partnership is on track and that it is achieving its goals.
- **Shared risk and reward:** Partners should share the risks and rewards of the innovation partnership. This will help ensure that everyone is invested in the success of the partnership.
- **Celebrate successes:** Partners should take the time to celebrate their successes. This will help keep everyone motivated and engaged in the partnership.

Some HCOs take a “big swing” at innovation but sometimes find this isn’t always a fast track to success. Some key considerations for providers unsure how to make and measure progress on operational and clinical innovations, include:

- **Start small:** It is often helpful to start with a small, pilot project to test the waters and see if the partnership is a good fit.
- **Get buy-in from all stakeholders:** It is important to get buy-in from all stakeholders, including clinicians, administrators, and patients.
- **Be patient:** Innovation takes time. Be patient with the process and don’t expect results overnight.
- **Be willing to learn:** Be open to learning new things from your partners.
- **Be persistent:** Don’t give up on your innovation even if you face challenges.
- **Have fun:** Innovation should be fun! Enjoy the process and celebrate your successes.

Innovation is hard to define and even harder to develop, implement and measure. However, innovation clearly improves healthcare as evidenced by the many positive changes made in patient care and enterprise operations emerging from the pandemic. As providers continue to accelerate their usage of data across their digital health footprints, the timing is ripe for leveraging data to feed buzzing technologies such as Artificial Intelligence (AI). It takes a significant investment in time, funds, leadership and other valuable resources at a time when budgets and workforces are stretched thin. Yet the upsides of doing so can be quite profitable, to include streamlined processes, better user engagement and an overall modernized model of care and experience designed to lead to better patient health outcomes.





About CHIME

The College of Healthcare Information Management Executives (CHIME) is an executive organization dedicated to serving chief information officers (CIOs), chief medical information officers (CMIOs), chief nursing information officers (CNIOs), chief innovation officers (CIOs), chief digital officers (CDOs), and other senior healthcare IT leaders. With more than 5,000 members in 58 countries plus 2 US territories and over 190 healthcare IT business partners and professional services firms, CHIME and its three associations provide a highly interactive,

trusted environment enabling senior professional and industry leaders to collaborate, exchange best practices, address professional development needs, and advocate the effective use of information management to improve the health and care in the communities they serve. For more information, please visit chimecentral.org.



About Digital Health Analytics

Digital Health Analytics (DHA) is a global market intelligence and survey research hub for digital health technology. Provided by the College of Healthcare Information Management Executives (CHIME), DHA was created in 2022 to supercharge organizations' digital health transformation capabilities by moving from a one-snapshot-in-time, static Most Wired survey to a 365/24/7 data and analytics resource. DHA is the gateway for provider organizations

and companies to better understand how digital technology supports leaders in transforming health and care and delivering data insights that help them make the greatest business impact possible. For more information, please visit dhanalytics.org.



About HCI Group

The HCI Group, a subsidiary of Tech Mahindra, is a global leader in healthcare IT consulting and technology solutions, committed to improving healthcare globally through a combination of disruptive innovation, design thinking and cost optimization. Tech Mahindra offers innovative and customer-centric digital experiences, enabling enterprises, associates

and society to Rise. Tech Mahindra is a \$6 billion organization with 158,000+ professionals across 90 countries helping 1262 global customers, including Fortune 500 companies.

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