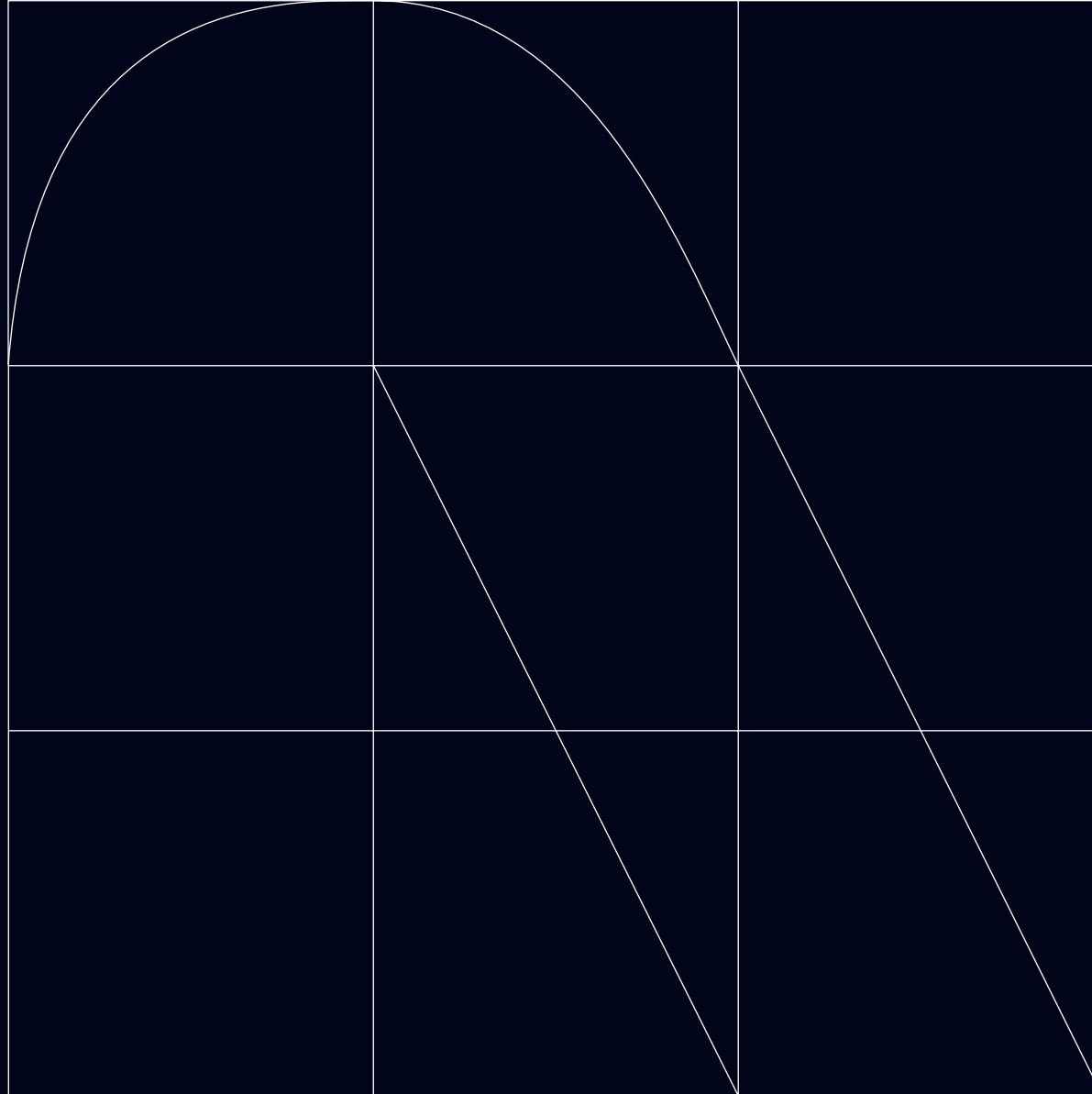


The New Health Journey

Value-based Care, Prevention and Chronic Disease Management

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1. The healthcare industry is witnessing three major revolutions: a shift in the concept from health to well-being, in the positioning of health organizations due to the entry of new players, and an overall of paradigm from fee-for-service to value-based models.
2. Healthcare must be value-based; now it is not enough to only provide the service, but that service is expected to be of quality, data being the key to achieving excellence.
3. Chronic diseases are yet the biggest concern in terms of health management, which means that health organizations need to pay special attention to them and apply technologies such as AI and Data to improve the early detection, monitoring, and prevention of these pathologies.
4. An insurance company must focus on preventing and not just protecting without forgetting about the new regulatory changes.
5. Optimizing the experience, digital care, improving clinical areas and general efficiency in the operation must be at the forefront of the mind of insurers if they want to lead in the health industry through these ever-changing times.

Overview

Introduction



The health sector in recent years has undergone monumental changes that cannot be ignored; if an insurance company wants to continue to lead the market, it must adapt. However, many insurers are probably wondering what this *need* to adapt entails.

The first thing to think about is what the current challenges facing the health sector are. We are not only talking about being healthy, but also about being well and leading a healthy lifestyle.

In addition, attention needs to be paid to the new market entrants due to this paradigm shift or to the great technological innovations that completely changed how we perceive today's healthcare system. It was previously necessary to have a face-to-face consultation, however it is now possible to treat a patient remotely and this is just the beginning. Very soon it may not even be necessary to have a real person treating this patient, thanks to the powerful data processing that is evolving.

NTT DATA understands the context in which insurance companies find themselves and has the capabilities to help them to thrive within this constantly evolving scenario. In this white-paper, insurance leaders will find the characteristics and intricacies of the new health journey, and the way we can help them embark this journey towards excellence, digital transformation and value.



The Three Major Revolutions of Today's Healthcare Industry

To begin to talk about the current healthcare industry without mentioning the impact of the COVID-19 pandemic is to be naïve and to ignore what is evident.

The healthcare ecosystem is unrecognizable from what it used to be before this pandemic hit the entire world. Not only has technology continued to completely transform the way users interact with health organizations and what they in turn offer to their customers, but people themselves have started to grow a sense of consciousness and begin to worry about their health habits, meaning their demands and requests to companies in the industry progressively increase.

Overall, this new stage of post-pandemic healthcare could be defined through three main transformations of the industry: a change in the concept of health, a change in the positioning of companies, and a change in the paradigm of delivery models.

From Health to Healthy Living Ecosystems

First, we are seeing a change in the mindset of companies within the healthcare industry, which are moving more and more towards the idea of guaranteeing health throughout the whole lifetime of the individual. This means that to be healthy no longer means the lack of diseases or disorders of any type, but also areas that were previously not considered, namely mental health and preventative weight gain. These have gained importance in both the health payers and the strategy and culture of health organizations.

The largest majority of health journey's do not correspond to acute treatment or complex care. Rather, healthcare providers must implore an all-encompassing vision of a healthy lifestyle, including prevention, promotion of healthy habits, disease follow-up, and monitoring altogether, while also maintaining an ongoing relationship with the user. Healthcare organizations must be at the forefront; they cease to be a highly specialized vertical to become "ecosystem orchestrators" whose main objective is to help users achieve their health goals.

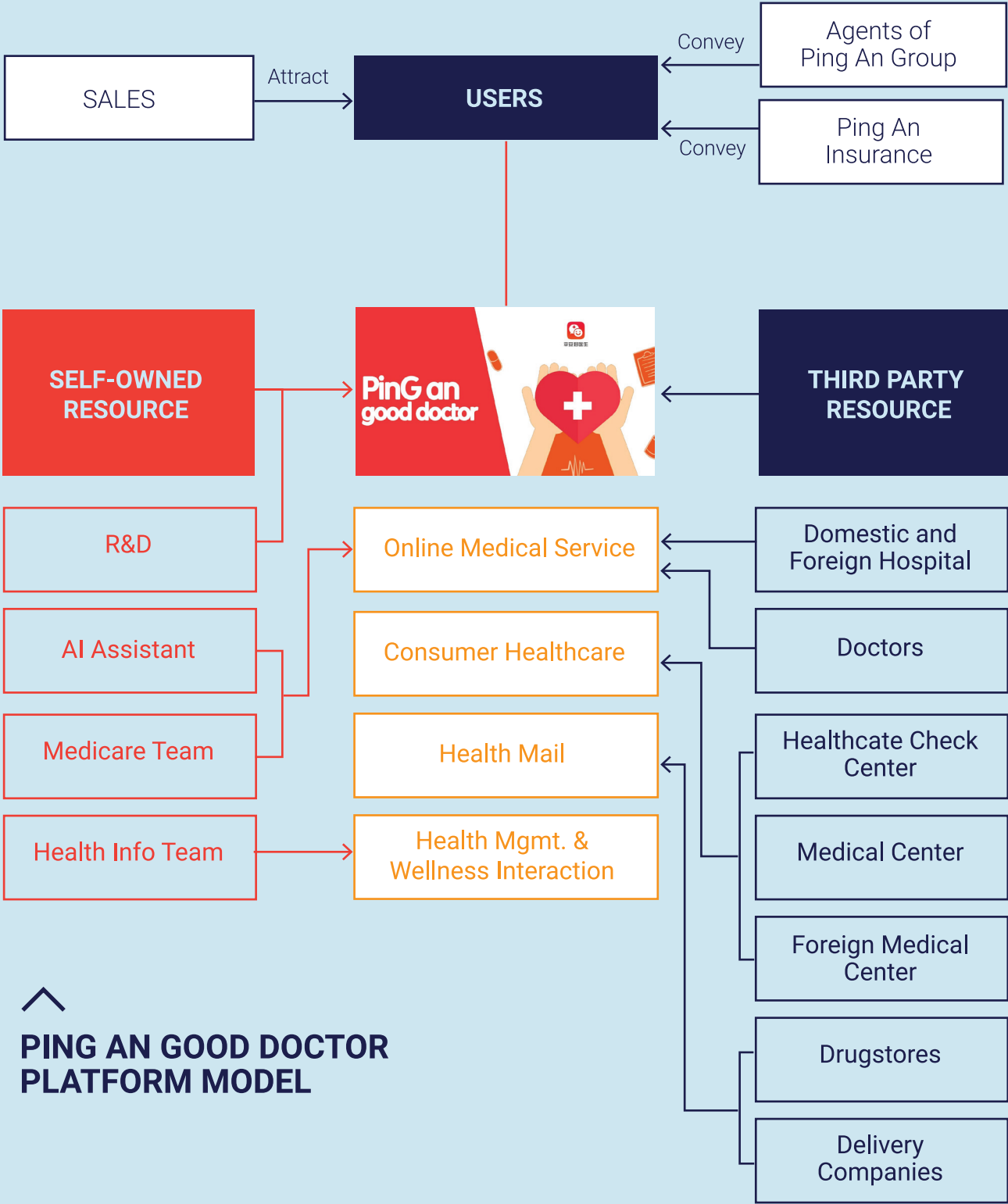
According to CELENT¹, "better healthcare products and services can be delivered with attention to three key areas: life sciences, digital health, and health add-ons", and "all ecosystem participants have a role to play in achieving this potential", concludes the analyst².

In this regard, then, known insurance providers and payers are becoming more closely tied together. Even in some cases through common goals such as efficiencies, savings, and quality of care, with the overall target of being more prominent in front of the

user.

There are several examples that we can highlight in this regard, however one that stands out is that of the Ping An Group. The technology division of the Chinese group allowed the incubation of new business models and products, each with great autonomy, although managed and supported by the central Group. In the health ecosystem, Ping An stands out through Good Doctor, their healthcare subsidiary whose objective is to reduce the gap and subsequent lack of trust that exists between patients and doctors when they communicate with each other.

Ping An's Good Doctor's strategy consists of becoming a "one-stop healthcare portal", connecting different tools or resources (both internal and from third-party partners) to offer the best solutions to users. In this sense, the company has developed different business segments (Online Medical Services, Consumer Healthcare, Health Mall, and Health Management & Wellness interaction), to give an integrated, 360-degree view of the patient's health.



From Traditional Players to New Entrants

However, we don't need to go this big to exemplify the digitalization of health. Insurers such as Sanitas or MAPFRE in Spain, for instance, developed their business units blueU and Savia, respectively, to offer 24/7 digital health assistance. Sanitas, covers over 1.5 million users in the European country, which represents around 16% of the total market share.

There are also many examples of the move from health to Healthy Living. Insurance companies such as Zurich and SulAmérica have transformed their traditional businesses to tend to this great opportunity in the industry.

Zurich, for example, launched Zurich LiveWell back in 2020, combining its Life and Health insurance services to focus on protecting the future of their insured, through a wellness app that incentivizes healthy habits, both physical and mental.

SulAmérica, on its side, sold its Property & Casualty business to Allianz in 2019 to focus on their health and life business lines. Today, more than 90% of their revenue is accounted to healthcare, with over 5 million customers and \$4B total revenue. The Brazilian's insurer strategy is to offer integral healthcare management, covering the physical, mental, and financial health of its policyholders.

All in all, according to experts³, there are three principles for efficiently enabling a Healthy Living ecosystem: data, mobility, and engagement. "Health insurers are no longer simply paying medical bills and underwriting health. They are also supporting customers in various times of their life, including their efforts to keep in shape and to be better informed about their health."

Technology has transformed and continues to constantly transform the value proposition of health organizations. Especially as virtual care becomes more mature and present in the sector, the barriers to entry into this market become more and more diffused.

Not only are traditional healthcare organizations changing, but other players that 4 or 5 years ago were considered "outsiders" are entering and starting to position themselves quite high in the healthcare sector.

Great examples have already been talked about for a while, with the likes of Amazon, Apple, and Google invading the healthcare industry with non-traditional care settings, as well as other retailers and cross-industry players such as Walmart, CVS, or Uber.

Amazon's recent \$3.9B acquisition of One Medical in July 2022, for instance, showcases once again the Giant's intention to venture into healthcare after trying e-pharmacy (Amazon Pharmacy) and telemedicine (Amazon Care) back in the past. The acquisition of this private chain of subscription-based model clinics is aimed at developing a health service that adapts to the user's current lifestyle, with more personalized and less time-consuming services. Two of the major opportunities areas that healthcare is embracing today.

This is also a symptom of the convergence of the current physical and digital worlds, something Amazon had already embraced in 2017 with the acquisition of Whole Foods Markets. This one, with organic and healthier foods, possessed over 450 stores all over the U.S., incredibly attractive to the Tech Giant whose aim is to stay closer to its customers.

Another retail case is that of Walmart, which through Walmart Health, covers the medical, dental, optometry, and behavioral health needs of users with affordable pricing in simply one convenient location.

Likewise, there are the digital native startups that have already emerged in the health sector, receiving huge investments from large corporations, including from insurance companies themselves. Such is the case of Bright Health Group (BHG), an American-based healthcare startup, one of the 5 most invested Insurtechs invested by insurers in 2021. BHG delivers integrated healthcare by deploying a unique approach built on Data & IoT technologies, focused on the consumer. The startup raised \$750M in December 2021 from American insurer Cigna, which is exploring new opportunities for Evernorth, their B2B Data & Analytics-powered healthcare solution.

One final case we would like to mention is that of Alice, a Brazilian Healthtech that claims to be a "health manager", connecting health providers and users to help the latter reach their health goals. Users have the possibility of both accessing to digital medicine through Alice's app, or going directly to one of the clinics within their "Health Community" for in-person treatment.

All these examples showcase how new players are transforming the competitive landscape, and health organizations —meaning insurers, health operators or plans, hospital or ambulatory networks, etc.— must start to think of new ways to position themselves back at the top. They need to engage with users, both patients and medical professionals, and provide best-in-class experiences to become top-of-mind options.

This is achieved by either developing the capability in-house or partnering with existing players and offering the user-friendly "Amazon-like" experiences that consumers are already accustomed to. In the end, the primary aim is to make a tailored service that is more convenient and easier to use.

From Fee-for-service to Value-based Models

This is the most important of the three revolutions we are witnessing in the healthcare industry in the last decade. The traditional model, known as fee-for-service and which consists of reimbursement based on the number of services provided, is now shifting into value-based healthcare (VBH), where reimbursement is, on the other side, dependent on the quality of the services provided, directly linked to the patient outcomes.

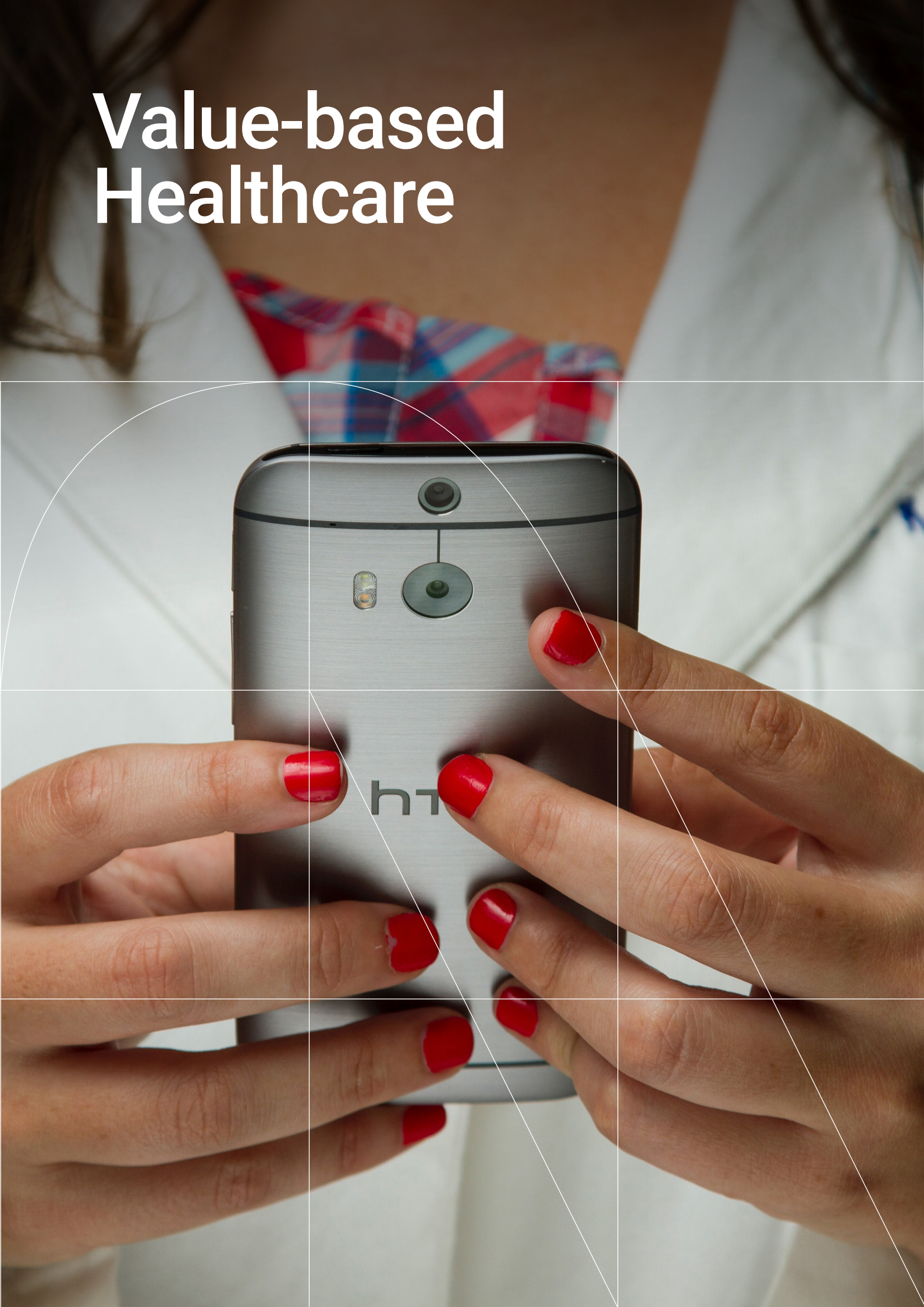
What does this mean? This means that one of the greatest challenges of today's health industry is to improve the quality of care through the new possibilities leveraged by digitalization. This involves developing, implementing, and ensuring that comprehensive and integrated care models are being carried out. The urgent change from a reactive role to a dynamic and proactive attitude is not negotiable today: a change that, moreover, shifts the center of gravity from acute treatment to prevention, wellness, and chronic care management.

The key word is integration: healthcare organizations must integrate not only primary and specialized care but also clinical and social care, creating hybrid care routes that combine face-to-face and digital interactions, and optimizing care processes.

And as for social care, one feature is essential: personalization. Population health is on the rise, with health being segmented by demographics such as age, location, or gender. The orientation is very limited, basic, and even rudimentary, which now needs to add clinical information as segmentation criteria. Also including collective but hyper-personalized health, where data and digital channels are key in seeking better relationships with users, both from providers and insurers.



Value-based Healthcare



As explained earlier, value-based delivery frameworks incentivize health organizations to put focus on the quality of the services, as opposed to the quantity. According to the Centers for Medicare and Medicaid Services (CMS)⁴, value-based programs support a three-part aim: better care for individuals, better health for populations, all at a lower cost.

Especially from a U.S. standpoint, the healthcare industry is rapidly making the shift to value-based business models. According to Gartner, there are an “estimated 36 million Americans in an accountable care organization (ACO)”⁵. Moreover, the Health Care Payment Learning & Action Network (HCPLAN) studied in its 2021 APM Measurement report⁶ 80.2% of the covered U.S. population and revealed significantly interesting data. 40.9% of healthcare payments stemmed from value-based reimbursement models, 19.8% were in some way tied to the value or quality of care while still being based on fee-for-service (pay-for-performance or care coordination fees) and the remaining 39.3% were still based on traditional fee-for-service.

While there is still a significant percentage relying on legacy payment models not linked to quality, the study reported a 23% increase in value-based reimbursements since 2019. This evidences the shift that the industry is progressively taking toward this model.

However, while quality has been established as important in the industry and gradually becomes more present in the provider-insurer strategic focus, the reality is that some matters are yet to be agreed on and worked around. Are we set-up to provide care

in a way that optimizes value? Do we measure it in a such a way that we can genuinely tell if value has been delivered? Do we have a method for payment that is in sync with whether we provided value or not? These are all questions that are still to be answered and where the focus should be on today to be able to bring VBH to reality.

The American Medical Association (AMA)⁷ details five steps for health organizations to be able to consolidate the latter and prepare their practice for VBH. First, the association recommends identifying the patient population, to be able to understand which ones drive the highest cost of care, define what the target of their operations will be and which opportunities for improvements can be achieved. Secondly, it is time to identify the care model: which payers and providers will be involved, how the type and volume of services will change, what the expected benefits by patients and payers are, what workflows need to be designed to provide the desired care and what metrics can be determined to quantify the impact in the future.

The third step would be to partner for success, to collaborate with other ecosystem players, and coordinate with local hospitals, practices, urgent care centers, insurers, and many other actors that might enhance the ability of a health organization to offer better transitional care. Once the new model is adopted, then it would be time to identify those ways to reduce unnecessary costs and improve quality. And finally, monitoring is key to determining the impact that has been had on the target patient population.

Although very well defined in theory and as su-

Interoperability Challenges: Real-time Healthcare

supported by a Veradigm survey⁸, several barriers still make it difficult for health organizations to support the goals of value-based care. First, “providers may not have the infrastructure and staff to support these models”, and they might also differ in terms of payment models, metrics, and documentation requirements. That is why it is of extreme importance to merge the private and the public, to slowly move toward this new model, lowering costs as much as possible, making care more affordable to the population, and constantly using data to generate the necessary insights to make innovations that leverage improvements in care.

In this sense, as in many aspects of the insurance industry, it all comes down to data. This transition to value-based care models demands a greater push for open data exchange, as well.

Health organizations need data aggregated across various and very different sources to be able to create a holistic view of the user. Furthermore, even when data exchanges are enhanced, providers need to perform analytics to surface insights that can then be integrated with technologies already put in place. Notwithstanding, that data must be as complete as possible, actionable, and, most importantly, real-time. According to Gartner⁹, a “real-time ecosystem model enables healthcare providers and payers alike to work together to deliver better business and consumer outcomes by eliminating inefficient processes and delivering value-based care”.

Interoperability not just within the different parts of a specific hospital or a provider center, but within the information generated from all the actors in the healthcare ecosystem becomes a decisive factor that complements the automatic, already established, data collection. Thus, it is possible to manage clinical content more effectively and safely and improve efficiency, avoiding duplicated information and facilitating reliable data access in real-time to any health professional. In addition, deep analysis of the large volumes of data generated allows the identification of repetitive patterns that feed prediction models, concluding great value for decision-making and the enhancement of care protocols.

Moreover, Real-Time Healthcare (RTHC) also conveys a health system that is composed of organizations with the following characteristics, as defined by Gartner¹⁰: accessible, inviting and nurturing,

collaborative, operationally efficient and sustainable, responsive to individual needs and preferences, safe, secure and compliant, proactive, situationally aware, smart and appropriately autonomous. In this scenario, interoperability, understood as the ability to share, exchange and use health data, is key to being able to deliver patient-centric healthcare, which is also a pillar of VBH.

The evolution of the industry to a data-driven business and the arrival of new digital architectures that power the creation of this connected Healthy Living ecosystem involve breaking the current strong coupling between applications and data, progressing toward an Open Health model.

Based on the original Open Banking and now aimed Open Insurance, the Open Health model is where data is collectively accessible yet individually controlled, integrating data from the entire ecosystem and into healthcare innovation, process improvement, and the delivery of higher quality services.

This results in enhanced communication and trust between all players, standardized technical language, and guaranteed information security. Open Health must also be understood as one of the most propitious levers to achieve more economically sustainable healthcare. Among the main possibilities presented by Open Health, we could highlight, thus, the three following: direct and positive impact on clinical decisions, generation of a wide variability of products and services with different costs models, and care that will be designed with a high degree of personalization for each patient.

In Brazil, for instance, one of the most advanced countries in this regard, the government and the

National Supplementary Health Agency (ANS) have announced their intentions to launch a new platform for Open Health. This project aims to increase competition in the health insurance market after data from the Administrative Council for the Defense of Competition (CADE) registered a drop of 47% in the number of health plan operators in the country during the last decade. The idea intends to allow data sharing between financial institutions, leading them to offer more transparent, personalized, and overall better services to their users, tailored to each profile.

However, in order to move towards Open Health systems, technology must be modernized and integrated correspondingly to be able to open fluidly the sharing of data. Robust investment in IT must be made to bring open movement efficiently to the healthcare system.

Value-based Care in Europe

Despite the previously highlighted data shows a significant prevalence of value-based care models in a privatized health market such as the one in the United States, there are already some examples in Europe that also showcase the desire of this evolution in this region.

The European Institute of Innovation & Technology (EIT), supported by the European Union, in its 2020 “Implementing Value-based Healthcare in Europe” research¹¹, offers a framework to analyze the implementation of VBH across Europe, based on five key dimensions: (1) recording processes and outcomes through data platforms, (2) comparing teams and resources through internal and external reports, (3) rewarding and creating outcome-based incentives, (4) improving services through collective learning, and (5) partnering and aligning internal forces, as well as forging collaboration with external partners.

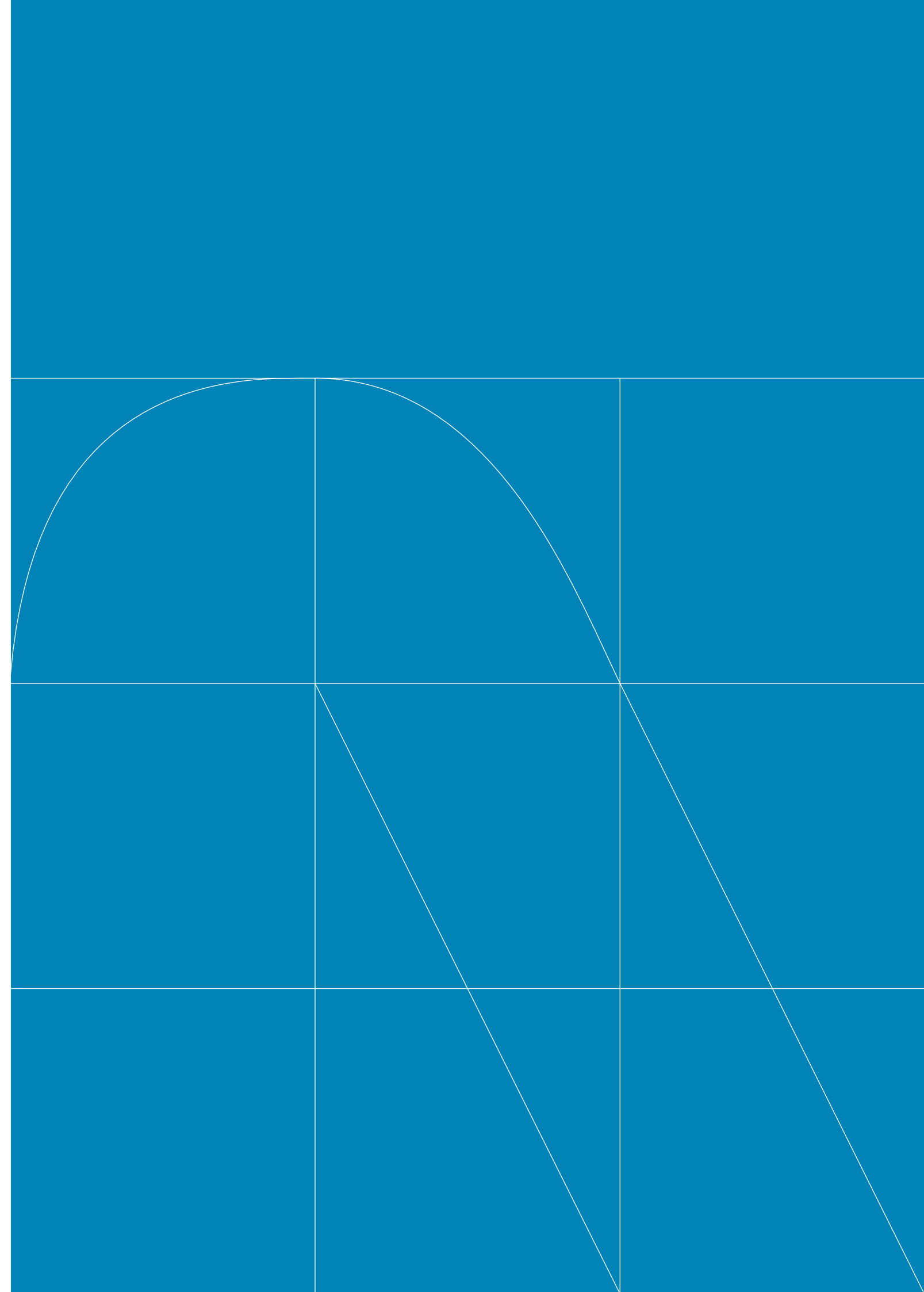
The report also remarked on some use cases in Europe regarding the correct implementation of this new model. For instance, the Dutch private hospital Santeon adopted VBH starting in 2016, and in just one and a half years, the company presented a 74% reduction in reoperations due to complications and 30% in unnecessary inpatient stays.

Similar is the case of the Uppsala Academic Hospital in Sweden, which in 2013 launched its value-based care transformation plan and two years later reported a 17% reduction in unnecessary dispatches and 19% in time to dispatch.

Lastly, a third example is the case of the National Health Service (NHS) Wales, that after the 2014

Prudent Care policy imposed by the Welsh Minister, implemented its VBH healthcare transformation. As key highlights, NHS Wales built the National Data Resource, an “interoperability hub with an open application programming interface (API)” that has increased transparency with patients, allowing them to compare providers and outcomes, enhancing their engagement and also the quality of the services offered.

Notwithstanding, all these initiatives seem to be yet isolated, far from signaling a general scaling of value-based care in Europe. The question then is, to what extension will VBC cross borders and spread to other geographies?



Chronic Disease Management



While all this value-based, preventive, and not acute care is extremely important and gaining relevance as time goes by, the truth is that chronic diseases still represent one of the top concerns in the industry. Likewise, chronic disease is a primary focus of population health and ambulatory care. Non-communicable diseases are the first cause of death worldwide, killing over 41 million people each year, equivalent to 74% of all deaths globally, according to the World Health Organization¹².

In addition to the unbearable cost of premature loss of human lives, chronic diseases generate an economic impact equivalent to 4% of annual GDP in America and 2.5% in Europe. Moreover, in the U.S., the Center of Disease Control discovered that chronic diseases account for about 75% of all aggregate healthcare spending in terms of public insurance and treatment. In the case of Medicare and Medicaid, \$0.96 and \$0.83, respectively, out of every dollar spent on these services corresponds to chronic disease treatment.

Consequently, we are witnessing a marked shift in the weight of care activity towards these pathologies, a field in which the potential impact of technology is huge of course, based on tools previously explored for prevention, remote care, or advanced segmentation.

However, there are also specific aspects, linked to home monitoring and the use of AI and Data Analytics for early diagnosis, which are becoming true game changers.

As we can see in the graph below by Gartner¹³, while the activity is not the highest as in other features of the health journey, chronic disease management is yet a crucial factor within healthcare and the shift that the industry undertake is radical.

What makes it very interesting, and challenging, is that these diseases don't exist in isolation. This means that people often have two or more chronic diseases. More than half of older adults have three or more of these, so-called "comorbidities", referring to the simultaneous presence of two or more diseases or medical conditions in a single patient.

Aging is a major problem for chronic diseases as well. For instance, 30 million people, one out of 11, are diabetic in the United States. And over 80 million suffer from prediabetics. And these data account only for the people who have been diagnosed. People with diabetes are at serious risk of other complications, such as stroke, kidney disease, blindness, loss of toes, and heart failure, among many others. And only 25% of them are under the age of 60.

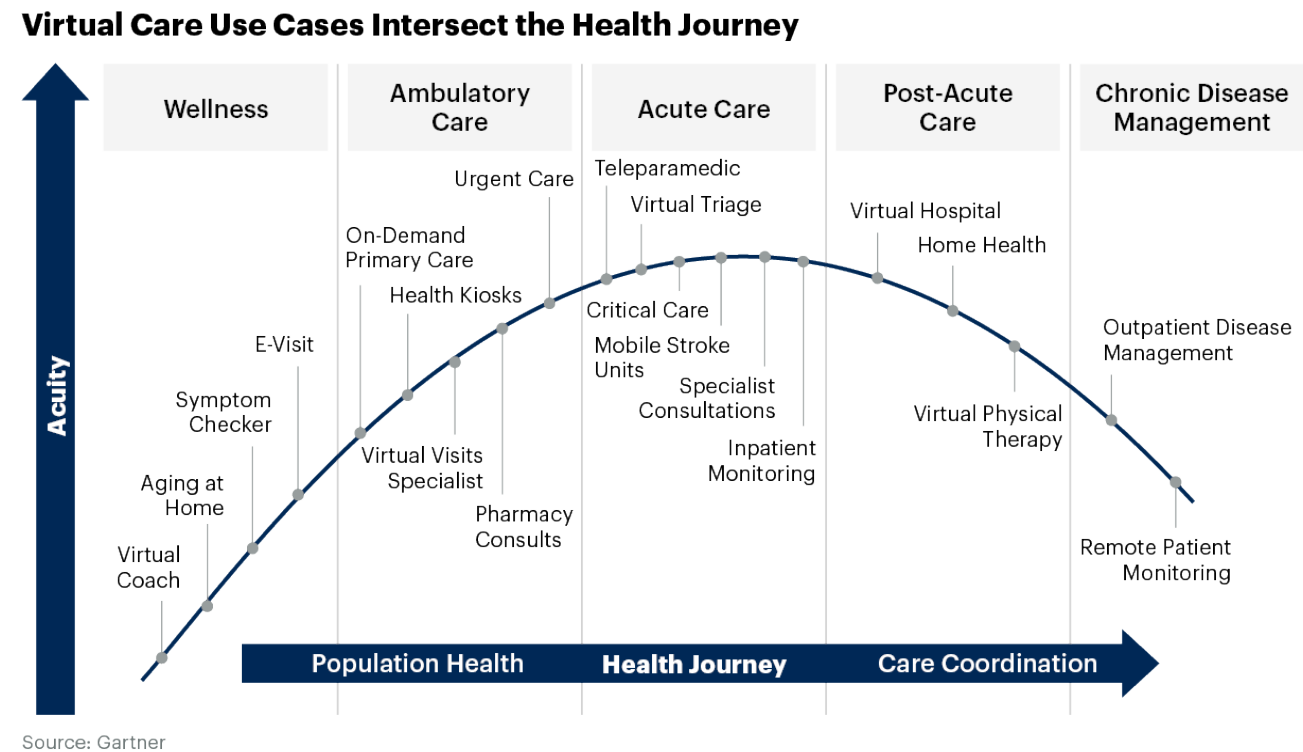
This is just an example of one of the age-related statistics in terms of chronic diseases, but there are also major health conditions that are intrinsically related to age such as arthritis, heart diseases, hypertension, cancer, osteoporosis, Alzheimer's, cognitive or sensory impairment as well as mental disorders as depression also forms part of this scenario.

According to CELENT¹⁴, aging sustainably is also one of the five ways to reshape healthcare. By 2050, the analyst comments, "more than 20% of the world's population will be 60 years of age or older". Stakeholders within the Healthy Living ecosystem are said to be forced to "reimagine how services are delivered and healthy aging becomes a strategic priority".

In this regard, the experts suggest taking action in the six areas, of which we bring special attention to four

Data and AI in Chronic Disease Management

of them: (1) extending the health span from physical or mental health to integrated health, (2) meeting new needs, understanding and responding to the new consumption habits of the current silver economy, (3) aging in place, integrating digital health into the home and boosting community-based care, and (4) incentivizing and working to keep seniors physically active and socially engaged.



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Artificial Intelligence (AI) is one of those top technologies health CIOs and CEOs must pay attention to. For instance, using biometric equipment from home, AI can assist patients in bettering medication adherence and ongoing monitoring of their vital signs. At the same time, by monitoring thousands of patients simultaneously and directing personalized care to each of those who need it, AI helps medical professionals to make more effective data-driven decisions.

Likewise, remote patient monitoring empowers patients to engage with healthcare providers and become active in their treatment processes. This increases patients' access to specialized and tailored information, while lowering overall costs. In other words, this achieves the three-part aims of VHB.

Data analytics is also extremely important when it comes to early detection, an aspect as vital as monitoring. This technology can reduce the incidence of chronic diseases, by providing healthcare players with insights into high-risk patients and enabling them to intervene even in asymptomatic patients. Providers might make use of this data to develop early diagnoses, ultimately leading to faster and better treatment. From the perspective of payers, they can also benefit from these insights for risk assessment activities. And for users, as well, this information can mean a lack of relapse in their treatments, leading to a better quality of life.

In this regard, health organizations need to be able to build AI models and dashboards that present all the patient information and identify which are chronically conditioned. First, companies can train these models through supervised Machine Learning, and in the second stage the unsupervised process can commence,

where the machine learns automatically and labels the data correctly and autonomously.

However, as already seen in the value-based paradigm, data is vital. All these AI models could end in a vast quantity of proprietary, biased models that can only look inside a specific hospital or center. A multi-source, multi-insurance, multi-provider data bank is important in this regard as well. Having lots of data is crucial, but it is even more important to have data that is comprehensive, coordinated, and integrated.

Moreover, when it comes to AI and Data, Health is no different from any other sector where security and privacy are a strong worry. Nevertheless, in the health-care industry being ethical and avoiding biases when it comes to data is even more critical. All this information must be always guaranteed to be collected, treated, and shared according to global and local privacy laws.

The Importance of Regulation Preventing, Rather Than Just Protecting

While we are in a moment of progressive public policy evolution and the healthcare industry is being positively impacted by the scope expansion to include health-related policies that control and guide both clinical services and care standards, the reality is that some of them are still reductionist. In the United States, for example, Regulatory Needs affect the way people receive treatment for chronic conditions.

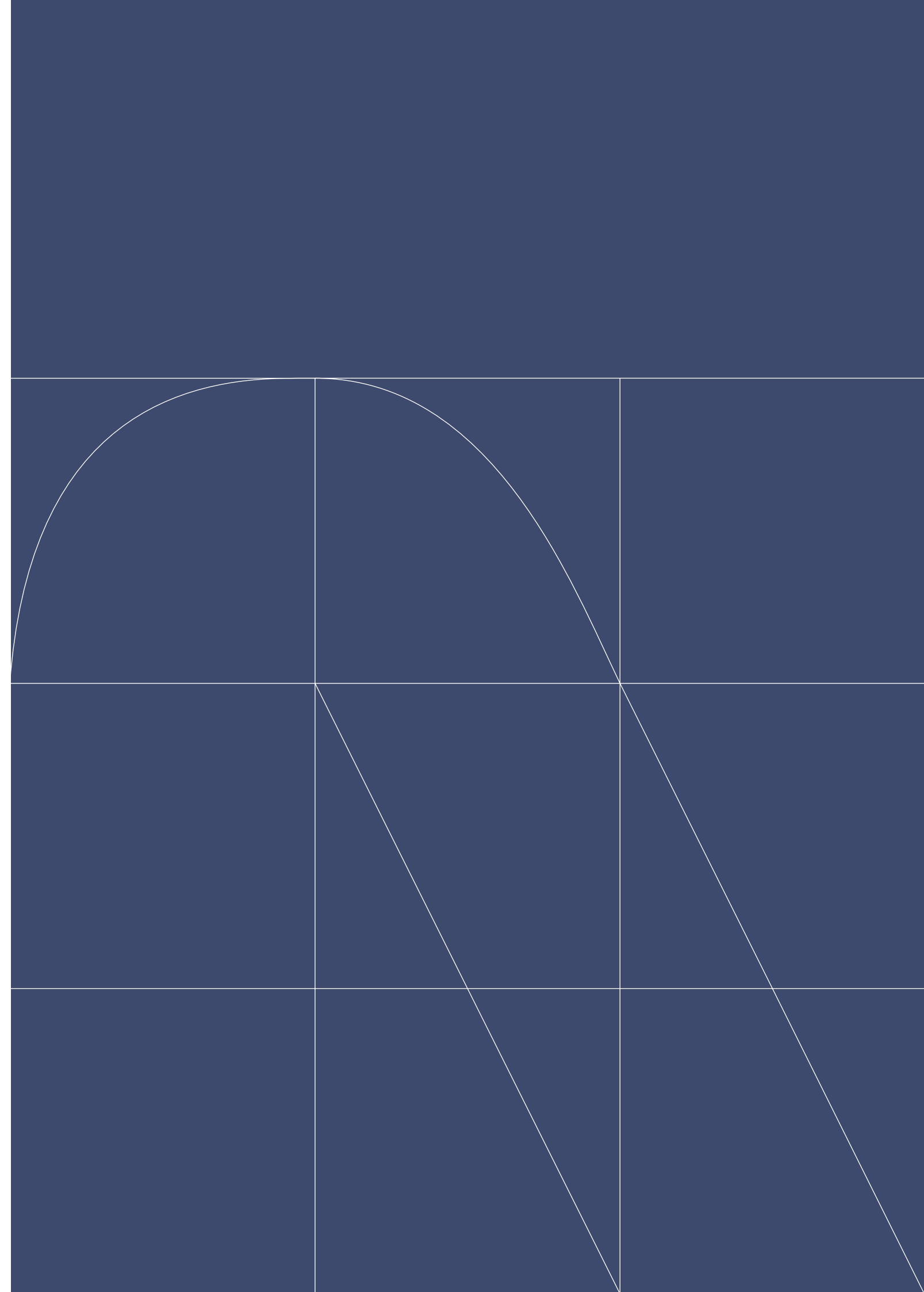
The so-called star ratings or bonuses implemented through these policies only guarantee that the treatments and the transition of care are carried through correctly. What does this mean? That if a patient who is at risk of chronic disease and goes to the hospital, follows the recommendations thoroughly, takes all their prescriptions, and visits all the corresponding physicians, the process was carried out correctly. However, the patient was not diagnosed until very late and so he was readmitted a second time.


Until now, the regulatory strategy has been to let things play out and then add a layer of rules to direct such things. However, this reduces the scope of chronic diseases to one that is paper-based, whereas it should, instead, be behavioral and even technology-based.

Value-based care, clearly related to everything already explained, also relies on outcome-based metrics that result in changing users' behavior. Therefore, regulation is also important to incentivize and stimulate the industry to move toward this new model.

In any case, prediction and prevention are as important as detection. However, it's not enough to just predict; you need to rely on entity data to go beyond prediction to treatment plans to make these relevant to diagnosis and patient profiles, which is key to winning the battle with healthcare and this chronic disease piece. How many times have you proactively received a call from the hospital or a doctor? Perhaps never. It's important that these AI, data-based programs in healthcare change this principle, and be proactive. Not waiting for the user's call before it becomes a problem; there is enough data, and there is enough technology.

Furthermore, financial pressure on both providers and payers is growing, increasing the need for efficiency and revenue assurance solutions. Claims reduction through prevention, new compensation models, or advanced management of the referenced network is a key element to address.





NTT DATA's Recommendations and Use Cases

Four Major Areas of Action to Respond to These Challenges

With our expertise and knowledge, our vision at NTT DATA focuses on four major action areas that require specific interventions but, above all, a comprehensive approach from the health organizations and any other player in today's healthcare ecosystem. These will allow them to cope with the latter two explained challenges and move forward to the future of the industry.

1. OPTIMIZE THE TOTAL EXPERIENCE

The user-centered health journey ranges from prevention and well-being to integrated care of chronic conditions.

In the context of increasing digitalization, offering a homogeneous experience, in which digital interaction points —increasingly numerous and sophisticated— coexist harmoniously with face-to-face care throughout the health journey, is a challenge for health organizations to the extent that it is also a strong requirement from users and, especially, clinical professionals.

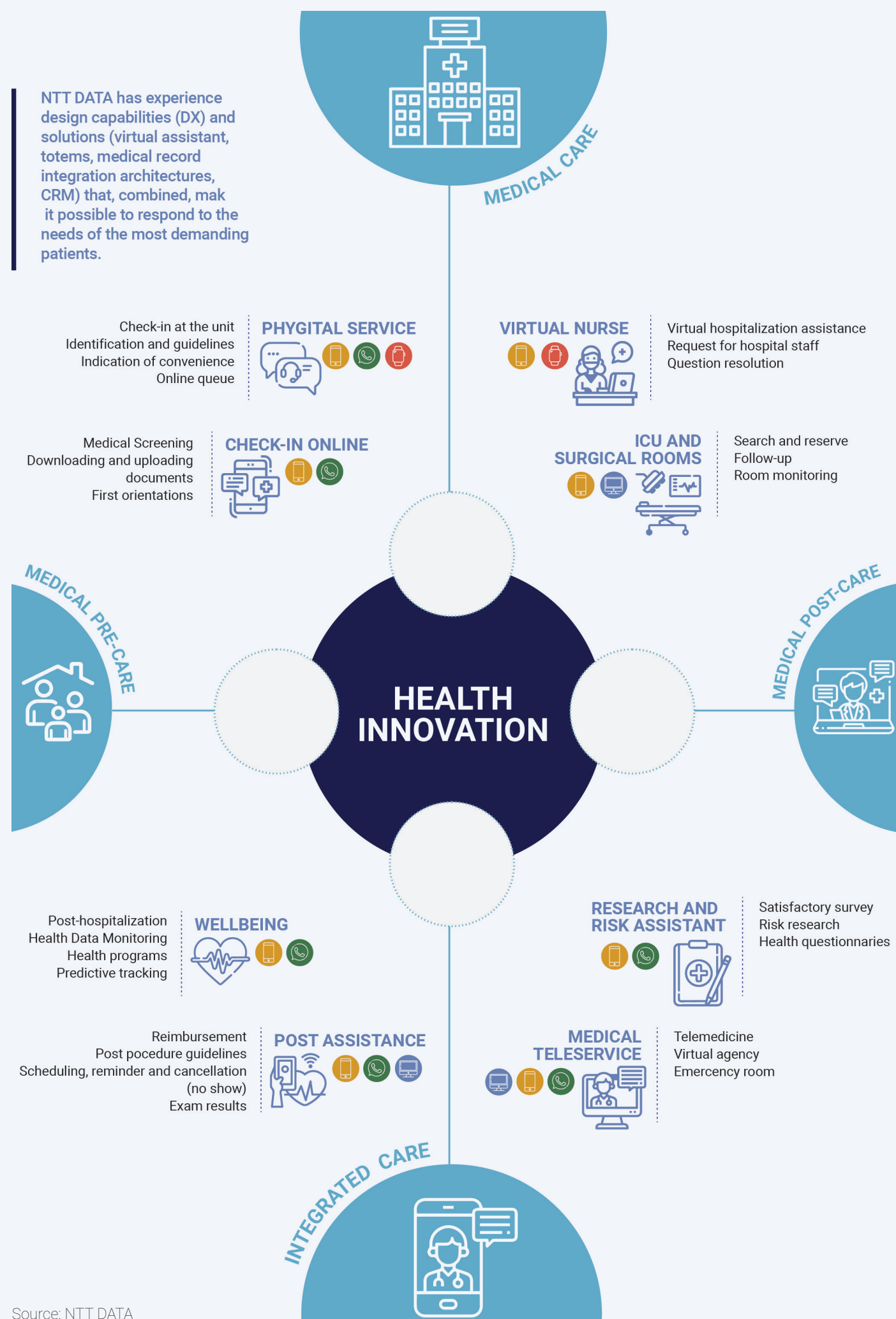
In this regard, there are three main focuses that players must pay attention to. First and foremost, **well-being and prevention**, for which organizations must promote healthy habits, empower users to take the charge as active agents of their health condition, and develop and implement tools that help in that journey, with innovative, friendly, and easy-to-use technologies. In this regard, virtual assistants are key, as they provide personalization, remote management and monitoring, and provide greater empowerment to the user. All this leads to better engagement of the user and improved interactions between them

and their insurers or providers. This thus leverages extended data for further coordinated insights, and adds value to the customer experience.

The second point that must be also addressed is that of the **Digital Front Door**, established by Gartner¹⁵ as a digital, personal, and interoperable space where the patient, at the distance of the click, can make use of this single, dynamic and bidirectional point of contact with the health organization. This fosters the relationship between health organizations and users and allows for the creation of a longitudinal view of individuals and groups for future opportunities for engagement improvements and innovations. By integrating their clinical and administrative back-office systems into one single point of access and approaching an omnichannel strategy, not only a 360° view of the patient is achieved to then be able to manage their health journey in a comprehensive and integrated manner, but also the interaction is simplified, enhancing the user experience and thus increasing their trust and loyalty with the organization.

And third, health organizations must work towards providing **hybrid experiences** to the patient, with a continuous and satisfactory relationship, regardless of the points of contact, through their end-to-end health journey (pre-care, care, post-care and integrated care). This includes building a hybrid journey that, from the user's perspective, allows for a much more fluid contact with their provider and, for this latter, generates a relevant impact on key business indicators. No-show statistics decrease, administrative workloads reduce in the front- and back-office, induced activity is generated in the post-consultation, and data is leveraged thanks to an enhanced engagement.

NTT DATA has experience design capabilities (DX) and solutions (virtual assistant, totems, medical record integration architectures, CRM) that, combined, make it possible to respond to the needs of the most demanding patients.



2. DIGITIZE CARE: BEING MORE DIGITAL TO BECOME MORE HUMAN

As for the second major area of action, the focus is to accelerate the digitization of healthcare activities, enabling advanced technologies and integrating them into clinical and operational information systems. Thus guaranteeing the homogeneity of information, streamlining healthcare processes, and improving patient safety and quality of care. Our call here, then, is for organizations to put an end to digital health, telemedicine, or virtual care nomenclatures. In the end, it is all about health, medicine, and care, with no last names.

The strategic target in this second field must be set on three main aspects. First, **comprehensive remote care** ensures better access to health services and greater satisfaction for users and professionals, who are inalienably demanding these from providers. Moreover, the only way for health organizations to respond to this is by generating truly seamless operations through clinical information systems, EMR, and remote monitoring devices, that are as well integrated with the face-to-face activity and collaborate in the creation of the aforementioned 360° view of the patient, improving doctor-patient communications and enhancing care quality.

In the second place, health organizations and any player in the industry must guarantee **population health and patient segmentation**, to structure, measure, and manage the relationship with users in a consolidated and coordinated way. Advanced patient segmentation based on digital profiles must also be implemented, unifying the information from

different sources and generating a convergent and multi-channel PRM (Patient Relationship Management) platform. In short, it is all about extending the capabilities of classic CRM through advanced profiling, to provide more powerful possibilities for population health management, prevention strategies, and personalized care plans. Resulting in higher success rates, better management of care plans, and more effective monitoring of indicators and metrics.

Thirdly, in this regard is where **continuous care of chronic diseases** also plays an important part. Our vision for seeking the greatest impact of technology in the care of chronic patients is focused on considering solutions ranging from predictive AI engines for risk scoring of undiagnosed chronic pathologies to connected health platforms that allow patients constant and consistent monitoring of their health and conditions.

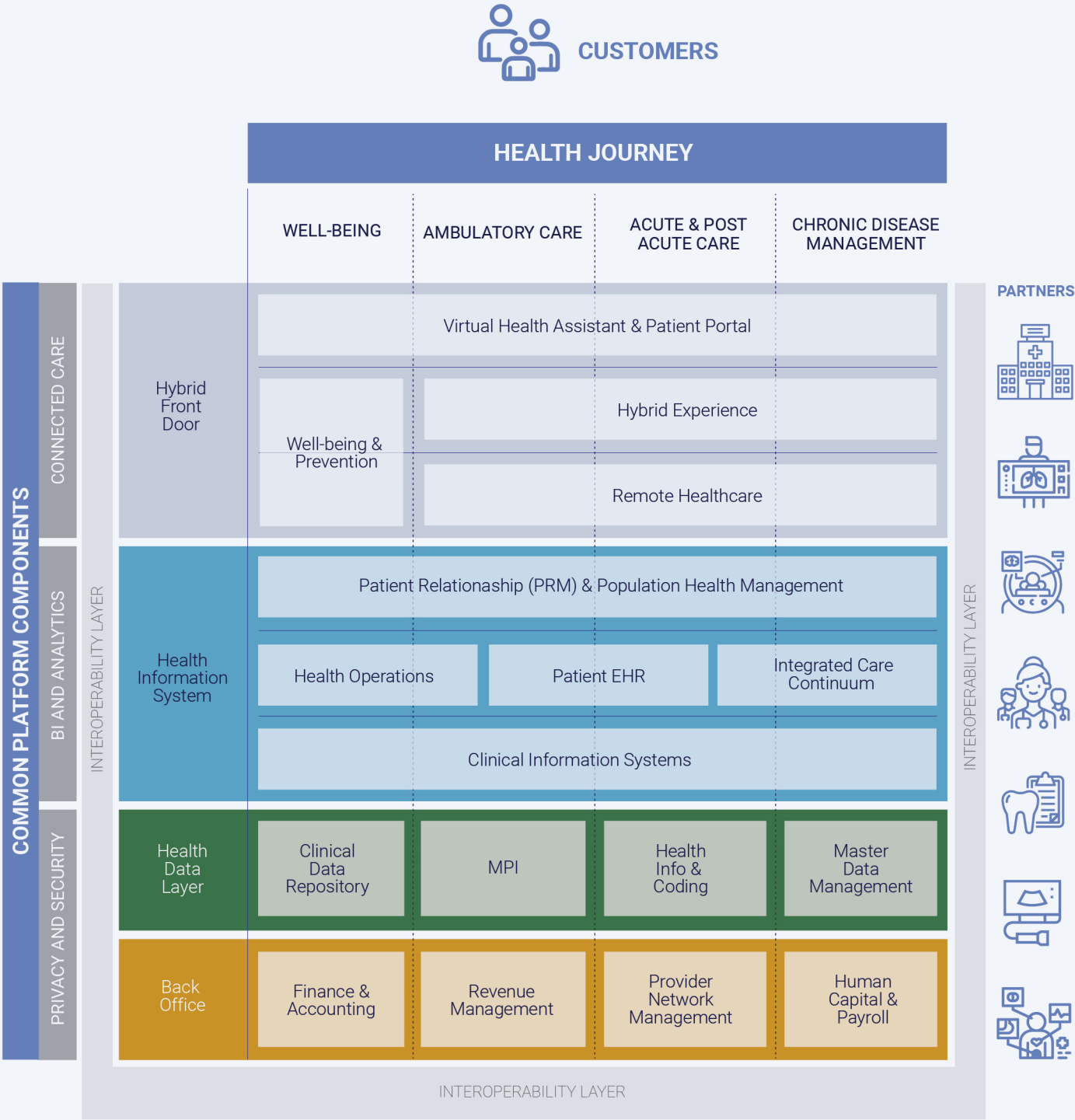
Most importantly, all these aspects must be part of a care pathway seamlessly integrated into remote care via digital channels so the health provider can pay continuous attention to the patient's health condition. Leading to a decisive change in the way we respond to chronicity with a significant increase in early diagnosis and patient quality of life, an improved ability to monitor disease course and treatment effectiveness and, therefore, a reduction of the treatment costs.

3. IMPROVE CLINICAL AREAS:
LIQUID AND CONNECTED
HEALTH

Contributing from technology to clinical improvement involves achieving a full and effective digitization of medical records, shared throughout the network and prepared to exploit the information they contain. It involves applying advanced technologies in the “first line” (whether they are emergencies, critical care units, or operating rooms), and integrating them into clinical information systems. It also implies advancing in the real-time response, managing the areas of a hospital as flexible and dynamic services. And it finally conveys adopting modern architectures that make interoperability a powerful tool at the doctor’s service, not a daily problem for the technology manager.

To effectively approach and manage the latter, we first highlight a **transition towards digital and shared data architectures** for improved interoperability. These will allow appropriate responses to critical challenges, operating efficiently as a care network, providing integrated experiences, and interacting with other ecosystem partners to exploit the amount of information generated and reducing data silos. Based on our experience in complex HIS implementation and interoperability projects, a good data and digital architecture design and the use of interoperability accelerators such as MPI, CDR, and shared HER are critical factors that contribute to a reduction in the time-to-market and greater flexibility to react to changes in the operation.

More specifically, health organizations must start to move towards the **liquid hospital**, ensuring dynamic management of hospitalization areas, real-time activity monitoring, and a multiplied network’s care capacity. These hospital command centers create centralized access to data provided by medical devices connected to patients, processing and monitoring events as they occur, adding and correlating them in indicators and KPIs, analyzing patterns, and displaying them to the user in an understandable and customizable way. These touch an increased quality of care, an improvement of operational and clinical efficiencies with reduced complications, average stay, readmission, and treatment costs, and advanced support in clinical decision making, thereby empowering key healthcare personnel. And finally, it also leads in the evolution towards Real-time Healthcare, with accessible, collaborative, and responsive use of information.



Source: NTT DATA

4. GENERATE EFFICIENCY IN THE OPERATION

Finally, we throw light on a fourth major area of action, in which intelligent automation technologies and process optimization help digitize lower value-added, labor-intensive non-clinical activities, thereby reducing costs, improving efficiency, and enabling healthcare organizations to invest more in key strategic initiatives.

Health plan operators and insurers must implement **intelligent automation** to optimize their back-office operations, especially when it comes to authorizations, reimbursement, or medical expenses, all while guaranteeing the quality of customer service. From an AI-assisted front-end to the automation of processes via RPA, the automatic processing of information through OCR/NLP/AI, the intelligent management of workflows or advanced analytics for risk clustering, technology can bring improvements in all stages of the process. From reception and intelligent data recognition, all the way to triage, processing, and payment. This results in an improved response time, cost optimization, early detection of fraud, and improper payment reduction.

Additionally, we need to bear in mind that legacy IT is not only a barrier to the digital transformation of health organizations but also consumes an important amount of budget (to the detriment of transformation and growth initiatives), at a time when pressure on the bottom line is on the rise. Cloud and legacy modernization can help flip this financial and strategic issue.

The current healthcare scenario is a highly dynamic market that forces its players –incumbent and new– to rethink their business and to innovate quickly as things happen. Digital is upon us, but healthcare transformation is far from complete. Cloud adoption and legacy modernization are becoming essential in this context: it is not just infrastructure or applications; it is a new way of doing things that enables faster and easier generations of new capabilities while providing a scalable foundation to fulfill the healthcare journey and evolve to meet fast-changing needs. It is essential to consider, though, that IT transformation on its own does not create business value: to do so, focusing on enabling and accelerating the company's strategic agenda is a must.

Embracing the journey to cloud and legacy modernization is more than just technology. It is about agility, improving patient experience, and leveraging data. It is about business strategy and innovation capabilities. It is about the ability to, if needed, change direction quickly and with very little notice. They should, then, be driven jointly by IT and the business.

It is about governance, too. A model is needed that relies on assets, platforms, accelerators, and products. That includes a composable architecture approach, site reliability engineering (SRE), and the appropriate human capabilities. However, before any implementation or transformation plan, a digital/cloud/core strategy is needed. And not only an IT strategy.

One of the main reasons for healthcare organizations to foster IT transformation is to face the challenges of data and interoperability, to deal with the huge

amount of information generated. Whether it comes from EHRs, core insurance products, virtual care solutions, or IoT remote-monitoring services. To make the most of this data, we need to remove boundaries across systems and domains and make them widely accessible to professionals and patients. The cloud and digital architectures are an opportunity to achieve true integration, a long-standing challenge.

Security and data privacy concerns are an important topic of discussion, but shouldn't be a barrier. Risk management, security by design, rapid response strategies, or workforce awareness must be part of our everyday language.

Some Use Cases

With more than 50 years of experience in healthcare and health insurance, we understand and embrace all the challenges explained and the continual increase of user expectations. We have the tools to empower players in the Healthy Living ecosystem in their journey towards value-based, preventive care.

Our services cover health payers, healthcare providers and life science areas, helping companies worldwide to streamline their operations, create exceptional experiences for their patients and professionals, and modernize and digitize their technological environments to boost their activities overall.

The following are some of our success stories in the field:

1. DRIVING DIGITAL TRANSFORMATION IN HEALTHCARE, WITH AMERICAN HEALTH ORGANIZATION

An American services company partnered with NTT DATA to modernize its applications and automate critical processes to better identify risk with predictive models. The client, a leading non-profit health plan provider, needed to address the ongoing trend of digitization to be able to remain competitive in a pressured environment to reduce administrative costs and provide better services. NTT DATA helped enable the automation and development of a DevOps model, optimizing claims inventory management and modernizing legacy applications, resulting in stabilized

claimed volumes, better risk isolation, accelerated claims management time, and reduced core support costs by \$13.5M through automation and process improvement.

2. IMPROVING HEALTH REGIONAL PLANS THROUGH AWS, WITH AMERICAN HEALTH INSURER

An American healthcare group of companies needed to modernize its data system to improve care, lower costs and grow membership. NTT DATA help modernize the insurer's regional plans' legacy data systems with a HIPAA-compliant, AWS-based data lake built in only four months, accelerated by our in-house Nucleus Data & Intelligent platform. As outcomes, the company benefitted from an increase of 33% in their efficiency and reduced costs significantly. They also created data ingest pipelines with automated validations, end-to-end deployment, and governed curated data assets that allowed data-driven insights. Thus increasing patient and provider satisfaction and positioning the company within a very competitive marketplace.

3. BPO END-TO-END REIMBURSEMENTS AND MEDICAL BILLS PROCESSING, WITH LEADING LATIN AMERICAN INSURER

A top insurer in Latin America, headquartered in Brazil, needed to transform and automate its current back-office activities to eliminate manual-intensive

and paper-based processes, optimizing operations and reducing costs. NTT DATA was selected as a partner for an end-to-end BPO service of the Reimbursements & Medical Bills Processing areas. In addition to the implementation of cognitive RPA to process massive reimbursements and medical claims, we also used productive thinking for transforming the current state processes. This led to the client being able to manage over 500.000 invoices per month and reducing its costs by over 40%.

4. CLOUD TRANSFORMATION FOR HEALTH FIRST, WITH TOP JAPANESE LIFE INSURER

To respond to Japanese social pressure to develop a "healthy life expectancy" that enables people to live healthier and more independent lives for longer, insurer Dai-ichi Life launched "Health First", a smartphone service that improves people's quality of life by promoting healthy habits based on each user's current health status, age, and body type. The client needed to develop a short-term ICT infrastructure for rapid service deployment, with scalability to respond flexibly to user growth, and a high-security level to manage personal information that leads to further innovation. NTT DATA helped in the development of cloud infrastructure, based on Microsoft Azure, and the Customer Management System, both of which allow the insurer to adapt quickly to the increasing demand as well as to provide various services and content according to the personal characteristics of each user.

Conclusion

A close-up photograph of a female scientist with short dark hair, wearing safety glasses and a light blue lab coat. She is wearing blue nitrile gloves and is using a white and grey pipette to transfer liquid into a multi-well plate. The background is a laboratory setting with shelves and equipment. The image is overlaid with a white grid and a large white arc.

The changes that have occurred in the health sector will not go away, so insurers have no choice but to develop and grow as a result. As we have seen, the focus is now more than ever on a healthy lifestyle and, in general, on people's well-being. Prevention and early care are key.

The revolution in the health industry has already happened. So, the insurer must cater to new entrants and develop value-based models. These models must focus on quality rather than quantity, i.e., guaranteeing better care for individuals, lower costs, and a healthier population. However, while the goal may be clear, how to get there is not so simple.

NTT DATA has sought to provide insurance companies with four key areas of action to respond to these diverse challenges: optimizing the experience, digitizing care, improving clinical areas, and enhancing general efficiency in the operation. From NTT DATA, we urge all health executives to consider the challenges we have set out because only the ones who take action will be able to survive in these uncertain times.

References



1. Celent. [Moving to Group Health Insurance](#). 2022.

2. Celent. [Technology Trends in Health Insurance](#). 2022.

3. Celent. [Technology Trends in Health Insurance](#). 2022.

4. CMS. [Value-based Purchasing Program](#). 2022.

5. Gartner. [Assess Healthcare Payer and Provider Maturity to Sell Value-Based Care Solutions](#). 2022.

6. HCPLAN. [APM Measurement Report](#). 2021.

7. AMA. [Value-based Care. Promote the Triple Aim](#). 2016.

8. Veradigm. [Value-based Care](#). 2022.

9. Gartner. [Healthcare CIOs: Enable Real-Time Ecosystem Collaboration to Excel in Value-Based Care](#). 2022.

10. Gartner. [2021 Strategic Roadmap for the Real-Time Health System](#). 2022.

11. EIT. [Implementing Value-based Health Care in Europe](#). 2020.

12. World's Health Organization. [Noncommunicable Diseases](#). 2022.

13. Gartner. [Defining the Virtual Care Markets and Its Opportunities](#). 2020.

14. Oliver Wyman. [Understanding the Value Equation](#). 2021.

15. Gartner. [It's Time for Healthcare Delivery Organizations to Adopt a Digital-First Strategy](#). 2021.

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