Capgemini Consulting

Taking the Digital Pulse: Why Healthcare Providers Need an Urgent Digital Check-Up

Is the Healthcare Industry Digitally Fit?

Digital technologies are altering the very fabric of the traditional healthcare delivery model. Consumers are actively embracing digital tools to take charge of their health. Consider this: no less than 86% of respondents in a survey reported that they wanted to take a more proactive role in their healthcare decisions, and 76% reported that they have the tools and information to do so .

> *45% of consumers search for health information on social media channels.*

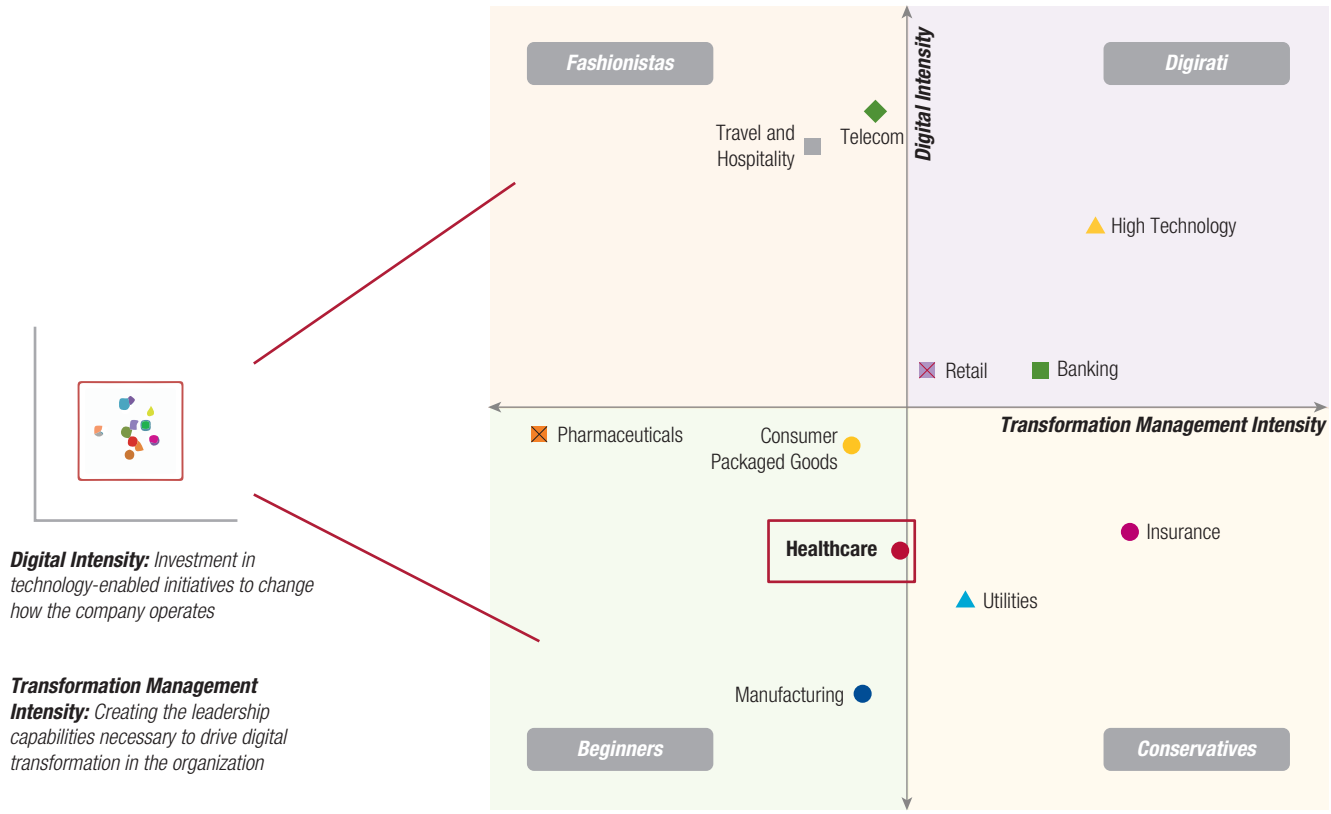
Social media and mobile platforms are becoming increasingly important channels for consumers. A survey found that 45% of respondents search for health information and close to 34% ask for health-related advice on social media channels[2]. The four million mobile health app downloads that occur every day also give consumers an easy way to track their health[3]. And this development is driving leading device vendors, such as Apple and Samsung, into the digital health tracking market.

Where does this leave the traditional healthcare industry? There is renewed pressure on healthcare providers to not only engage with consumers through new digital channels, but also to recognize and act on the opportunities that digital technologies present. For instance, digital technologies can dramatically transform chronic disease management, by allowing doctors to monitor patients remotely. Wearable digital trackers enable consumers to participate in what is increasingly being known as the quantified self age.

So how is the healthcare industry responding to these new opportunities? Are the industry and the current healthcare delivery model adapting to changing consumer needs rapidly enough? To obtain a clearer picture of current digital readiness, we conducted a survey of global healthcare players (see Survey Methodology at end of paper). We also compared the digital maturity of the healthcare industry with that of other industries, based on a previous study conducted jointly with the MIT Center for Digital Business[4]. The results will probably not come as a surprise to many of us. We found that healthcare is significantly less mature than many industries in the adoption of digital technologies (see Figure 1).

> *4 million mobile health app downloads occur every day.*

Figure 1: Digital Maturity by Industry



Source: Global Healthcare Survey by Capgemini Consulting, 2013; Global Digital Maturity Assessment Survey by Capgemini Consulting and MIT Center for Digital Business, 2012

Our survey also revealed a wide disparity in the digital maturity of healthcare providers. Only 33% were found to be digitally mature or Digirati[5], while the majority were found to be lagging in the use of digital technologies. From our survey, we uncovered areas where the healthcare Digiratis are considerably further along the maturity curve compared with the non-Digiratis[6]. Below, we compare and contrast these areas to see where the gaps lie.

> *"Mayo Clinic has set up a dedicated center to coordinate its various social media programs."*

Digitally Mature Healthcare Providers Leverage Social Media Extensively to Engage with Consumers

Social media affords the opportunity for organizations to build ongoing relationships with their customers. And the Digiratis among healthcare providers recognize this potential. For instance, leading US-based healthcare organizations, Mayo Clinic and Cleveland Clinic, have carefully crafted their social strategies around helping consumers connect with healthcare experts and providing them with easy access to high-quality medical content. Mayo Clinic, which caters to more than a million patients every year[7], has set up a dedicated unit – the "Mayo Clinic Center for Social Media" – to coordinate its various social media programs that aim to help consumers find the best medical information, and connect with healthcare professionals as well as other consumers. The clinic's focus on content has helped it build a significant reputation as a trusted source of medical information. It has close to 800,000 followers on Twitter[8] and has been rated the most popular provider of medical information on YouTube[9].

Cleveland Clinic, an Ohio, US-based multi-specialty medical center, has similarly focused its social media strategy on providing consumers with timely, relevant information that helps them solve problems and make healthy lifestyle choices. The clinic constantly tracks user activity on its social media pages and looks for ways to make its content more engaging. As a result, it has among the highest levels of social reach among healthcare providers with over 1 million followers on Facebook, and over 2 million visits per month to its online patient education portal - "Health Hub"[10]. In addition, Cleveland Clinic's Twitter account has been recognized by TIME magazine as one of the 140 best Twitter feeds of 2014[11].

> *"Cleveland Clinic's Twitter account has been recognized by TIME magazine as one of the 140 best Twitter feeds of 2014."*

> *"Only 20% of cardiac patients who used Mayo Clinic's post-surgery monitoring app were re-admitted to a hospital within three months of surgery, compared with 60% of those who did not use the app."*

Unfortunately, Mayo Clinic and Cleveland Clinic are in the minority when it comes to using social media. Our survey revealed that most non-Digirati healthcare providers do not leverage social media effectively (see Figure 2). For instance, only 18% of non-Digiratis use social media channels to provide services to customers, compared with 58% of Digiratis. Paul Matsen, Chief Marketing and Communications Officer at Cleveland Clinic, highlights a common mistake that many healthcare providers make, by using social media channels only to share information about their organizations, rather than focusing on issues of interest to consumers – "Consumers are busy and consumed by the stresses they face each day. They are looking to healthcare providers for help and answers. Offering up social media posts that focus inward on your own organization typically will not be as engaging as content that provide an immediate personal pay-off[12]."

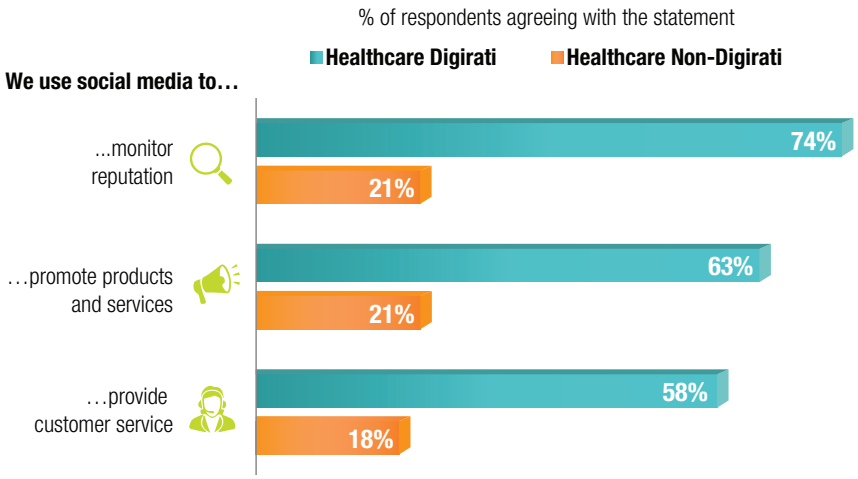
Most Healthcare Providers do not Use Mobile Channels Effectively

Mobile platforms have made significant inroads into digital health. Consumers are increasingly getting comfortable with using their mobile phones for accessing health-related information. This has resulted in the proliferation of mobile apps targeting the mobile health market. Indeed, one research estimates that there are as many as 100,000 mobile health apps available on the market currently[13].

Some healthcare providers have rightly recognized the power of this platform. For instance, Mayo Clinic has developed a smartphone app that enables cardiac patients recovering from surgery to monitor their vital signs and track their recovery. In a pilot study, the app was found to dramatically reduce patient re-admissions during the recovery period. Only 20% of patients who used the app were re-admitted to a hospital within three months, compared with 60% of those who did not use the app[14]. The clinic has now gone a step further and partnered with Apple to further boost its mobile initiatives. As part of the partnership, Mayo Clinic plans to provide follow-up recommendations to consumers who use Apple's HealthKit app and mobile sensors to monitor their health parameters.

> *"Only 21% of non-Digiratis use digital technologies to customize services for consumers, compared with 47% of Digiratis."*

Figure 2: Use of Social Media - Comparison of Healthcare Digirati and Non-Digirati



Source: Capgemini Consulting Analysis

Examples like these of investments in mobile technologies are rare in the healthcare industry. The majority of healthcare players do not use mobile channels effectively (see Figure 3). This tendency can be seen in poor usage of mobile channels for in-hospital communication. In fact, recent research suggests that close to 90% of hospitals still rely on pagers for communication, considering them to be more secure compared to smartphone-based communication[15]. However, outmoded modes of communication - such as pagers - are far less efficient and are estimated to cost US hospitals $8.3 billion a year in reduced productivity. They also impact on quality of care as they take away from the time that doctors can spend interfacing directly with patients[16].

Healthcare Providers Do Not Leverage the Opportunity for Personalization of Care That Digital Technologies Enable

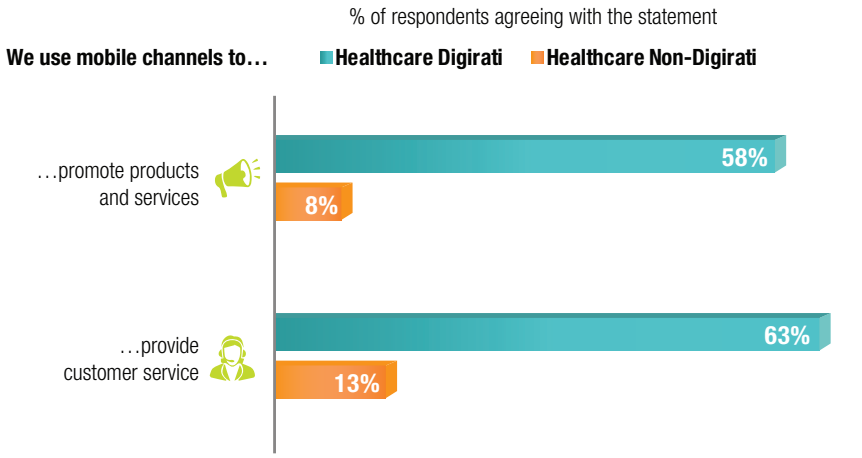
Hospitals have access to a wealth of digital data from various sources such as clinical information systems, electronic health records, and connected health devices. When used effectively, these data sets offer numerous opportunities for the personalization of healthcare services. Analysis of a patient's health history and genetic makeup can help doctors diagnose diseases more precisely and customize treatment plans. For instance, the Chicago-based NorthShore University Health System uses predictive modeling techniques to identify and treat patients who are likely to develop infections related to the Methicillin-Resistant Staphylococcus Aureus (MRSA) bacteria. The hospital has built a sophisticated algorithm based on nearly 27 variables that helps it detect high-risk patients more accurately[17]. Canada's St. Paul's Hospital, on the other hand, is implementing a Big Data analytics solution that will help it tailor treatments for HIV/AIDS patients. The solution aims to analyze genetic data in order to identify ways in which specific strains of the HIV virus affect a patient, and develop individualized treatment plans[18].

Despite many such opportunities to customize care using digital technologies, only 21% of non-Digiratis do so compared with 47% of Digiratis. Phil Fasano, CIO at US-based managed care consortium Kaiser-Permanente, underscores the benefits of Big Data for personalization while also highlighting some challenges - "The future of Big Data lies in its ability to support the safest, highest quality, most individualized care without constraint of borders and boundaries. But there are challenges - health care is a highly regulated industry with significant sensitivities about security and privacy of information[19]."

So why do a majority of healthcare providers, barring a few notable exceptions (see insert on Cleveland Clinic), lag in the use of digital technologies? Is it a simple function of investment or are there more foundational challenges holding them back? We explore some of the key issues in the next section.

> *"Canada's St. Paul's Hospital is implementing a Big Data analytics solution that will analyze genetic data in order to identify ways in which specific strains of the HIV virus affect a patient."*

Figure 3: Use of Mobile Channels - Comparison of Healthcare Digirati and Non-Digirati



Source: Capgemini Consulting Analysis

Cleveland Clinic: Putting Customer Centricity at the Heart of Digital Transformation

Founded in 1921, Cleveland Clinic operates a 1,440-bed hospital at its main campus in Cleveland, Ohio, as well as other facilities in the US and Canada. The Clinic has had a long reputation for medical excellence. For 19 consecutive years, it has been rated the best hospital in the US for cardiology and heart surgery. However, in 2004, it ranked amongst the bottom 10% of hospitals in the US in terms of patient satisfaction. The new CEO at the time decided to embark on several digital initiatives to set right things. This resulted in its overall ranking for patient satisfaction rising to the top 8% and made it a poster-child for customer excellence within the healthcare industry.

Some of the key milestones in its digital journey include:

Use of Digital Channels for Customer Interaction: Cleveland Clinic implemented an open access scheduling system that enabled patients to log in to a patient portal and make their own appointments. It launched an online patient educational portal, "Health Hub", to provide wellness and clinical treatment information to users. The clinic also focused on building a strong presence on social media platforms, such as Facebook and YouTube. In addition, the clinic launched a mobile-optimized website as well a mobile app to provide users with personalized health content.

Providing Online Access to Electronic Medical Records: Cleveland Clinic has focused on enabling its patients to view their medical records and test results online. Patients are also offered the option of signing up for email notifications or secure messages from their physicians whenever new information is made available.

Focus on Big Data Analytics: In 2009, the Cleveland Clinic's innovation spinoff, "Explorys", launched a SaaS (Software as a Service) solution that provides healthcare companies with a secure, cloud-based analytics platform. The platform allows them to explore care options using clinical, financial and operations data from 120 hospitals and 15 million patients. Cleveland Clinic continues to have a minority stake in the company and has deployed Explorys' cloud platform for its own use as well.

Investments on Improving Accessibility to Care: Recently, Cleveland Clinic announced a partnership with HealthSpot, a telehealth firm, to provide remote health facilities through HealthSpot's virtual walk-in kiosks. HealthSpot's kiosks are private enclosures equipped with touch screens, and integrated medical devices that will stream medical information to doctors in real time, allowing them to treat patients remotely.

Investments in Digital Leadership: Cleveland Clinic was the first healthcare organization in the United States to appoint a Chief Experience Officer to drive its customer experience initiatives centrally. The clinic also has a centralized Digital Engagements team that is responsible for curating and distributing content on various social media platforms. The clinic has also set up a "Mobile Center of Excellence" to manage its mobile initiatives. The center not only takes new app ideas from ideation to launch, but also applies analytics on post-launch user data in order to drive further improvements in the app and user experience.

Source: MyClevelandClinic.org, "Cleveland Clinic Ranks No. 1 in Heart Care for 19th Consecutive Year in U.S. News & World Report's "Best Hospitals 2014"", July 2013; Forbes, "Cleveland Clinic's Patient Satisfaction Strategy: A Millennial-Friendly Experience Overhaul", March 2014; HBR, "Health Care's Service Fanatics", May 2013; Health Leaders Media, "Secret to Cleveland Clinic's Social Media Success: Content", June 2014; Parker White, "Health Brands Look to Create Differentiation + Connect to Consumers", May 2014; Cleveland Clinic.org, "Office of Patient Experience"; Networkworld, "Health-IT early adopters well-poised for big-data advances in clinical medicine", April 2013; Healthcare IT News, "5 ways Cleveland Clinic improved its patient engagement strategies", October 2013; MyClevelandClinic.org, "Cleveland Clinic, HealthSpot to Expand Telehealth Capabilities Through Walk-In Kiosks", May 2014

Why are Healthcare Providers Unable to Mature Digitally?

The absence of a cohesive approach to digital transformation, combined with a lack of relevant internal processes and skills, are impeding true digital transformation among the majority of healthcare providers.

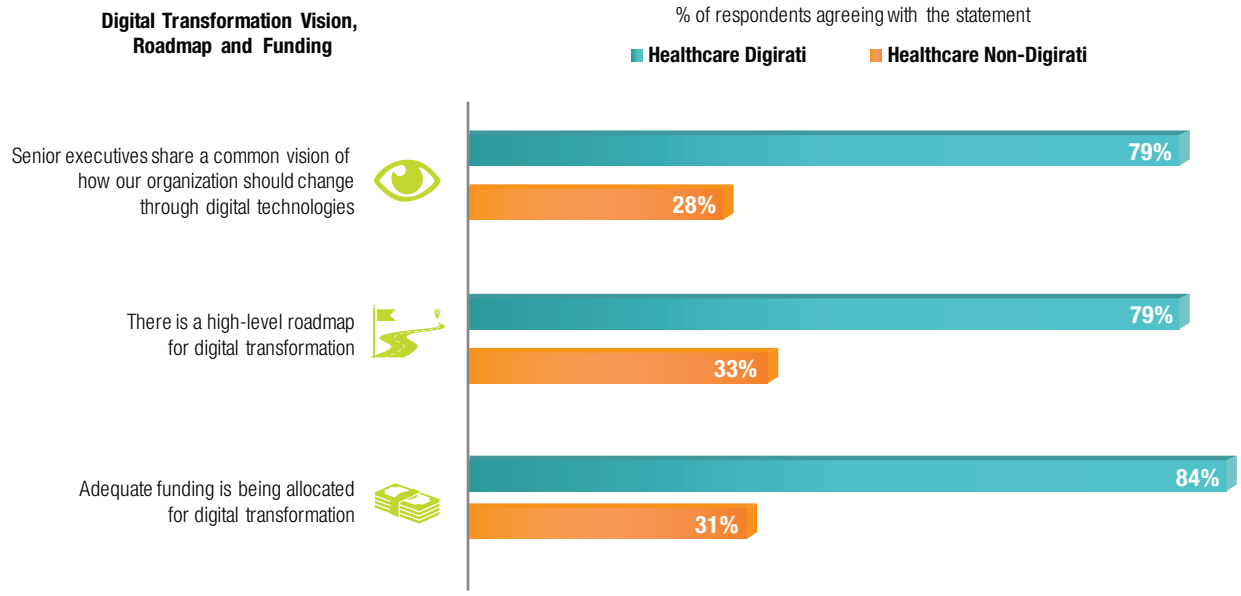
Most Healthcare Providers Lack a Systematic Approach towards Digital Transformation

Our research revealed a marked difference between the approaches that Digiratis and non-Digiratis take towards digital transformation. Digiratis have a clear vision for digital transformation, and back it up with a defined roadmap as well as adequate funding for digital initiatives. Non-Digiratis, however, lag on each of these aspects (see Figure 4).

The role of a strong vision and leadership support in driving digital transformation cannot be overemphasized. For instance, Cheryl Paxton-Hughes, Executive Director at the Center for Connected Medicine at University of Pittsburgh Medical Center, points to the role of its CIO, Dan Drawbaugh, in its successful IT transformation. She says – "I think what has made us successful is our CIO and senior vice president, Dan Drawbaugh, doesn't think like a technologist but rather as a businessperson. Even when we go to him about our IT ideas, the first thing he always asks us is, 'What impact will this have on the business, and how will it shape and change the way our patients receive care?' He also does a very good job of collaborating with the other C-level leaders of our organization and ensures that any of the systems or applications that we implement are driven by the organization as a whole[20].

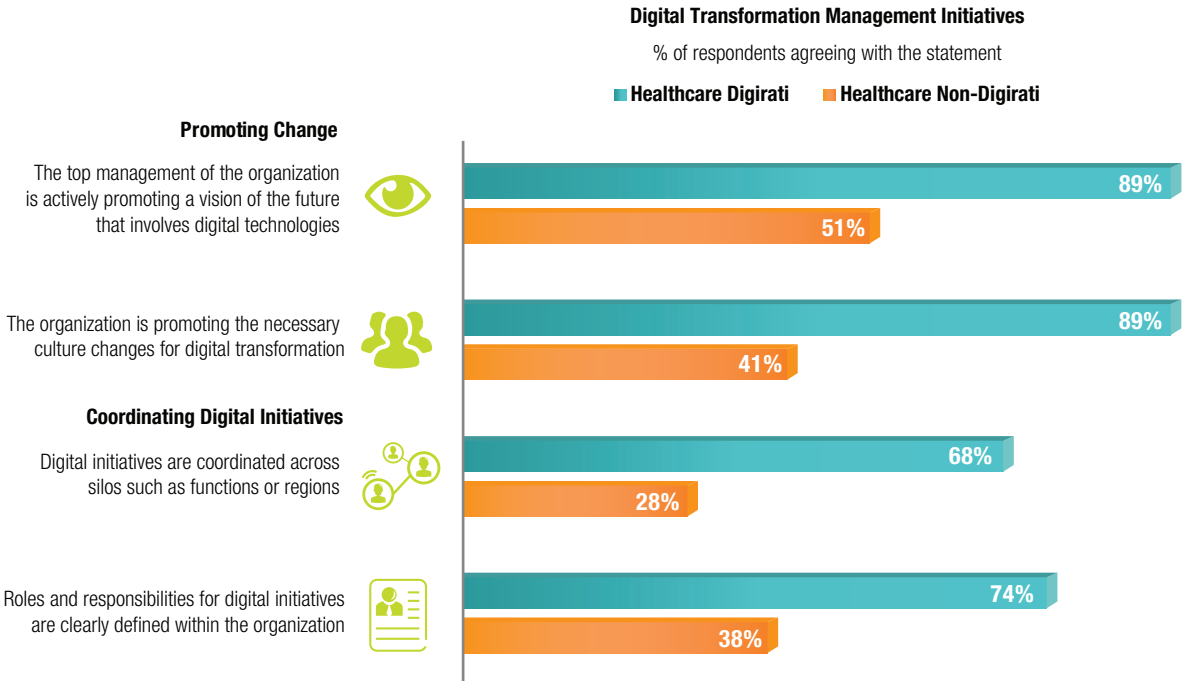
> *"Digirati healthcare providers have a clear vision for digital transformation, backed by a defined roadmap as well as adequate funding."*

Figure 4: Approach to Digital Transformation - Comparison of Healthcare Digirati and Non-Digirati



Source: Capgemini Consulting Analysis

Figure 5: Managing Digital Transformation - Comparison of Healthcare Digirati and Non-Digirati



Source: Capgemini Consulting Analysis

In addition, Digiratis take active steps in breaking down any organizational barriers that impede the adoption of digital technologies (see Figure 5). These barriers typically include resistance towards new modes of working, lack of clearly defined roles and responsibilities to drive digital initiatives, and difficulties in coordinating digital initiatives across organizational silos. Unlike the Digiratis, however, most non-Digirati healthcare providers do not take the necessary measures to address these barriers.

Many Healthcare Providers Still Operate with Manually-Intensive and Inflexible Processes

The rapidly evolving digital landscape necessitates that hospitals need processes that can respond quickly to patient requirements. However, our survey shows that healthcare non-Digiratis still depend mainly on manual processes that lack flexibility. Only 31% of non-Digiratis have automated their core processes, compared with 63% of Digiratis (see Figure 6).

> *"Only 31% of non-Digiratis have automated their core processes, compared with 63% of Digiratis."*

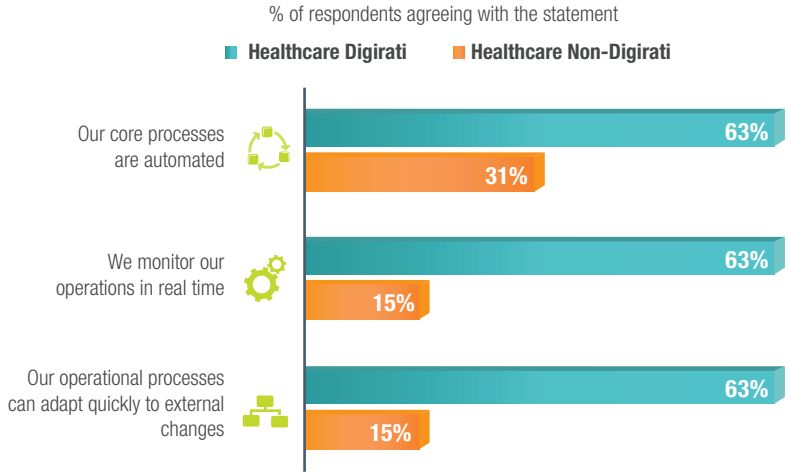
In addition to investing in process automation, Digiratis create integrated views of data for customers, operations and financials, which further enhances the efficiency of their core processes (see Figure 7). Ottawa Hospital, for instance, developed a centralized care management system that provides doctors with a unified view of a patient's progress reports[21]. The hospital also equipped doctors with iPads so that they could access clinical information, view clinical images such as X-Rays and CT scans, and show patients the progress of their recovery right from the bedside. As a result, the hospital was able to dramatically improve process efficiency by helping doctors save nearly two hours per day in clinical care activities[22].

Digitally Mature Healthcare Providers Have Strong Digital Skills

Our research found that non-Digirati healthcare players lack digital skills across the board – in the areas of digital leadership, mobile, analytics, social media, as well as embedded devices (see Figure 8). This co-relates directly with the gaps in the same areas - analytics, social media and mobile - and the overall low digital maturity of non-Digiratis. The digital leaders, on the other hand, invest heavily in strengthening their digital skills. We found that while only 36% of non-Digiratis invest in building digital skills, 84% of Digiratis do so. For instance, the New York based Mount Sinai Hospital hired 100 data scientists[23] and invested in bringing in top Silicon Valley data analytics talent. This was to build a Big Data facility that will map patients' genomes to predict diseases and personalize treatment[24]. In addition to hiring experts in genomics, the hospital also looked outside of the medical fraternity to hire talent. One of its key hires includes Jeff Hammerbacher, a leading data scientist who is credited with starting Facebook's data science team[25].

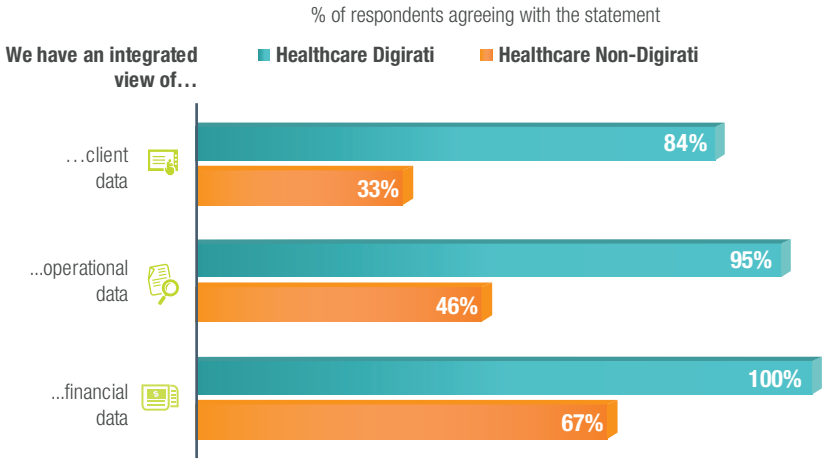
So, while there are clearly some digital leaders in the healthcare provider industry, how can the overall industry transform to become more digitally mature? What are the key areas the industry should focus on? We discuss these issues in the next section.

Figure 6: Process Digitization - Comparison of Healthcare Digirati and Non-Digirati



Source: Capgemini Consulting Analysis

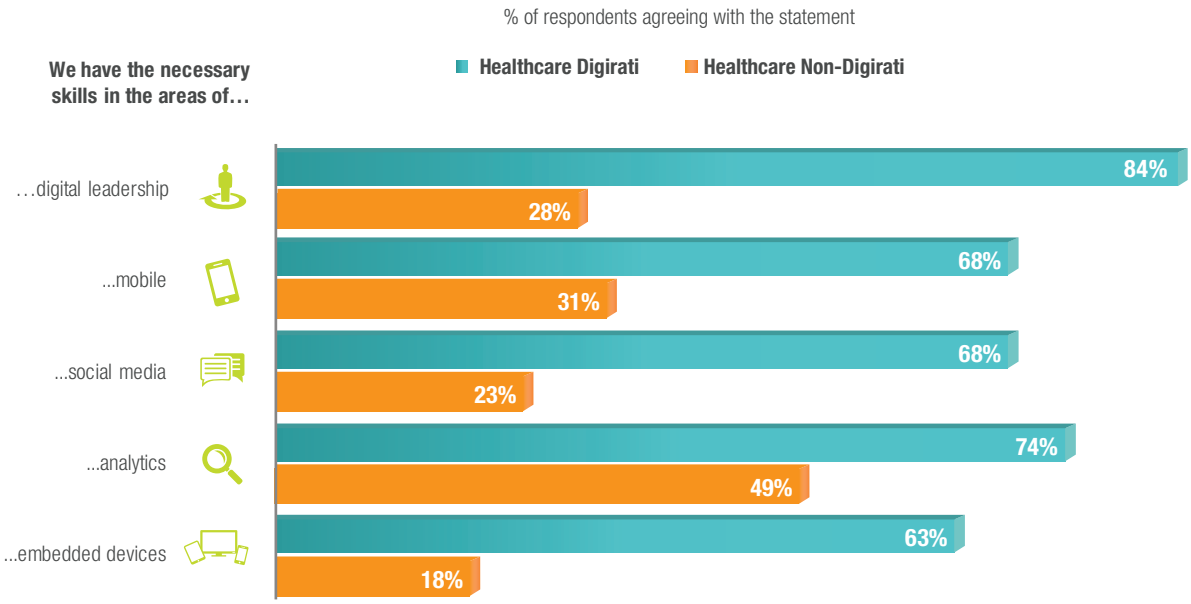
Figure 7: Use of Data - Comparison of Healthcare Digirati and Non-Digiratis



Source: Capgemini Consulting Analysis

Ottawa Hospital helped its doctors save nearly two hours per day in clinical care activities by equipping them with iPads connected to a centralized patient information system.

Figure 8: Availability of Digital Skills - Comparison of Healthcare Digirati and Non-Digirati



Source: Capgemini Consulting Analysis

New York based Mount Sinai Hospital hired 100 data scientists and invested in bringing in top Silicon Valley data analytics talent in order to build a Big Data facility.

How Can Healthcare Providers Move Up the Digital Curve?

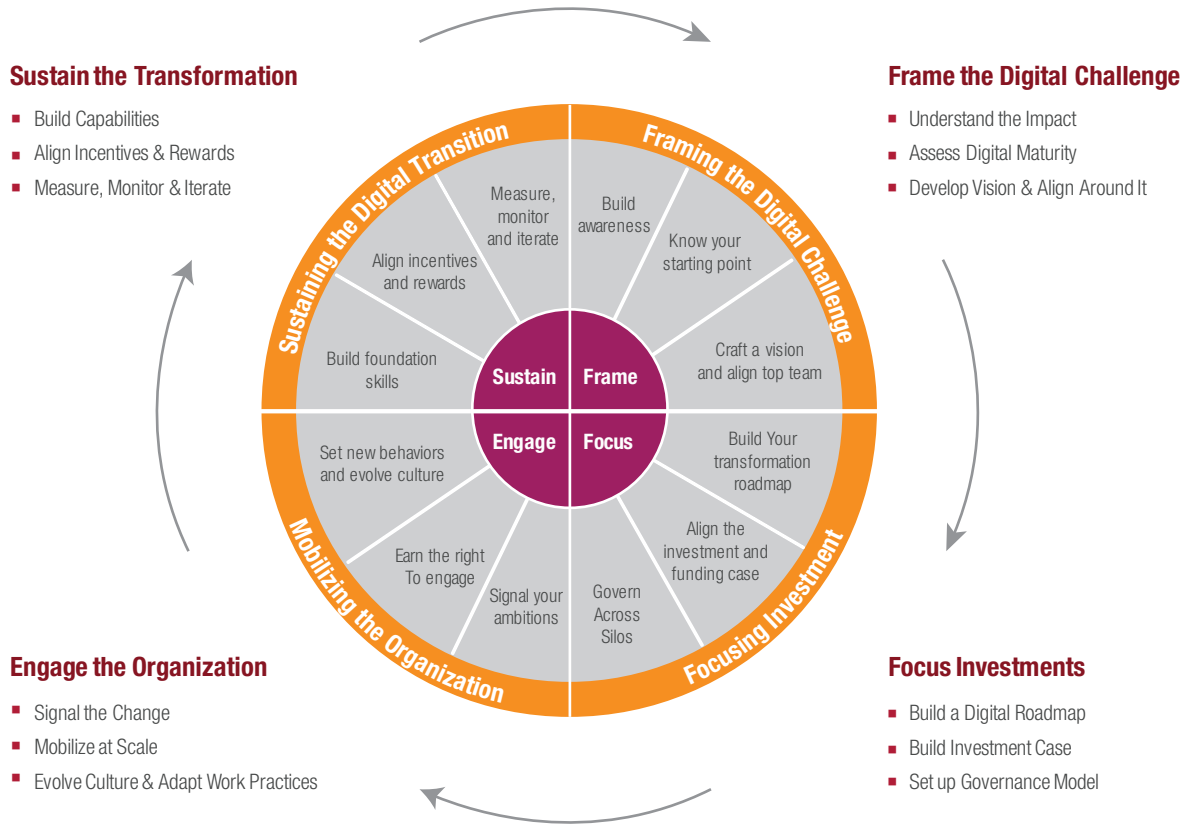
To attain higher levels of digital maturity, we recommend a four-step process that focuses on systematically planning digital transformation activities and laying the groundwork for sustainable transformation (see Figure 9).

Define a Vision and Secure Top-Management Buy-in

The journey to digital maturity must begin with a clear understanding of how digital technologies can impact on healthcare delivery. For instance, Cleveland Clinic defined its transformation goals based on a deep understanding of patient needs. To do so, the clinic conducted surveys and studies, and even sought inputs from patients[26]. The next step in the journey should involve a detailed assessment of existing digital capabilities, starting with an inventory of all digital initiatives that have been rolled out or are currently underway in various departments across the healthcare organization. It must also include an evaluation of processes and IT systems, and existing digital skill levels. These steps will ensure that healthcare organizations have a firm basis for defining their vision and focus areas for digital transformation. Once defined, it is imperative that the vision has the buy-in of the entire C-suite leadership.

> *"Healthcare organizations should appoint a Digital Czar and set up a dedicated Digital Services Unit (DSU) to oversee and coordinate digital initiatives across organizational silos."*

Figure 9: Driving Sustainable Digital Maturity



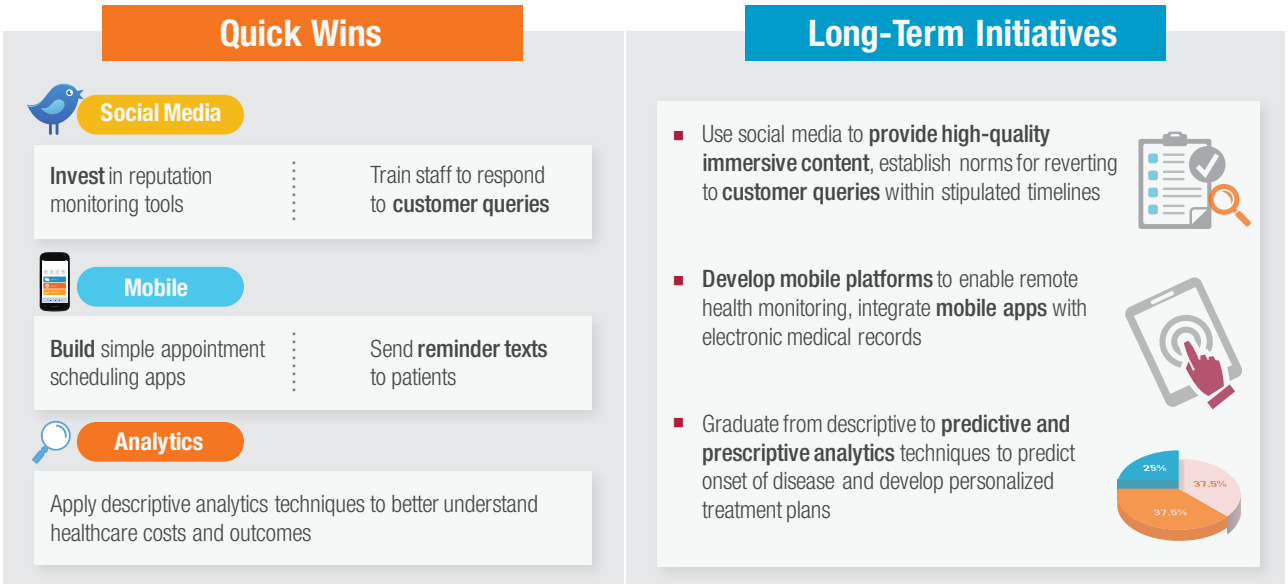
Source: Capgemini Consulting Analysis

Establish a Transformation Roadmap and Governance Model to Drive Digital Initiatives

The next step in digital transformation involves identifying specific digital initiatives and defining a roadmap for their implementation. Each initiative must be evaluated based on its business impact – and specifically, its impact on enhancing the patient experience. Some of these initiatives could be quick wins that deal with well-established, mature technologies with immediate customer readiness. The skills required for implementing such initiatives are usually available easily. Other initiatives could be more long-term and require sustained investments in building digital assets. We propose an indicative list of such initiatives (see Figure 10). In the end, however, the choice of initiatives would depend heavily on each healthcare organization's specific goals and focus areas.

> *"Senior management must focus on cascading its vision for digital transformation across the entire organization."*

Figure 10: Indicative List of Digital Initiatives



Source: Capgemini Consulting Analysis

Healthcare organizations should also set up strong governance mechanisms to drive the implementation of digital initiatives. One of the ways of accomplishing this is to appoint a Digital Czar, along the lines of Cleveland Clinic's decision to appoint a Chief Experience Officer. Healthcare firms should also set up a dedicated Digital Services Unit (DSU) to oversee and coordinate digital initiatives across organizational silos. The DSU in turn should consist of Centers of Excellence (CoEs) dedicated to the advancement of digital initiatives in a specific area. There are a number of organizations that provide inspiration for such CoEs. These include the Mayo Clinic Center for Social Media, the Mobile Center of Excellence at Cleveland Clinic, or Mount Sinai Hospital's Icahn Institute for Genomics and Multiscale Biology, which focuses specifically on Big Data analytics.

Promote Internal Collaboration and Knowledge Sharing to Drive Internal Engagement

To build a truly digital healthcare organization, employees need to embrace digital internally. Senior management must focus on cascading its vision for digital transformation across the entire organization. Organizations must also build a digital communication backbone across the organization through online training, videos, podcasts for management announcements, and community platforms for knowledge and idea sharing. In addition, healthcare organizations should identify digital ambassadors - doctors and nurses who are early-adopters of digital technologies - who in turn can share their experiences and drive adoption among their peers.

"Healthcare organizations should identify digital ambassadors - doctors and nurses who are early-adopters of digital technologies - who in turn can share their experiences and drive adoption among their peers."

Prioritize Skill Development and Operational Excellence for a Sustained Digital Advantage

While gaps in digital skills can be filled initially by outsourcing solution development, internal skill development is essential for long-term sustained growth. Organizations need to invest actively in training programs and hire experienced digital professionals in order to instil a digital DNA throughout the organization. In addition, healthcare providers must continually strive towards streamlining internal operations, so that they are equipped to respond rapidly to changing market requirements. Healthcare providers need to integrate disparate data sources to generate a single source of data for all customer, operations and financial data. They must also invest in advanced analytics infrastructure and clinical decision support systems that enable them to deliver cutting-edge patient care. The University of Pittsburgh Medical Center, for instance, has undertaken one of the healthcare industry's most ambitious Big Data Analytics initiatives. It involves a $100 million investment in combining clinical, genomic, insurance, and financial data from more than 200 sources into a single data warehouse[27].

The healthcare sector is at an inflection point, created by rising costs and a growing chronic disease burden. At the same time, healthcare consumers are more empowered today and are taking greater control over their healthcare decisions. Digital technologies can help healthcare providers contain costs, address evolving customer needs, and dramatically enhance quality of care. However, despite some striking examples of the impact of digital technologies in the healthcare sector, digital initiatives in most healthcare organizations have not taken off. Healthcare providers must bear in mind that there is no room for complacency in the digital world. They must act now to make digital the lifeblood of their organization and growth ambition.

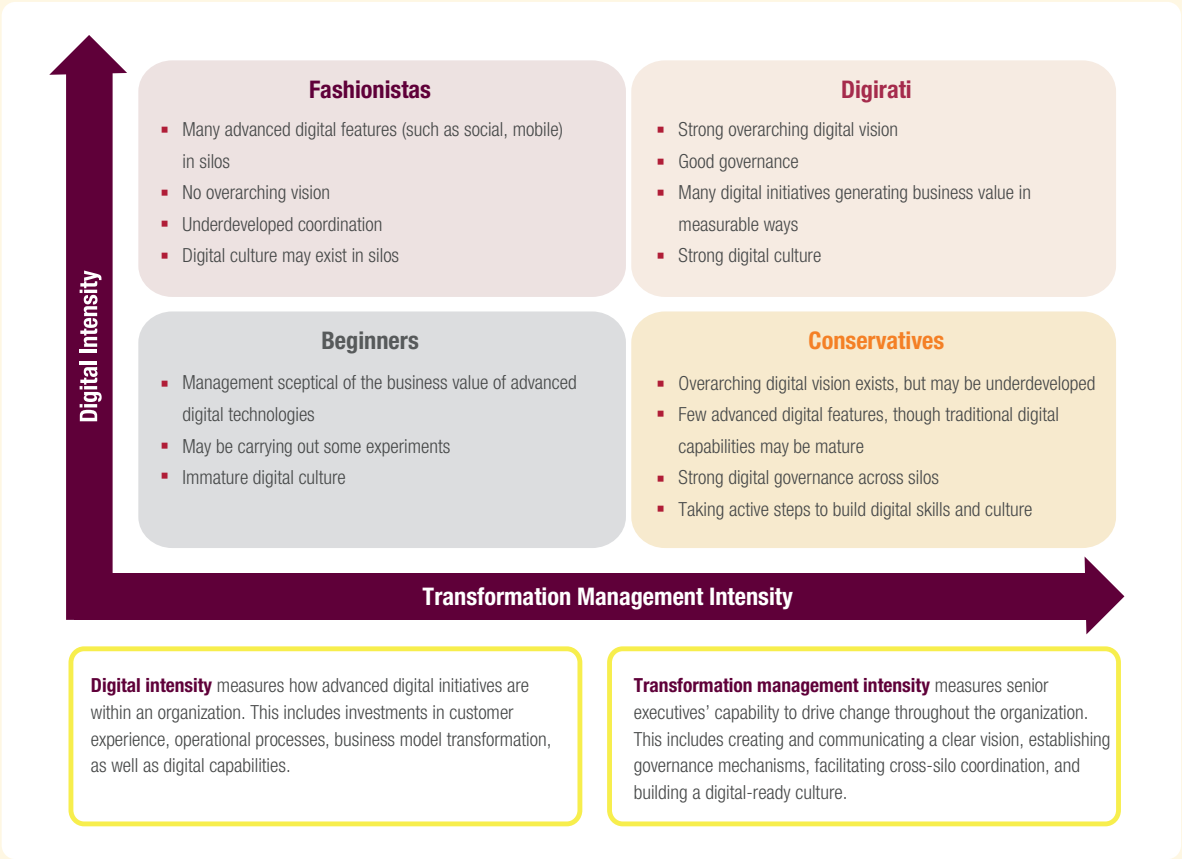
"Investing actively in training programs and hiring experienced digital professionals are some of the efforts needed to instil a digital DNA in an organization."

Survey Methodology

About the Digital in Healthcare Survey

Capgemini Consulting carried out extensive research to understand the digital maturity of healthcare providers. Our first Global Healthcare Survey covers 58 healthcare providers across 8 countries in North America, Europe and Asia. The survey assesses digital maturity levels of healthcare organizations based on their "Digital Intensity" and their "Transformation "Management Intensity" and classifies them as Beginners, Conservatives, Fashionistas and Digirati (see Figure below). For the purposes of this report, we classify Beginners, Conservatives and Fashionistas as "non-Digirati". The findings from our statistical analysis, supplemented by our earlier qualitative research and additional interviews, serve as the basis for the findings and recommendations in this report.

Four Levels of Digital Maturity



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5 Digiratis have the digital maturity not only to build digital innovations, but also to drive enterprise-wide transformation.

6 Non-Digiratis have limited digital capabilities either due to a lack of awareness on the business benefits of digital technologies or the lack of a transformation vision, or both.

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