Creating the Composable Healthcare Organization for Healthcare and Life Science CIOs

By Jeff Cribbs, Mike Jones, Laura Craft, Michael Shanler Mandi Bishop
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Initiatives: Healthcare and Life Science Digital Transformation and Innovation; Applications and Software Engineering Leaders

Healthcare CIOs are expected to enable business growth, diversification and value delivery all during a time of unprecedented uncertainty. They preside over an application-centric architecture that lacks the adaptability to meet these demands. Gartner’s composable business model is the path forward.

Overview

Key Findings

- Boards of directors and CEOs are challenging healthcare CIOs to drive value delivery and enable fluid business and operating model diversification at an accelerated pace. They are making these demands in the context of unprecedented uncertainty, both in the near term, due to COVID-19 disruption, and in the long term, due to the complex dynamics of digital health.

- Healthcare organizations are generally designed to serve the dominant heritage business and operating model of their sector. Technology architecture is application-centric, often dominated by monolithic vendors in EHR, eClinical and core administrative processing systems (CAPS) for provider, life sciences and payer organizations, respectively.

- Gartner’s composable healthcare organization is a new organization model built on three pillars: composable thinking, composable business architecture and composable technologies. A composable healthcare organization will optimize its heritage business model, support a diverse range of new business models and adapt at the pace of business change.
Recommendations

Healthcare and life science CIOs advancing healthcare and life science digital transformation and innovation should:

- Lead differently by introducing the composable organization vision to your executive peers. Emphasize that it is as much a leadership and operational vision as it is a technology one.

- Build differently by adopting composable business and technology architecture as a guiding principle of your information and technology strategy.

- Buy differently by choosing solutions for their composability (rather than single use), evaluating vendors as rigorously on their APIs as their user interfaces and embracing new vendor pricing models.

Analysis

Healthcare CEOs to CIOs: Adaptability Now

The current approach to healthcare technology isn't working. Decades of digitization have left healthcare organizations with crippling technical debt. Application spaces, such as the EHR, core administrative processing systems and clinical ERP, have bloated their functional footprints so far beyond the original design they deliver second-rate capabilities throughout the organization. This results in deficiencies in data sharing, consumer experience and staff productivity that would not be tolerated in more digitally advanced industries. Repetitive attempts to realize the elusive “single source of truth” has created the opposite — innumerable sources and no truth. Too often, clinicians, administrative staff, business leaders, researchers and sales representatives are serving their enterprise applications, not the other way around. With these rigid data and application architectures, making changes to fix egregious problems, fend off competition or seize new opportunities is slow, risky and expensive.
This current state of healthcare technology, consistently illuminated in thousands of advisory interactions between Gartner and its global healthcare clients, stands in stark contrast to the needs of this moment in the healthcare industry. Healthcare purchasers (individuals, governments and employers) are demanding delivery of new medical innovations, better cost control and an effortless and engaging consumer experience. These objectives can only be achieved through a structural transformation of the healthcare industry, removing the conventional barriers among organizations within the healthcare sector, across sectors, and critically between healthcare and other industries (such as personal technology, travel and retail). New digital competitors are right now in the process of fragmenting triage and primary care, upending research collaboration and analytics infrastructure, and reimagining consumer access to services and engagement with their health. Individual healthcare organizations that cling to their heritage business and operating models will falter in this dynamic environment. Those that plan for continuous experimentation and adaptation — to optimize the current model, extend into adjacent models and in some cases transform into substantially changed models — will thrive.

In addition, the healthcare and life science industry today faces an unprecedented level of uncertainty. This was already the case at the beginning of 2020, when five years of “digital transformation” had left healthcare organizations revisiting what exactly they should be transforming into (see Confront Uncertainty in Your 2020 Healthcare Strategic Planning). But uncertainty was redoubled when the COVID-19 pandemic ravaged healthcare systems and economies in the early months of 2020. Even as we gain control of the public health crisis through vaccinations, improved treatment of the sick and public health efforts to curtail transmission, the economic recovery and the persistence of behavior change will remain uncertainties for years to come. It is now clear, more than ever before, that healthcare organizations must have adaptability as a foundation principle of its business and technology strategy.

The bottom line for healthcare CIOs — your business and clinical leaders will demand technology support for growth, business and operating model diversification, accelerated speed to market and value delivery. You must achieve this in the face of mounting uncertainty. The adaptability you enable will determine the success or failure of your organization.
Adaptability has been a common objective in healthcare business and technology discussions over many years, in many iterations. However, no previous approach at the intersection of IT and the business has fundamentally changed the “economics of adaptability.”

Adaptable business and technology solutions generally require additional investment over solutions designed for a single use. For example, implementing a vendor product for remote medical monitoring of discharged cardiac patients would require moderate data sharing and process integration. An adaptable solution, such as a connected care platform, implemented in anticipation of future changes to the program would be substantially more expensive. Future changes could include swapping the first vendor for another vendor, expanding monitoring to additional clinical care pathways or integrating experiences among multiple programs for multimorbid cardiac patients. In this example, the return on the investment in adaptability is the ability to efficiently learn and modify the solution as conditions change. The combination of the increasing maturity of core, cross-industry technologies together with evolving operational practices are enabling CIOs to lower the investment premium for an adaptable design over a single use one. Cross-industry technologies include master data management, API management and data management; while operational practices include DataOps and fusion teams. At the same time, the radically altered business and clinical context demands on IT, characterized by both near- and long-term uncertainty, has made the effective “return” on adaptability much greater. To return to the example: two years ago, a single-use medical monitoring solution was the right choice. Today, the connected care platform is the right choice. What has changed is the economics of adaptability.

Adaptability in healthcare is more valuable than ever. The premium for adaptable solutions over single-use solutions is lower than ever. This amounts to an inflection point in the economics of adaptability. Healthcare CIOs have an unique opportunity in this moment to position their organizations for extraordinary success by enabling enterprise-level adaptability.

Introducing the Composable Healthcare Organization

With the introduction of the composable healthcare organization research, the Gartner healthcare team marks the critical point in the economics of adaptability for healthcare organizations. With this research, we will empower healthcare CIOs to advocate within their organizations for composability as a key, differentiating, enterprise business value. Further, we will provide practical advice on how to drive that value into daily business and technology decisions.
A composable healthcare organization is an enterprise that delivers extraordinary health value by adapting business and operating models at the pace of business change. It does this by creating a culture of composable thinking, operating within a composable business architecture and scaling impact with composable technologies (see Figure 1).

**Figure 1: The Three Components of the Composable Healthcare Organization**

**Composable Business**

There are three features of the composable healthcare organization that differentiates it from the status quo in healthcare today. Briefly, they are:
**Composable thinking** — Business, clinical and technology leaders acknowledge and embrace uncertainty as a given. They use scenario planning to challenge their “consensus future” and take an options-based approach to setting strategic priorities. They fund initiatives that will learn and adapt beyond the immediate requirements. Amid all of the flux of the external environment and continuous recomposition of business and operating models, leadership maintains a persistent focus on the measurable creation of human health value. That is, measurably improving health, at an affordable cost, by means of a positive experience.

**Composable business architecture** — The organization is designed, top to bottom, to discover and adapt. The optimization of the heritage healthcare business and operating model of the organization (i.e., provider, payer or life sciences) remains a core focus. But those capabilities are broken down into smaller, more manageable elements that can be reconfigured to serve new business and operating models. Business, clinical and technology workers collaborate on fusion teams that span units and functions, and exercise significant autonomy and share significant accountability in achieving the common purpose or vision of the enterprise.

**Composable Technologies** — The legacy monolithic application suites, newer SaaS applications, internally developed, custom-made applications, and data and analytics assets are all refactored as packaged business capabilities (PBCs). These components are designed for assembly and reassembly into many contexts, for many users, and diverse usage patterns. This technology architecture enables adaptability at scale, and is especially valuable in emerging use cases that space existing applications (see Figure 2). Examples include population health management for providers, patient engagement hub for life sciences or digital concierge for payers (see Use Gartner’s Reference Model to Deliver Intelligent Composable Business Applications).
Note that key features of the composable healthcare organization are vastly different than the current state of most healthcare organizations today (see Table 1).
Table 1: The Transformation From the Current State to the Composable Healthcare Organization Impact Areas
(Enlarged table in Appendix)

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Source: Gartner (December 2020)

Use Cases for the Composable Healthcare Organization

Today’s healthcare organizations are not going to become composable healthcare organizations overnight, of course. Rather, the culture, principles and reference architecture will cascade down from leadership while the application of the same will emerge from high-priority, composable business use cases. Figure 3 shows a Hype Cycle with three Innovation Profiles taken from Gartner’s 2020 healthcare Hype Cycles. Each profile describes a space with attributes below, which indicate a promising composable business use case:

1. The space has incumbent technology solutions or partial solutions. These solutions may be built, bought or a combination of both.

2. Technology leaders from healthcare organizations regularly report the limitation of existing solutions.
3. The solution requires the integration of multiple functional or technical domains.

4. The use profile is rated as “high” or “transformational” benefit to the healthcare organization on the Hype Cycle.

5. The benefit is sensitive to market conditions that are likely to change significantly and often in the lifetime of the technology.

Figure 3: Innovation Profiles That Represent Composable Healthcare Business Use Cases

Innovation Profiles That Represent Composable Healthcare Business Use Cases
Illustrative

Digital Trials

Community Resource Network Management

Real-Time Health System Command Center

Source: Gartner
Digital trials are the combination of technologies representing the full digitalization of clinical trials, including remote data capture via devices, use of eSource, and the shifting of trial processes away from clinical sites and toward the trial subjects themselves. Life science companies have rapidly accelerated digital trials to address the safety requirements during the COVID-19 crisis. Life science CIOs have an opportunity to shore up these gains by using composable technologies and composable business architecture to rapidly adapt clinical research to changes in market conditions. These changes could include continued infections and reinfections of COVID-19, urgent need for patient recruitment across remote geographies and/or the increased use of real-world evidence (such as wearables) in clinical trials.

Community resource network management (CRNM) is an operational model that a healthcare organization (typically a payer, provider or government agency) adopts to optimize the utilization of nonmedical services and ameliorate the effects of social determinants of health. CRNM solutions today are most commonly cobbled together through a combination of technologies and analog processes supported by many organizations with an aligned interest in the health and thriving of a common set of individuals (members, citizens or patients). Using composable technologies and composable business architecture, an ecosystem of these organizations can adapt to provide health and social care services in an efficient, coordinated health and social care pathway (see How Healthcare CIOs Can Enable Integrated Health and Social Care Pathways).

Real-time health system (RTHS) command center is an enterprise-level composition of clinical, operational and administrative dashboards powered by real-time patient event data, advanced analytics and predictive models. The command center uses real-time operational intelligence to anticipate, optimize and orchestrate healthcare provider enterprise and network resources, workflows and capacity in response to changing conditions. The diversity of source systems (EHR, facilities management system, asset tracking, and staffing system), the requirement for real-time interfaces, and the need to adapt to internal and external conditions, makes this an ideal use case for composable technologies.

Recommendations

Lead differently by introducing the composable thinking to your executive peers.
The path to the composable healthcare business does not start with a change in technology — it starts with a change in leadership and culture. This road will not be short, and you cannot take this journey yourself. In your executive communications, you must emphasize that composability is as much a leadership and operational vision as it is a technology one.

Your executive leadership needs to begin with an honest recognition of the realities of the current moment in healthcare and the demands on your organization that lie ahead. Unfortunately, some healthcare organizations have a culture that rewards treating speculation as certainty and fosters a belief that the industry is insulated from the kinds of disruption and transformation seen in others. If this is the case in your organization, you will need to build alliances with like-minded peers and raise the alarm about that false sense of security. For example, many healthcare organizations are planning around a “consensus future” that the combined economic and health crisis will end in mid-2021. That may be, but shorter and much longer scenarios are very plausible. As another example, many healthcare organizations point to the increased use of digital channels as “the new normal.” The reality is, however, that digital utilization could quickly revert when external constraints are removed or they could accelerate and amplify as they become reinforced with changes in policy, payment models and the physical environment. An acknowledgment of the uncertainty ahead is key to the business case for building the composable healthcare organization.

The second key message for your executive team is that the composable business is a shared business, clinical and technology vision for the organization. It will require a level of continuity between and collaboration between business, clinical and technology teams that are uncommon in healthcare today. In practice, this means the development and support of fusion teams, which are fully described Fusion Teams: Cross-Functional Collaboration for the Digital Era. When your executive team agrees to the creation of a first fusion team to focus on delivering your highest priority packaged business capabilities, you will have taken an important tangible step toward the composable business.

**Build differently by adopting composable business and technology architecture as a guiding principle of your information and technology strategy.**

Many healthcare organizations will be making significant changes to their technology strategies in late 2020 and throughout 2021. This is an important opportunity to get the principles of the composable healthcare organization into yours. Give “adaptability” top billing among the handful of pillars, core principles or values that encompass the intent of the strategy.
Use language to invoke the composable business in the refresh from your information and technology strategy. Consider “composability,” “adaptability,” “build to adapt” as a key principle that appears alongside other key pillars such as “digital workforce,” “information as an asset,” “innovation” or “patient-centricity.”

At the next layer of detail, you will need to include in your strategy a plan to build your composition platform. This will be the technology layer that creates packaged business capabilities from underlying applications and makes them available to create composed application experiences. Figure 4 shows the 2020 position of enterprise composition platforms for payer, providers and life sciences organizations.

**Figure 4: Healthcare Composition Platforms on the 2020 Healthcare Hype Cycle**

Finally, you will need to organize your technology initiatives around the delivery and improvement of the packaged business capabilities themselves. You cannot and should not do this all at once, but rather should prioritize those where “composability” is likely to deliver the most business value. Review your existing initiatives and prioritize those that:
- Support a range of business models.
- Are most likely to change in scope or scale in response to market demand.
- Will be especially sensitive to “time to delivery.”

Examples of PBCs that meet these criteria:

- Healthcare payers — Member 360, member consent and preference, claim process state.
- Healthcare provider — Care pathway state, clinical decision rule, virtual rounding.
- Life sciences — Trial enrollment status, development pipeline intelligence.

**Choose differently in making day-to-day technology decisions by designing solutions for composability.**

You can immediately make progress toward composability by changing in-flight solution designs and vendor procurements. For example, often when a new set of business requirements within a healthcare organization, there are multiple possible solution approaches. Some will primarily focus on a net new vendor, others will leverage several existing vendor solutions, and still others will focus on net-new development. Often enterprise architects are directed to first ask “what solution approach makes the best use of our existing investments?” In the context of the composable business, it is equally important to ask “what solution approach will be most reusable across multiple business models and adaptable to the business environment?”

Adopting the principle of composability will also influence how you evaluate, rate, implement and contract with vendors. In the evaluation stage, commit to a rigorous evaluation of the “composability” of the technology provided. When many healthcare organizations go through a vendor evaluation today, they will spend hours, or even days, walking through the vendor’s user interface, click by click. They will demand a “sandbox” environment, where many different users types can do a “look and feel” evaluation of the product. The unfortunate reality is that this favors visually attractive applications that hew most closely to the mental frames of those scoring the vendors.

To avoid this, commit to evaluating the utility and ease of APIs and vendor-provided development environments just as rigorously. Ask for a development “sandbox” that accompanies the sandbox UI environment. Give internal developers an opportunity to experiment with lightweight composed applications.
When evaluating vendors, adopt this mantra: “We evaluate APIs as rigorously as we evaluate UIs.”

Finally, as you make vendor procurements more centered on APIs, it will naturally open the question of transaction-based pricing. This is uncomfortable for many healthcare organizations because it is a significant deviation from the “per-seat” or the “per-patient per-month” models that form the base of many healthcare and life science technology licensing models today. These are early days for vendors, too, who are trying to figure out how to move in this direction and not alienate clients. However, transaction-based pricing will, in some cases, provide the best alignment of value and reimbursement between your organization and your vendors.

For example, healthcare consumer insights as a service (HClaaS) is an emerging application category that has struggled to gain adoption. This is largely because the total population value proposition was difficult to prove and implementations were often deployed as large periodic batch runs of the entire population. This would be the equivalent of a loan officer purchasing a credit report on an entire population of individuals, regardless of their level of interest or known criteria characteristics. A composable deployment model would enable a transaction-level deployment of HClaaS (and premium pricing) in those scenarios where it is most valuable.

Evidence

1 Walmart Not Only Wants to End Amazon, It Also Wants Mapfre, AXA and GNP Business, Merca2.0.

2 Using AI to Give Doctors a 48-Hour Head Start on Life-Threatening Illness, DeepMind.

3 Simplifying Employee Healthcare, Collective Health.

Recommended by the Authors

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Confront Uncertainty in Your 2020 Healthcare Strategic Planning

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Use Reset Scenarios to Move From Survival to Renewal for U.S. Healthcare Payers

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