

Opportunities for consumer-facing technologies in health systems: Building a better health care experience

Insights from interviews with health system leaders

Consumers are increasingly looking to have the same convenient, efficient experiences in health care that they have come to expect from experiences with other industries. How are health systems adopting technologies to interact directly with consumers, and where can they improve?

Executive summary

What if the health care digital experience was more like other digital interactions? Consider how we order food via apps for takeout or delivery. With a few clicks, we can order food, pay using saved bank information, and request customizations to the order (from how it's cooked to when and where it gets delivered). All of these things can be accomplished without leaving the couch. No wonder the use of food delivery apps has exploded the past year due to the COVID-19 pandemic.¹ Technology has led to personalized, integrated, seamless, and frictionless experiences in food delivery. Why can't health care be like this?

As we move to a more consumer-centric Future of Health™ and Deloitte's vision for 2040, health systems will need to stay competitive

and meet consumer expectations by delivering a more seamless and personalized experience. Consumers are going to increasingly expect health care to deliver an experience like they have with other industries. A better technology and digital experience will likely improve satisfaction if it helps provide an efficient and convenient experience. Consumer-facing digital technologies, including virtual visits, online scheduling and bill payments, and virtual triage and registration, are those adopted by hospitals to interact directly with consumers for access, communication, care delivery, and/or payment.

The Deloitte Center for Health Solutions recently interviewed technology, digital, and marketing executives to learn how health systems are approaching consumer-facing technologies. Our respondents generally agreed that health systems:

- Recognize the importance of digital transformation, yet are behind compared to other industries
- See multiple opportunities for consumer-facing technologies in care delivery, health equity, cost efficiencies, loyalty, brand, competitive positioning, talent recruitment, and patient and staff experience

- Should shift their current digital strategies to be more consumer-friendly. Most digital tools were developed based on in-person processes and were not designed to be consumer-friendly or truly digital.
- Require more leadership support to prioritize and invest in digital transformation and consumer engagement efforts
- Need more robust and comprehensive measurements and goals for digital and consumer efforts beyond patient-satisfaction scores

We also found that digital maturity can vary widely by health system. Some organizations were investing in digital consumer experiences before the COVID-19 pandemic and have since accelerated their investments. Other health systems were further behind and are doing little to catch up. All respondents agreed that both digital transformation and the consumer experience should be top organizational priorities.

When asked how to move forward and become both truly digital and consumer-friendly, health system executives suggested the following:

- Start small, and identify the biggest pain points from the perspective of the consumer.
- Use technology that is simple.
- Use data and segmentation to understand the needs and desires of consumers.
- Focus on integration of data and systems.
- Ensure that the experience is truly digital and seamless versus continuing to rely on manual processes in the background.
- Include the perspective of the workforce (clinicians and administrative staff) in efforts.
- Partner to bring in needed capabilities with both consumers and digital.

Introduction:

Some health systems have spent the past decade or longer implementing, adopting, and improving their electronic health record (EHR) and other core systems like enterprise resource planning (ERP) and analytics capabilities.² Most organizations now have those systems in place, typically after significant effort and

investment. The next step is to incorporate digital technologies and capabilities into all aspects of the businesses to improve efficiencies, leverage data more effectively, and become more consumer-centric. The result should be a positive, convenient, and seamless consumer digital experience for the consumer.

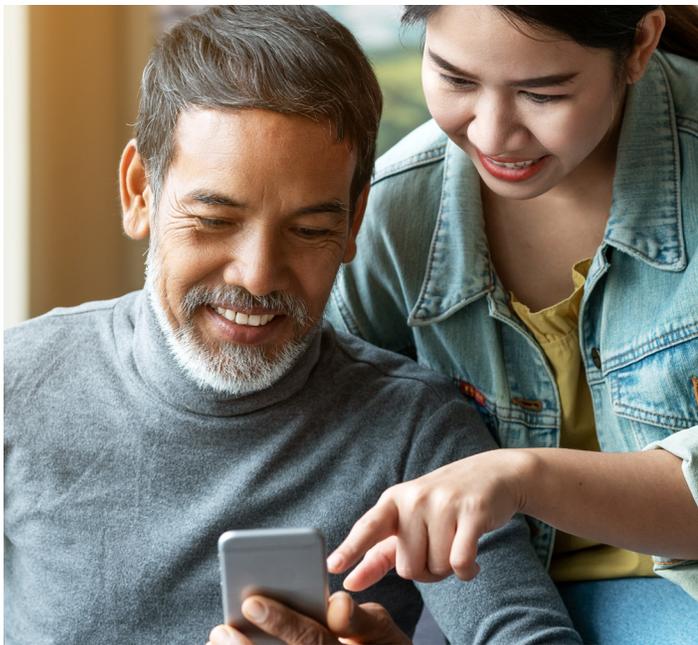
Consumer-facing digital technologies include communication portals; online scheduling and bill payment; information-sharing apps; virtual registration; and nontraditional care delivery through video, mobile apps, remote monitoring devices, text-based messaging, and more. These technologies can allow consumers to digitally access health care services and communicate with clinicians easily. They also can help patients gain control over their own health data, which can help them make decisions that help to improve their well-being throughout the care journey.

Between 2015 and 2019, hospitals increased their adoption of digital tools for submitting patient-generated data (23%), scheduling appointments (24%), requesting prescription refills (25%), and paying bills (8%), according to the American Hospital Association's IT survey.³ Adoption is expected to increase. [Recent price transparency and interoperability regulations](#) require hospitals to share prices with consumers and provide a more user-friendly interface with their data.⁴ These changes are expected to drive health systems to develop digital tools (e.g., cost calculators) and make it easier for consumers to shop for health care services. Consumers will be able to use these digital tools to make decisions about their care and where that care will be provided—both driving the need for an optimal digital consumer experience. New entrants like consumer technology companies⁵ are entering the health care industry with convenient digital tools, including video-visit apps, integrated wearable devices, and health record apps. These tools are giving consumers more options for a digital health care experience.^{6,7,8}

Prior to the COVID-19 pandemic, many consumers were growing increasingly interested in technology-enabled health care.⁹ The pandemic accelerated demand for digital care. According to [Deloitte's 2013–2020 Surveys of Health Care Consumers:](#)

- More consumers are using digital tools to measure fitness and track health-improvement goals—up 25% from 2013 to 2020.
- Virtual visits have almost doubled (15% to 28%) from 2019 to April 2020.





Health systems that offer their patients an excellent experience, enabled by technology, will likely be better positioned to retain and attract new patients. Although demand and adoption of consumer-facing technology has increased, the experience and satisfaction with these interactions has not necessarily followed. According to Deloitte's 2020 Consumer Study, consumers were happier with their virtual health clinicians and had fewer complaints about wait times in 2018.¹⁰

Findings from executive interviews:

We recently interviewed 10 technology, digital, and marketing executives from major health systems to understand how health systems are approaching consumer-facing technology.

How was the digital experience during the pandemic?

Prior to the pandemic, most health systems had strategies and plans (of various maturity) for investing in digital technologies. However, the pandemic greatly accelerated the need to become more digital. Restrictions on visitors and/or the need to limit face-to-face interactions forced many health systems to develop more digital services.

Many of our interviewees said their organizations quickly ramped up investments in digital. However, they have not necessarily invested the time needed for a thoughtful strategy that considers the user experience. Some health systems built their digital services around antiquated ideas about how care is delivered in person. They built digital tools that are substitutive, rather than developing more transformative tools that are intuitive and consumer-friendly. For example:

- Virtual visits should not require a *waiting room* for the patient, yet some health systems have built just that—an online room where patients wait, just like they would for an in-person visit. Rather than a virtual waiting room, digital tools should be used to automatically text, email, or call the patient when the clinician is ready. This strategy respects the patient's time and creates a more thoughtful and convenient experience.
- Online bill payments should be simplified. Despite the appearance of *online bill payment* options via websites, some health systems still require patients to manually enter an identification number from a paper bill. This process could be improved upon through features that seamlessly connect with patient portals or allow consumers to enter brief identifying information that is not linked to a paper bill. The consumer can then seamlessly and easily pay through a solely digital process.

Many of the executives we interviewed acknowledged that they have work to do. However, they might not know exactly what to do. They also mentioned there was often a lack of leadership support and that their organization might not have a consistent vision of what is consumer-friendly, what is digital, and how much they are willing to invest.

How are organizations moving forward?

Most of the executives we interviewed agree that the benefits of investing in consumer-facing technology and a seamless digital experience extend beyond improving the patient experience. They suggested that a more advanced digital strategy can also lead to other benefits, including:

- **Enhancing patient, provider, and employee experiences:** Executives said they are focusing on investments in technologies that are easy to use, convenient, and accessible. Examples include improving the virtual waiting room or making the interface easy to navigate with a minimum number of clicks. The aim is to create a *low-barrier, frictionless* experience for the patient while also reducing the burden on clinicians and other staff. Executives said they are looking at employees and clinicians because the care experience reflects interactions between the patient and the care team.
- **Improving operational efficiency:** Executives intend to consolidate and streamline technologies by reducing the number of platforms. They are exploring ways to reduce front- and back-office work. Digital interactions can help health systems reduce the cost of acquiring patients. Examples include enhancing the *digital front door* by implementing preregistration processes, online scheduling, seamless virtual visits, and consolidating call

“I believe technology can be an equalizer in terms of equity and access to care. Some might say these digital technologies are going to be self-selecting to patients in higher income brackets. I think I can argue the opposite.”

— Chief digital officer

centers to reduce wait times. Additionally, interviewees cited the need to improve patient flow and focus on inpatient capacity management (e.g., command centers or analytics to predict wait times or move patients to lower-acuity care locations).

- **Increasing equitable access to care:** Executives say that digital health technology can help improve health equity by increasing access to care and by targeting certain populations. Consider a patient who is an hourly employee and is unable to take time off from work during a typical clinic's office hours. To meet the needs of this patient, health systems could offer virtual round-the-clock services. In addition, digital technologies could be used to connect under-represented minorities (e.g., by race, gender identity, or disability) to clinicians in another geographic area with whom they are more comfortable seeking physical and/or mental health care. Patients who receive care from clinicians who represent those patients (look like them, talk like them, or have shared lived experiences) are more likely to seek care and follow-up services, according to some studies.^{11,12} However, some populations have limited access to smartphones, Wi-Fi, or bandwidth. Moreover, public resources such as internet cafés, libraries, or kiosks at clinics might be inaccessible due to the pandemic. Some local agencies and school districts have introduced mobile hotspots to neighborhoods to ensure that children have access to remote school. Health systems should consider a similar strategy to expand virtual care to populations that might have trouble accessing it.
- **Recruiting and retaining talent:** Some executives told us that health system employees expect to have a more digital experience in their day-to-day work. Clinicians and nonclinicians are seeking more efficient ways to interact with patients and to do their work. This includes automating repetitive tasks to improve efficiencies, minimize burdens, reduce costs, and free up their time to focus on the more creative aspects of their work. Automation can also support decision-making through conversational AI and advanced analytics, which can deliver insights and make decisions without requiring manual complex analyses. This could help improve the employee experience by allowing employees to spend more time with patients at work and more time at home disconnecting from work.

“When we say consumer, we’re not just talking about patients. We’re also looking at our own employees and providers because the care experience is a result of an interaction between the patient and the care team, and to enable that, you have to address both sides of that continuum,”

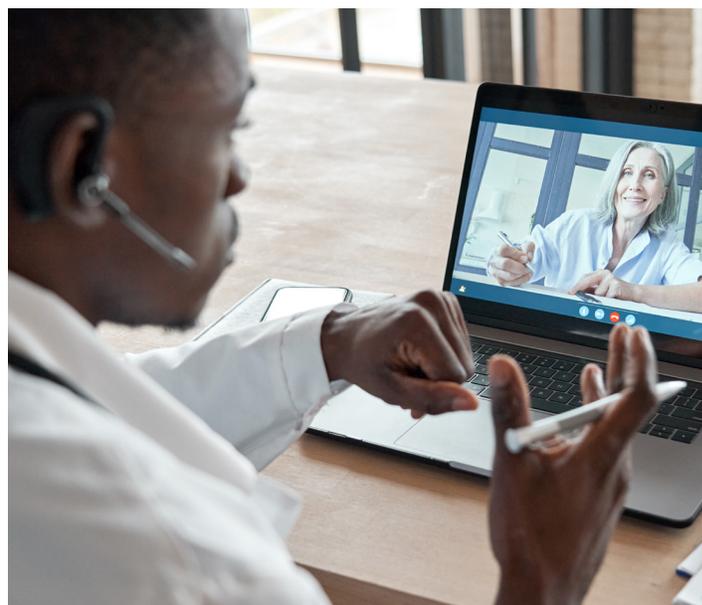
—VP, Digital

Executives are working to improve digital offerings in two major ways:

1. Developing a single platform to provide a holistic and consistent experience:

A single integrated platform used throughout the health system could act as a unifier that allows various systems or applications to run more efficiently and seamlessly. This could improve patient access, make a more meaningful impact on patient outcomes, and improve patient experiences. The likely result is a consistent digital experience across the entire health system. To achieve this, health systems are:

- **Consolidating EHR platforms and other data sources:** Some health systems have multiple EHR systems throughout their organization due to legacy implementation efforts, M&A, and physician relationships. They might also have separate systems for billing, video visits, and appointment scheduling. These disparate systems do not allow for a single access point for consumers or a consistent experience. Executives from health systems with locations in the same metropolitan area or geographic region told us they are trying to aggregate multiple EHR platforms and integrate other structured and unstructured data sources, including transactional systems (e.g., HR, patient experience, patient safety, finance, and supply chain). This could give consumers consistency in how they access the health system and flexibility to leverage data from multiple systems. This is particularly important if a consumer is likely to access the same health system from multiple locations or access points.
- **Using data analytics to offer customized information and tailored communication:** Health system executives are looking for ways to aggregate consumer data in a more meaningful or actionable manner at the point of care. They are looking to invest in new technologies to tailor specific interactions with patients based on their demographics and preferences and to provide solutions to patients when and where they are needed. Health systems





“Often, a patient who’s looking for an appointment, their journey requires 16 clicks. Our goal is to bring it down to three clicks. There are specific measures we are taking to develop these digital doorways.”

—VP, Digital

are also using this data to determine potential fail points (for example, gathering data related a patient who tried to schedule an appointment that was unsuccessful).

- **Integrating consumer technology throughout the patient journey:** Health system executives say they hope to create a digital continuum of experience throughout the patient’s care journey and across industries (for example, technologies that link the patient’s health record or integrate the medical record with a pharmacy to suggest the types of groceries the patient should buy based upon a medical condition).

2. Providing care outside the hospital and shifting toward consumer-friendly virtual care settings: Eventually, executives say health systems will be able to provide more care outside of hospital walls. More care delivered at home, in nontraditional settings, and at non-brick-and-mortar buildings is likely to be the future. Executives say they are seeing an opportunity to create new digital experiences through in-home visits and via remote patient monitoring. All of our respondents said their organizations are investing in ways to improve virtual and video-visit technologies and experiences. They also are exploring other ways to provide more broader virtual care. Some health systems are considering subscription services where a consumer could upload data from a monitoring device and have it reviewed and interpreted by a clinician.

How is measurement happening?

Most health system executives say their organizations are still using traditional patient experience measures to quantify success. Net promoter scores and surveys (through paper, email, or text) are currently being used to track patient feedback on communication, service, and demand for specific digital experiences. Physician burden and staff satisfaction are being assessed by analyzing retention rates, number of times clinicians access the EHR, and annual employee surveys. These surveys typically show that a lack of access to tools and digital support are among the top

complaints of employees. This was also emphasized in Deloitte’s recent [physician survey findings on value-based care](#), where many respondents noted slow progress in equipping physicians with digital tools and capabilities. Both research results highlight how health systems should explore more sophisticated ways to measure the performance of digital tools beyond traditional satisfaction surveys.

While most health systems executives are still figuring out innovative ways to measure success, some have started to look at more specific metrics around digital tools. Executives interviewed suggest they are using metrics such as *ease of use* to evaluate patient experiences. For example, patients might be asked to use a 1-to-5 scale to rate how easy a platform was to use. These scores are then aggregated. Another metric being looked at is *outcome measures*, also referred to as *impact measure* or *return on health*. This is quantified through several parameters, such as fewer visits to the ER or hospital or greater adherence to medications, to name a few.

“We currently use net promoter scores for patient satisfaction. However, the patient-satisfaction scores are pretty high-level, and the information is not granular. We need to get more sophisticated about it.”

—Chief marketing and communications officer

Investments in digital technology and patient experiences will likely pay off

Becoming digital and consumer-centric can better position an organization to compete in the changing health care landscape. Most health systems, however, have a lot of work to do before they become truly digital and consumer-friendly. Organizations should start by developing a broader strategy and vision for improving the consumer experience through digital transformation. This will require organizations to prioritize and invest significantly.

Executives offered the following recommendations for health systems that want to become more digital and consumer-friendly:

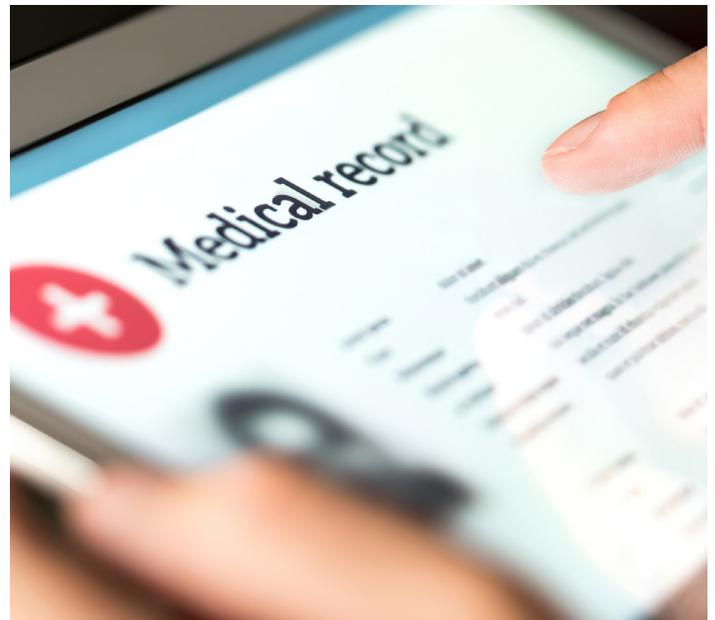
- **Commit to being truly consumer-centric:** Health system leaders should make the consumer experience a top priority. An organization can demonstrate its commitment through dedicated

investments and infrastructure aimed at improving the consumer experience. A vision and strategy that cuts across the entire organization and prioritizes the consumer experience is critical to align investments and gain broader organizational support and buy-in.

- **Prioritize digital transformation:** Health system leaders should make digital transformation a top investment priority. Capitalizing on EHR efforts requires a vision and strategy for digital transformation that goes beyond core technology systems. A dedicated commitment of infrastructure, budget, and leadership can help an organization prioritize digital.
- **Start small, and go after low-hanging fruit:** Technologies that help improve efficiencies (such as virtual registration) are great places to start. Prior to an appointment, a patient could complete paperwork online and upload data from wearable devices. Technology could also be used to automatically prepopulate the registration form with clinical information from the EHR. Investing in specific areas, and showing improved outcomes, can help health systems build a business case for broader investment. Organizations should also consider prioritizing certain populations or various aspects of the care journey.
- **Make technology easy to use:** The experience for consumers and the workforce (clinicians and nonclinicians) should be as frictionless as possible. Fewer clicks and simple interfaces are critical for increasing adoption and satisfaction.
- **Understand what consumers want:** To be truly consumer-friendly, the experience must be designed for the end user and should reduce pain points. Organizations should also try to understand differences and commonalities among the patients they serve. [The ability to segment consumers](#) by their needs and preferences could help. Data and input from consumers should be front and center when making investment decisions. This could include strategies that bring technology to certain populations that might not have access to smartphones and/or reliable Wi-Fi. Health systems might also look for ways to provide digital access to family members who make appointments (or nondigital options for those who prefer them).
- **Focus on the integration of data and systems:** Data interoperability and having a single EHR platform across the system are critical for creating integrated and seamless consumer experiences. This can also help ensure consistent experiences across the health system. A consumer would have one login and one interface for the system, vs multiple.

- **Ensure that the experience is truly digital and seamless:** Organizations should consider completely revamping care delivery and access rather than digitally recreating in-person experiences and processes. For example, instead of creating virtual waiting rooms, organizations should consider how digital tools could be used to notify the patient when the clinician is ready to start the video visit.
- **Consider the workforce perspective:** Get feedback from the workforce. Clinicians are critical stakeholders in technology adoption, and their acceptance will likely influence consumer adoption. While some employees will likely be open to adopting new technology, others might be more hesitant and worry about the potential disruption between patient-provider interactions.¹³ Organizations shouldn't generalize the perspective of the workforce, but should instead build a strategy for involving and aligning clinicians (and nonclinicians).
- **Measure and define success beyond patient satisfaction scores:** Setting goals around access, loyalty, experience, and efficiencies (and measuring them) can help ensure success and alignment with the organization's broader vision and strategy.
- **Partner to bring in capabilities:** Health systems should recognize when they need technology capabilities that do not yet exist in their organization. Identifying needed capabilities and partners can help ensure they become reality.

Health systems that are digital and put the consumer at the center will likely be well positioned for the future. Organizations that are successful in making that transformation could see significant improvements in the consumer experience and loyalty and will move closer to Deloitte's vision for the Future of Health.



Endnotes

- 1 Levi Sumagaysay, “[The pandemic has more than doubled food-delivery apps’ business. Now what?](#)” MarketWatch, November 27, 2020.
- 2 Claire Boozer Cruse, “[Beyond the EHR: Shifting payment models call for hospital investment in new technology areas](#),” Deloitte Insights, January 11, 2019.
- 3 Deloitte analysis of AHA HIT survey, 2013–2019.
- 4 Anne Phelps, Christi Skalka, Wendy Gerhardt, and Christine Chang, “[Greater transparency and interoperability in health care](#),” Deloitte Insights, January 25, 2021.
- 5 Steve Margolis, Peter Micca, Maulesh Shukla, and Jessica Overman, “[The role of health services innovators in the future of health: Driving transformation toward a consumer-centric, data-reliant, technology-forward vision](#),” Deloitte Insights, August 6, 2020.
- 6 Modern Healthcare, “[Sharp HealthCare first to deploy Amazon’s new health wearable](#),” August 27, 2020.
- 7 Modern Healthcare, “[Fitbit’s atrial fibrillation app gets FDA approval](#),” September 14, 2020.
- 8 Elise Reuter, “[Apple launches asthma study with Anthem](#),” MedCity News, September 16, 2020.
- 9 David Betts and Leslie Korenda, [A consumer-centered future of health](#), Deloitte Insights, 2019.
- 10 David Betts and Leslie Korenda, “[Are consumers already living the future of health?](#)” Deloitte Insights, 2020.
- 11 Ezekiel Emanuel and Risa Lavizzo-Mourey, “[5 Ways the Health-Care System Can Stop Amplifying Racism](#),” *Atlantic*, September 24, 2020.
- 12 Ryan Huerto, “[Minority Patients Benefit From Having Minority Doctors, But That’s a Hard Match to Make](#),” University of Minnesota M Health Lab, March 31, 2020.
- 13 Bill Fera, Brian Doty, Wendy Gerhardt, and Natasha Elsner, “[Improving care and creating efficiencies: Are physicians ready to embrace digital technologies now?](#)” Deloitte Insights, September 3, 2020.

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