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Digital health
ecosystems:
a payer
perspective

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This article is one of several papers we will be releasing in the near future on the importance of digital for payers.

Digital health ecosystems: a payer perspective

Creating or participating in a digital health ecosystem can allow payers to take advantage of their central position in the healthcare landscape and expand in new directions.

Change has long been a constant in the healthcare sector, but it has greatly accelerated in recent years. Consumer expectations are growing, driven by developments in other industries. Prices continue to rise, and more advanced medical services become available on a regular basis.[1] New data-driven technologies are spurring digitization and automation across the board.[2]

Combined, these dynamics are causing true disruption, leading to a healthcare market that requires fundamentally new capabilities to effectively compete (Exhibit 1). Some payers, for example, are integrating with other parts of the value chain to improve member experience in new ways, which is altering market dynamics. Technology start-ups are offering new products and services designed to address traditional industry challenges, thereby disaggregating the value chain and often diluting payers' value propositions in the process. Technology titans are threatening to attack large value pools, leaving some payers in danger of being disintermediated or carved out of high-value areas. Given the rapidty of technological advances, future innovations could leave many conventional payers behind.

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[1] The Centers for Medicare and Medicaid Services expect the growth of healthcare spending to be one percentage point above GDP growth each year between 2017 and 2026 (see: CMS.gov. CMS Office of the Actuary releases 2017–2026 projections of national health expenditures. February 14, 2018).

[2] Carlton, S. and Singhal, S., The era of exponential improvement in healthcare? McKinsey white paper, May 2019.

Exhibit 1

Industry disruption can create opportunities for payers—not just challenges

The risk of disruption is growing …	… but disruption could bring tremendous value
Disruption scenarios	**Opportunites**
Vertical integration to improve member experience in new ways	Better engage customers
Tech start-ups chipping away at payers' value proposition	Fully automate insurance engine
Tech titans attacking value pools	Strengthen partnership with providers
Digital payers threatening to disrupt from within	Focus on the most effective treatments

Building a digital health ecosystem can drive tremendous value in the time of disruption

These ecosystems enable a range of consumer-centric services by establishing a network of digital service providers.

This barrage of change, despite its sometimes dizzying pace, is creating new opportunities to solve long-standing problems. Some of the new digital offers have been shown to deliver experiences that meet the expectations of today's consumers (even young "digital natives"). Payers can also take advantage of new technologies to fully automate core processes, strengthen their partnerships with providers, and reposition themselves at the center of the healthcare landscape.

In this article, we focus on the opportunity for payers to use digital health ecosystems to disrupt their own ways of delivering services and engaging with consumers. These ecosystems enable a range of consumer-centric services by establishing a network of digital service providers (Exhibit 2). They run on technology platforms that act as a digital backbone, providing interconnectivity among provider systems, physicians, payers, patients, and other healthcare players. Thus, an ecosystem facilitates both historical and real-time data exchange and gives participants access to new services, such as on-demand interactions with caregivers and analytical modeling of their personalized treatment paths. The goal of each ecosystem is, ultimately, to improve healthcare outcomes.

Exhibit 2

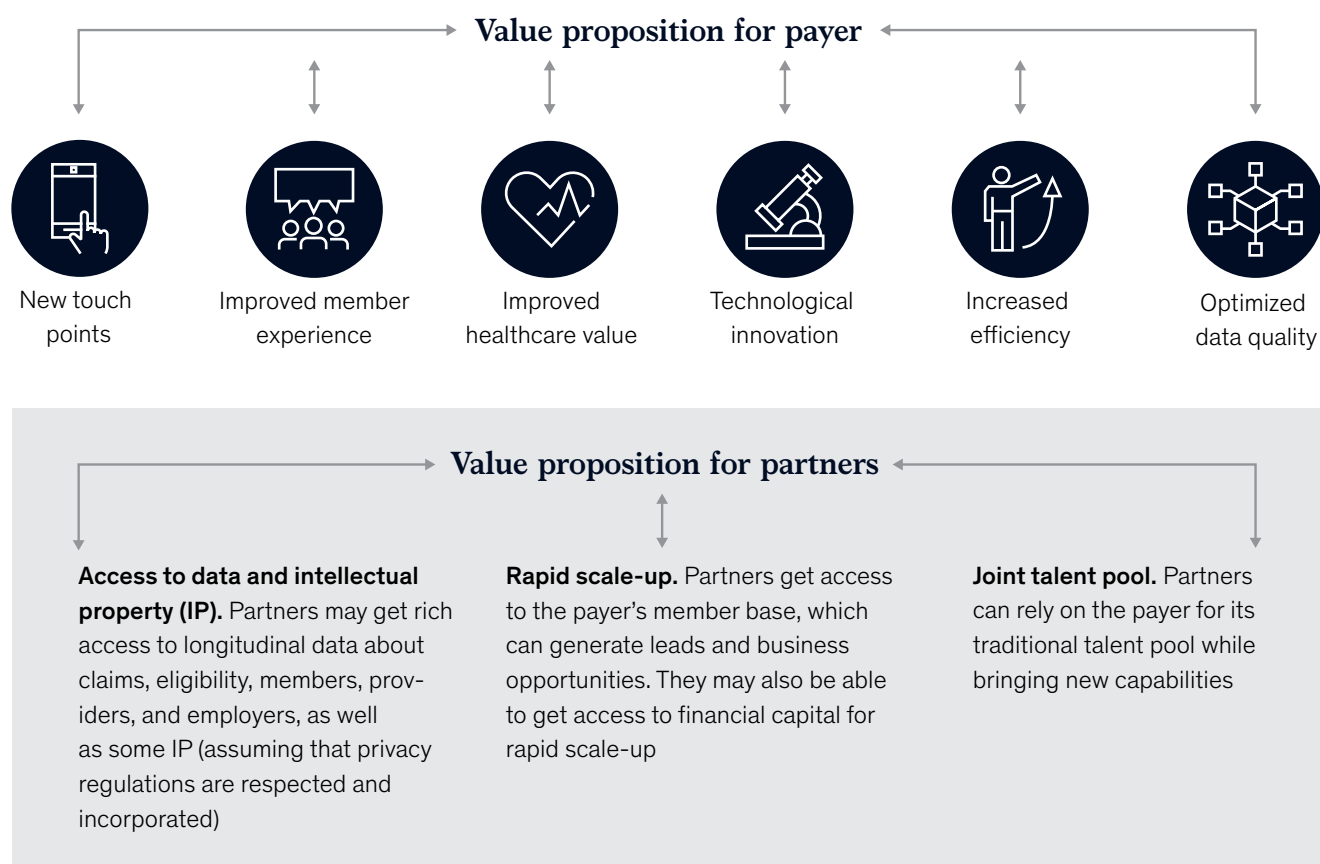**Digital health ecosystems enable a range of use cases for consumers**

	Sample use cases	Key concepts
Education and engagement	Health coach	Monitor health with fitness tracking data and receive personalized advice
	Challenges and rewards	Achieve goals each day to accumulate points, compete with friends, and redeem benefits
Screening and diagnosis	Premium check-ups	Receive information on premium health services and check-ups
	Treatment paths	Receive recommendations for treatment options and next steps based on symptoms
Access to care	Best doctor	Browse recommended doctors and make reservations with real-time availability
	Telemedicine	Have uncomplicated access to trained clinicians through video/voice calls
	Second opinion	Rapidly obtain a second opinion supported by seamless transfer of information
	Health concierge	Manage treatment pathways and have access to additional healthcare services
Care management and community	Food service	Receive dietary recommendations based on nutritional values and order meals online
	Social integration	Participate in medical social networks with content sharing and recommendations
	Community	View/read the treatment experiences of other patients and engage in discussions
Core insurance services	Financial coach	Get prediction for total treatment costs to help decide on an adequate treatment path

Ecosystems bring opportunities

In recent years, both healthcare stakeholders and companies in other industries have recognized the potential benefits of digital health applications. Most payers now offer a wide range of consumer applications and other health services. Providers are adopting tele-medicine applications and other digital offers. In addition, pharmaceutical companies are experimenting with treatments beyond pills (including biologic and genomic products), technology start-ups are providing new digital health solutions, and high-tech giants are pushing a growing array of health applications.

When linked, these technologies can serve as the foundation for digital health ecosystems that can benefit all involved parties (Exhibit 3). Most notably, the emergence of new service offers gives those parties the opportunity to engage with consumers more regularly—at any point in their healthcare journey—through a variety of channels. For payers, these regular touch points, along with the digital health services they now offer, create an opportunity to significantly improve member experience.

Exhibit 3

Digital health ecosystems can benefit both payers and partners

Value proposition for payer

New touch points	Improved member experience	Improved healthcare value	Technological innovation	Increased efficiency	Optimized data quality

Value proposition for partners

Access to data and intellectual property (IP). Partners may get rich access to longitudinal data about claims, eligibility, members, providers, and employers, as well as some IP (assuming that privacy regulations are respected and incorporated)

Rapid scale-up. Partners get access to the payer's member base, which can generate leads and business opportunities. They may also be able to get access to financial capital for rapid scale-up

Joint talent pool. Partners can rely on the payer for its traditional talent pool while bringing new capabilities

In addition, ecosystems can help drive healthcare value. For example, regular communication between a patient, provider, and payer can advance care integration and optimize health monitoring, which can then reduce the risk of medical errors, increase the use of preventive health services, and improve overall care delivery.

Digital health ecosystems also hold promise in improving administrative efficiency based on lower overhead costs and faster turnaround times. By enabling more seamless data sharing among all parties, the quality and availability of data can be improved—the foundation for using advanced automation technology to significantly reduce the need for manual processing.[3]

Finally, digital health ecosystems may also strengthen the underlying technology and data foundation of healthcare delivery by utilizing previously unavailable information to help stakeholders develop a more comprehensive understanding of consumer needs and preferences.

The sharing of medical data is at the core of a digital health ecosystem. It is therefore crucial that each ecosystem be predicated on comprehensive data stewardship. Data privacy is pivotal—not only to comply with local laws and regulations, but also to empower consumers to own their medical data and maintain control over who can access which parts of it at what moments in time. Only by giving consumers this level of control can sufficient trust be established—it is trust that will ultimately determine whether digital ecosystems are adopted by consumers and providers alike.

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[3] Ibid.

At the same time, making data available is a strong value-add for partners. If all ecosystem participants could gain access to longitudinal data from payers, providers, social networks, fitness devices, and nutrition apps, they would be better able to develop innovative solutions targeted to individuals and groups. Technology companies, for example, would be able to scale their new offers more rapidly, given the payers' broad member bases. In addition, the companies could use their relationships with payers to better evaluate the results of their digital solutions by combining their activity data with the payers' outcomes data. Use cases such as these will require stakeholders to adequately inform consumers about their plans and obtain explicit consent (as stipulated in local privacy laws and regulations). Joint talent pools may also be needed to help build capabilities for all participants.

To reap these and other potential benefits, payers and other ecosystem participants must overcome several hurdles that can impede consumer adoption. For example, provider-centric ecosystem approaches may not focus sufficiently on offering attractive services to consumers. Ensuring data access and quality can also be challenging because many application programming interfaces are not tailored for broad adoption. Inadequately granular data access/privacy management may fail to meet regulatory requirements. Although these hurdles have been challenging to overcome in the past, technological advances have made them easier to surmount. Given the clear underlying value for stakeholders, we believe the time is right for digital health ecosystems to emerge at scale. For a payer striving to build such an ecosystem, a crucial first step is to build the right components to establish the necessary digital backbone.

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Successful ecosystem plays require strong business capabilities

To succeed, digital health ecosystem plays must be based on solid business, data, and IT architecture. While the specific layouts will often vary from payer to payer, the general format is similar. The necessary components can be grouped into three types, with business capabilities connected to each component (Exhibit 4) as well as to the technology foundations detailed in the next section.
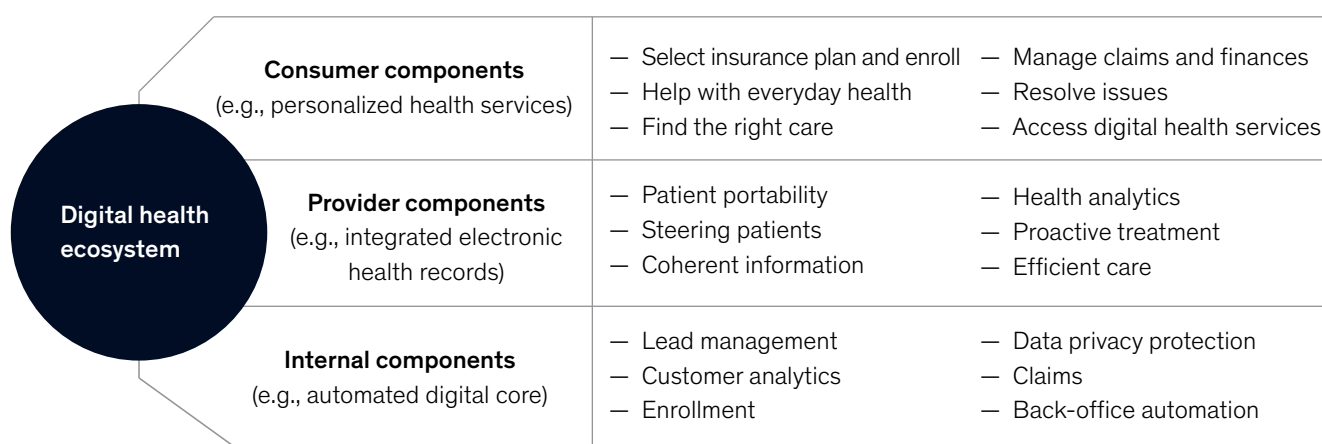
Consumer-facing components. Business capabilities for compelling consumer-facing components are crucial for offering new services that better engage consumers. Digital self-service channels are at the core—they make it possible to engage consumers in a personalized fashion and provide a single access point for managing health data. Embedding omnichannel and virtual care elements can give consumers a convenient, comprehensive way to gain access to all of the ecosystem's healthcare offer throughout. Through these channels, innovative services can be offered across the full consumer journey, from facilitated and seamless payer onboarding to personalized treatment options and on-demand access to caregivers.

Provider components. Important business capabilities should make it possible for traditional healthcare and service providers to work effectively with new health partners as well as with payers. Seamless integration of health data could smooth the transfer of patients between care providers. Combining data on treatments and outcomes from multiple providers could improve the results of advanced analytics and make it possible to advise patients on appropriate providers, ultimately improving healthcare outcomes.

Internal components. To make involvement in a successful digital health ecosystem possible, all participants' back-office processes will often need to be adapted. Internal work flows should be automated and centered around the ecosystem, using newly available data and real-time processing to adequately support digital services. For payers, for example, real-time sharing of comprehensive treatment and medical data from providers could reshape the way claims are handled, increasing efficiency and offering members live processing with immediate feedback. (As discussed earlier, this type of data sharing requires data privacy capabilities that give consumers granular control over who can have access to their information.)

Exhibit 4

Business capabilities in digital health ecosystems (core components)

Digital health ecosystem	Consumer components (e.g., personalized health services)	— Select insurance plan and enroll — Help with everyday health — Find the right care	— Manage claims and finances — Resolve issues — Access digital health services
	Provider components (e.g., integrated electronic health records)	— Patient portability — Steering patients — Coherent information	— Health analytics — Proactive treatment — Efficient care
	Internal components (e.g., automated digital core)	— Lead management — Customer analytics — Enrollment	— Data privacy protection — Claims — Back-office automation

Similarly, combining the data points with automated back-office processes can help optimize enrollment and ensure that new payer members are automatically integrated into the emerging ecosystem. In our experience, these approaches can deliver administrative cost savings to payers of 20 to 40 percent in effort-intensive areas (actual savings will depend on the nature of work being automated and the extent to which technology is already being used).[4]

New technology foundations are required to build an ecosystem

Having the right components in place is not sufficient to build an effective digital health ecosystem; the right digital capabilities also need to be deployed. In recent years, a wide range of technologies has been released—a major reason for the emergence of some payers' ecosystem plays. Each of the component types discussed above requires different technologies (Exhibit 5).

Consumer-facing components. Digital access points—from portals to messaging and voice interfaces—are crucial for providing consumers with personalized access to information and services. A consumer-centric design approach should be used to ensure that consumers receive tailored experiences focused on individual needs.
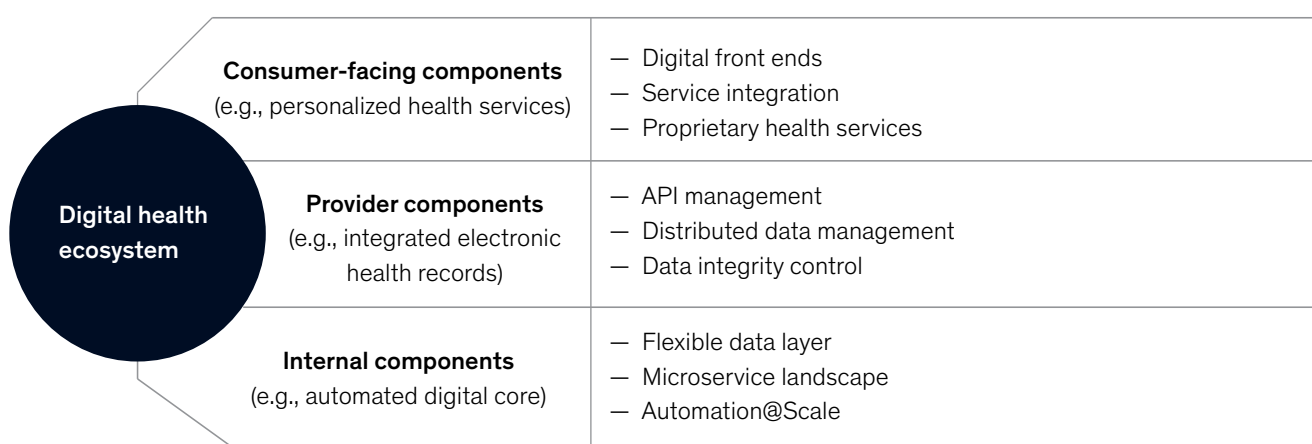
Well-designed digital access points provide a coherent framework within which proprietary and partner services can be integrated. Here, two levels of integration can be considered. Front-end integration can provide a quick solution and allow ecosystem offers to be scaled up rapidly. Application program interface (API) integration, in contrast, involves significant IT complexity but ensures a much more robust approach, including an integrated view of data flows.

A digital self-service experience is unlikely to cover the full range of options consumers need. Telemedicine offers, for example, cannot be delivered solely through digital self-service channels. The integration of chat, videoconferencing, or other personal channels is needed to provide targeted support and thus can serve as an important building block for omnichannel consumer service.

Provider components. Although the technological complexity of consumer components is comparatively low, the opposite is true for provider components. Indeed, building the components required for full payer-provider data exchange has been a major obstacle to both ecosystem plays and payer-provider integration in general—and has been one of the chief challenges to establishing effective digital health ecosystems.

Exhibit 5

Technology foundations for core components in digital health ecosystems

Digital health ecosystem	Consumer-facing components (e.g., personalized health services)	— Digital front ends — Service integration — Proprietary health services
	Provider components (e.g., integrated electronic health records)	— API management — Distributed data management — Data integrity control
	Internal components (e.g., automated digital core)	— Flexible data layer — Microservice landscape — Automation@Scale

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[4] Gilbert, G. et al., Digital is reshaping US health insurance—winners are moving fast. McKinsey white paper, January 2019.

If a payer is to establish an integrated data and service landscape with providers, two building blocks are needed. First, a next-generation data layer that provides API capabilities is required to establish data exchange based on clearly defined, partially standardized interfaces. Although most payers already have a data layer, their tools will usually need to be improved to accommodate the wide range of interfaces used by ecosystem partners. Second, distributed data management, including measures needed to ensure data integrity and privacy, must be in place. For digital health ecosystems, some features are especially important: a large-scale distributed database capable of storing and exchanging massive amounts of unstructured data, a systematic way of ensuring that the data is not being tampered with and previous versions remain accessible, and a rigorous way of ensuring that information remains confidential and can be accessed only selectively.

Internal components. To ensure that internal components have a strong technology foundation and ecosystem services can be integrated, an automated digital core is likely to be necessary. Usually, a payer's existing transactional core systems (claims, for example) can be kept in place but will need to be integrated with a flexible data layer. The emerging healthcare data landscape provides an ideal setting for sophisticated analytics efforts, especially those designed to enhance patient health, prevent unnecessarily costly treatments, or both. Ideally, the analytic models should draw on a wide range of data, including information about consumers' physical activity and general health behavior (Exhibit 6). Once this wealth of data becomes available, a host of new analytics use cases that can drive business value and improve consumer satisfaction is likely to emerge.

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Exhibit 6

A consumer-centric model for data analytics can deliver value
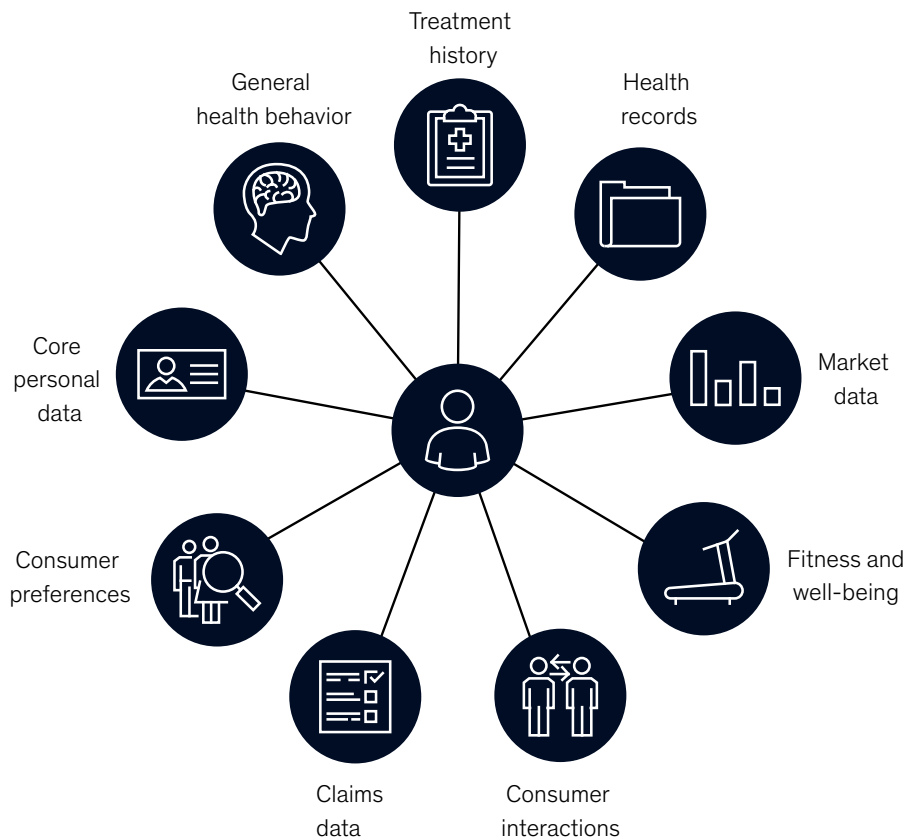
In addition, the existing digital core will likely need to be supplemented with an extensive microservice landscape. These flexible IT services make it possible to swiftly process ecosystem requests. Moreover, they are the technological foundation for integrating external partner services with the payer's existing digital core.

Moreover, a new level of automation will likely be required to process the vast amount of data and handle the internal complexity a digital health ecosystem entails. Here, a range of large-scale automation tools, from robotic process automation to natural language processing, can be deployed.

A variety of roles exist in digital health ecosystems

While all payers can potentially benefit from participating in a digital health ecosystem, the role each one chooses to play can differ substantially, depending on its current strategic role and market. The roles themselves fall on a continuum. Most payers are likely to select a varying blend of features from several potential roles, and some roles are likely to be less attractive to payers than to other stakeholders, such as providers and pharmaceutical companies. In any case, it is critical that the selection of features be a conscious choice based on the chosen strategy.
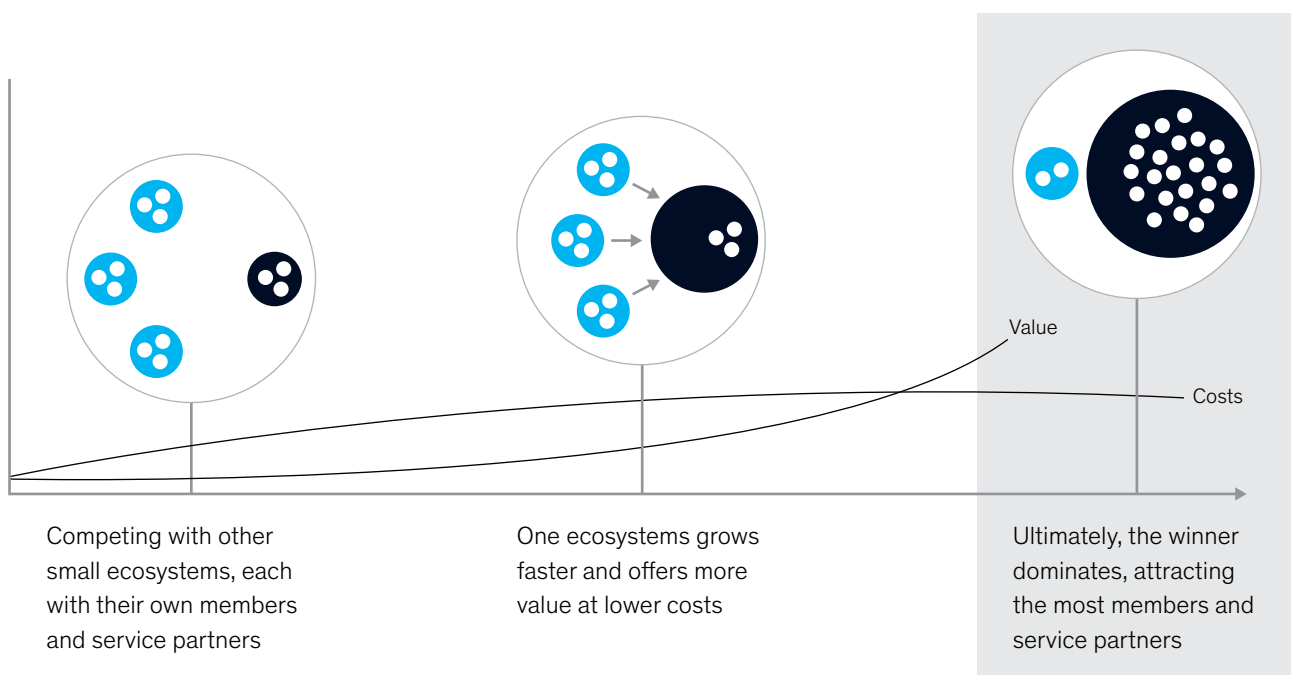
Orchestrator. Here, one payer directs the ecosystem and has control over two strategic aspects. First, by managing the IT and data platform, the payer controls partner access to the ecosystem and its underlying data. Second, the payer orchestrates interactions with consumers (or, at least, provides the technological foundation for them) and is therefore able to make use of consumer touch points and help its members navigate according to its strategic priorities. Ecosystems, in general, tend to have a "winner-takes-all" dynamic, making it cost-inefficient to operate small ecosystems (Exhibit 7). The result is that few ecosystems are successful in the long run, making the role of orchestrator difficult to obtain. In healthcare, localizing forces are usually at play, including laws, regulations, language barriers, and the dependence on local care facilities. Thus, while size is still a winning factor, ecosystem dynamics are more complex in healthcare than they are in most other industries. At this point, it is hard to predict to what extent size will prevail in healthcare, and it will likely depend on individual market characteristics and how strongly it is protected by localizing forces.

Convener. Payers could form a consortium of like-minded, noncompetitive peers to bring scale to an ecosystem. This approach can increase the incentives for partners offering digital health services to participate in a cross-payer platform and bring innovative solutions to consumers. Conveners typically form a governance structure to decide on such elements as entry and exit criteria, voting rights, capital amounts, and other financial considerations.

Service provider. Digital health ecosystems can attract the consumers of health services only if they offer attractive digital services, such as fitness tracking and telemedicine. Often, these services are created and provided by entities specializing in such offers. Service providers can benefit from plugging into existing digital ecosystems to extend their reach and gain new customers. They are usually incentivized by opportunities for fees, either by directly billing consumers through the platform or by offering bulk deals to payers that include providing data back to the ecosystem.

Exhibit 7

Ecosystems often display a "winner-takes-all" dynamic

Value

Costs

Competing with other small ecosystems, each with their own members and service partners

One ecosystems grows faster and offers more value at lower costs

Ultimately, the winner dominates, attracting the most members and service partners

Data subscriber. Digital healthcare ecosystems must gather data and develop new insights while respecting privacy concerns. Data subscribers can make use of the wealth of available data to optimize their own businesses by tailoring services to the market and enhancing their product offers. Pharmaceutical companies, for example, could gather data to amass real-world evidence of the efficacy of their products, assuming that they can find a way to comply with local privacy laws and regulations (for example, by obtaining explicit consumer consent). Although digital health ecosystems always rely on some degree of data exchange, different levels of sharing are possible. Overall healthcare outcomes are highly likely to improve with broader sharing of data. Orchestrators and other powerful players, however, could try to protect their business and proprietary insights and choose to restrict data access. Different scenarios could thus emerge, depending on market dynamics and environmental factors (local regulations, for example).

Lead subscriber. For some companies, it can prove beneficial to participate in an ecosystem simply to generate new leads and cultivate ecosystem users for their established businesses. This is especially true for healthcare providers that may want to use an ecosystem to attract new patients to their inpatient and outpatient facilities.

Participant. Some payers could choose to purchase access to an ecosystem so they can offer their services to their own members, integrating the system into their digital service portfolio. The ecosystem can be compensated financially for providing access; in some cases, however, the increase in the number of users and subsequent enrichment of the underlying data may be sufficient incentive.

Optimal ecosystem plays vary with payer size

For most payers, orchestrating an ecosystem can be a major challenge, requiring investment, know-how, and an existing strategic position within a healthcare network. Participating in an ecosystem is easier than orchestrating one but does not bring the same benefits, as the payer has little or no control over data governance and the consumer interface. Consequently, there is no single answer to the question of what role a payer should play in a digital health ecosystem and which partners it should choose.

Our experience suggests that the optimal strategy will depend on the strength of a payer's market position, which is partly determined by the size of the member base but also relies on other factors. In essence, the question is to what extent the payer is capable of coordinating ecosystem efforts, effectively utilizing its membership base, and competing in a highly dynamic market.

Relatively weak market position. Ecosystems can bring material benefits to all payers, but a certain level of market dominance is required for an orchestrator role. Payers with a relatively weak market position may want to consider participating in existing ecosystems so they can offer services to their members. Given the number of members these payers typically have and the wealth of data they could thus contribute, ecosystems have an incentive to take them on. If such a payer possesses strategic assets or services, it could also play a service provider role, offering its services through the ecosystem. In either case, the payer could also operate as a lead subscriber, working to attract new members to its core insurance business.

Powerful market position. Payers with a powerful market position can choose to merely plug into existing ecosystems, but they also have the opportunity to become conveners or even orchestrators for small, sub-regional, or regional ecosystems. Taking on one of these roles requires a payer to have a clear strategy for how it can establish or add value and how it can protect itself against attacks from even larger competitors.

Dominant market position. Once payers have a certain dominance in the market (such as national scale in the United States), they can undertake their own ecosystem play as orchestrators. By gaining control over the consumer interface and the data that comes with it, they can help consumers navigate the healthcare landscape, promote medical quality, and reap the full benefits of digital health ecosystems. In this scenario, the payers can expand their businesses (for example, through sophisticated data analysis techniques or by creating new services) and make full use of the ecosystem to generate leads.

Would-be orchestrators should identify a reliable set of initial partners and have a clear selling proposition for first users of the platform. If successful, the orchestrators can then attract new partners and build momentum for overall growth of the ecosystem. The first payers that are successful in establishing large-scale, functional ecosystems will have an opportunity to drive new reimbursement models and create a nourishing ground for innovative healthcare start-ups. In this way, they are first in line to offer new, innovative healthcare services to their members and can rely on a wide portfolio of digital offers to improve member well-being.

Payers need to act decisively, with a clear focus on value

The time to act is now, particularly given the burgeoning interest of technology giants in playing a central role in the digital health ecosystem. The following steps can help payers successfully orchestrate or convene a digital health ecosystem:

Identify compelling use cases. A set of initial use cases with quantifiable value is often the best way to develop a patient- and market-based approach and identify potential sources of value. By carefully evaluating where a digital health ecosystem could uniquely deliver value and where stand-alone offers from individual players may be more suitable, a clear ecosystem strategy can be formulated. The use cases should then be implemented in a gradual manner, prioritized by value and key interactions to increase user interest. Once up and running, ecosystems can unleash further creativity and innovation that reveal unanticipated use cases.

Decide on potential partners. Depending on the role a payer decides to play, the partners could be health systems, solution providers, or even other payers. The payer should think through how it might benefit from partnerships with these other players and what risks it might face, as well as how the other players could benefit from participation (a solution provider, for example, might be attracted by the larger user base a new payer could bring). Most importantly, the partners should make it possible to create seamless user journeys that deliver real value to the health system and increase convenience for patients.

Initiate a strong governance structure. A payer orchestrating a digital health ecosystem needs to decide on a range of governance issues, including entry and exit criteria, capital structure, voting and data access rights, and community guardrails. A payer that wants to play a convener role should also think through these issues but will likely have to negotiate with partners on some issues.

Create win-win (mutually beneficial) arrangements with partners. Critical elements include initial capital investments, gain-sharing arrangements, incentives for the payer's members to participate, and fee structures for services offered. Value proposition messages geared to all potential partners must be ready early. A structured communication and syndication approach should be launched to scan for and attract partners.

Define a technology strategy. Essential elements include flexible IT architecture, integrated data landscape, top-tier security for authentication and authorization, and secure, convenient access for all participants, including the payer's members. While the different elements across all core components can be built up over time, it is important to lay the foundations for scalability and flexibility from the very outset (for example, through stringent API coupling of components and scalable infrastructure).

Pitfalls exist, but can often be avoided

Establishing an ecosystem presents challenges. Our research suggests that five pitfalls are especially common:

— "Shiny object" pitfall. Payers should avoid creating a complex buffet of solutions without clear focus. Rather than chasing every shiny object on the horizon, payers should adopt a focused, pragmatic, realistic approach that balances feasibility and immediate value. One tool that can help payers avoid this pitfall is to collect early-stage consumer feedback so they can continually refine the ecosystem.

— "Neglecting foundations" pitfall. The success of an ecosystem in large part rests on having solid foundations, such as scalable and flexible IT architecture, an integrated data landscape, a strong business network, and refined data security concepts. The absence of any of these could compromise the ecosystem's success.

— "Total control" pitfall. Ecosystem success often hinges on its openness to service providers and other partners. Payers should avoid the urge to maintain tight control and block opportunities for innovation by others. Instead, they should develop strategic control points that allow partners to integrate into the ecosystem.

— "Just technology and new partners" pitfall. Developing a successful ecosystem requires more than just the selection of the best technologies and partners. It also requires a shift in mindset, willingness to collaborate with a range of partners, and awareness that not all services need to be developed or maintained in-house.

— "Neglecting the core" pitfall. While a digital health ecosystem can become an important aspect of a payer's overall operating model, it should not overshadow the need to continually improve core operations. Only by sustaining operational excellence in foundational areas can payers ensure that the energy and resource investments they make into ecosystem plays will pay off.

One of the most valuable resources in healthcare is data. As a result, payers have increasing opportunities to take advantage of their central position in the healthcare landscape. Many payers have already made some progress in this direction, as their existing portfolios of digital offers and abundant data repositories demonstrate. In most cases, members are clearly appreciating, and in some cases even demanding, payers' digital transformation efforts through increased usage of value-adding services.

However, if payers want to move beyond their current role as insurance purveyors, they will need to take up an active role in the digital health ecosystem. They need to integrate with other partners in the market to enable seamless customer journeys, actively support data flows as far as possible (given existing laws and regulations in the local environment as well as consumer preferences), and enable new use cases made possible by bringing previously disparate data sources together. Given the risk that nonpayers—from technology giants to pharmaceutical companies—could make powerful moves to establish themselves in central positions of digital health ecosystems, the pressure to act now is increasing. Regardless of the specific role, digital health ecosystems must be a core part of any payer strategy in the future.

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