

Non-clinical data presents a new frontier for the healthcare organizations to explore in the pursuit of value and improvement of clinical outcomes beyond the electronic health records (EHR).

# Beyond the EHR: The Role of Non-Clinical Data in Clinical Outcomes

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## I. Introduction

### Why Value Matters in Healthcare

Healthcare needs to rethink value as the challenges of the digital era shed light on everything from inefficiencies to inequities. Traditionally, value equated to the improvement of outcomes (e.g., quality and cost of care), and “value-based care” introduced a framework to restructure systems toward performance optimization by measuring outcomes and costs. However, as organizations shift to value-based care with a high reliance on their EHRs and clinical data, they realize that the journey is not straightforward, and the world around them is changing.

Today, many questions are being raised regarding how best to align healthcare with the pursuit of value. For example, organizations are confused over what data is available, how to access and integrate it with other data, and how to use it to positively impact healthcare. In addition, the industry faces many pre-existing and emerging challenges, ranging from the broader impact of economic crises and aging populations to the more direct bearing of increasing consumer expectations, razor-thin profit margins, and cyberthreats.

Initiatives to improve healthcare begin with data. Unlocking data is the key to success and digital transformation (DX), which can serve as a vehicle on the journey to value creation. DX is driven by the combination of 3rd Platform–related technologies (cloud, big data, social, and mobile) with innovation accelerators (e.g., AI and IoT). According to IDC data, 93.6% of healthcare organizations continued to invest in DX initiatives during the pandemic, despite its impact. Healthcare organizations know that to thrive, rather than survive, they must shift from data-rich to data-driven. Through a virtuous cycle of data excellence, the way forward is paved with the intelligence to fuel experiences that bring value to patients.

### Optimizing the Individual Healthcare Experience

Healthcare experiences consist of three dimensions: consumer experience, patient experience, and patient engagement. Experiences are never linear but are complex journeys that flow among each dimension (see Figure 1). Individuals can be active in more than one dimension at any time and have multiple journeys happening at once. Technologies and capabilities to support the different dimensions must reflect an ongoing, meticulous effort to understand and empathize with patients to humanize their experience. The role of non-clinical data becomes paramount here by complementing clinical data with a more holistic understanding of the person and their needs.

## AT A GLANCE

### WHAT'S IMPORTANT

Non-clinical data can shed much light on critical factors that impact outcomes more than direct care does.

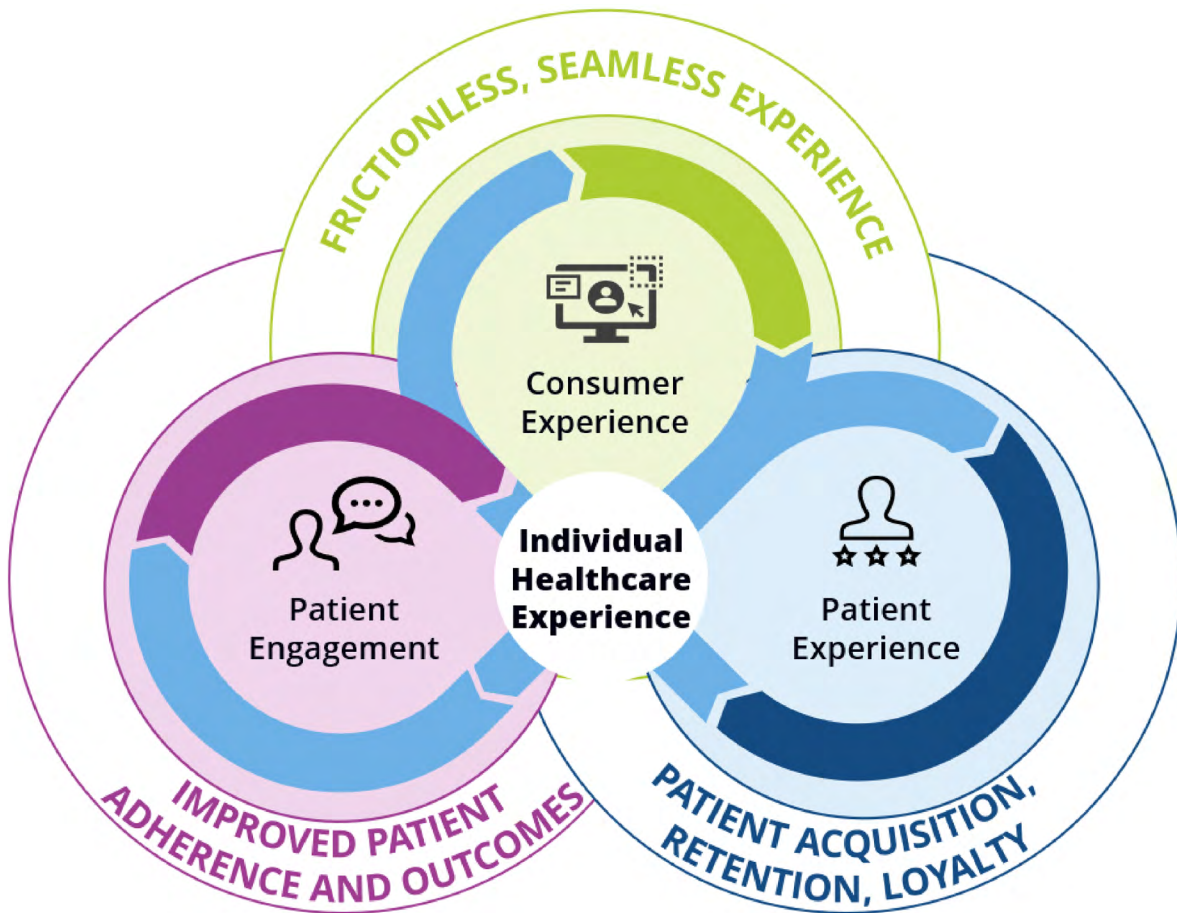
### KEY TAKEAWAYS

IDC predicts that the size of the global healthcare datasphere will exceed the 10ZB level by 2025.

An optimized non-clinical data environment can predictively help organizations understand patients' social, cultural, and economic constructs.

FIGURE 1

## The Individual Healthcare Experience



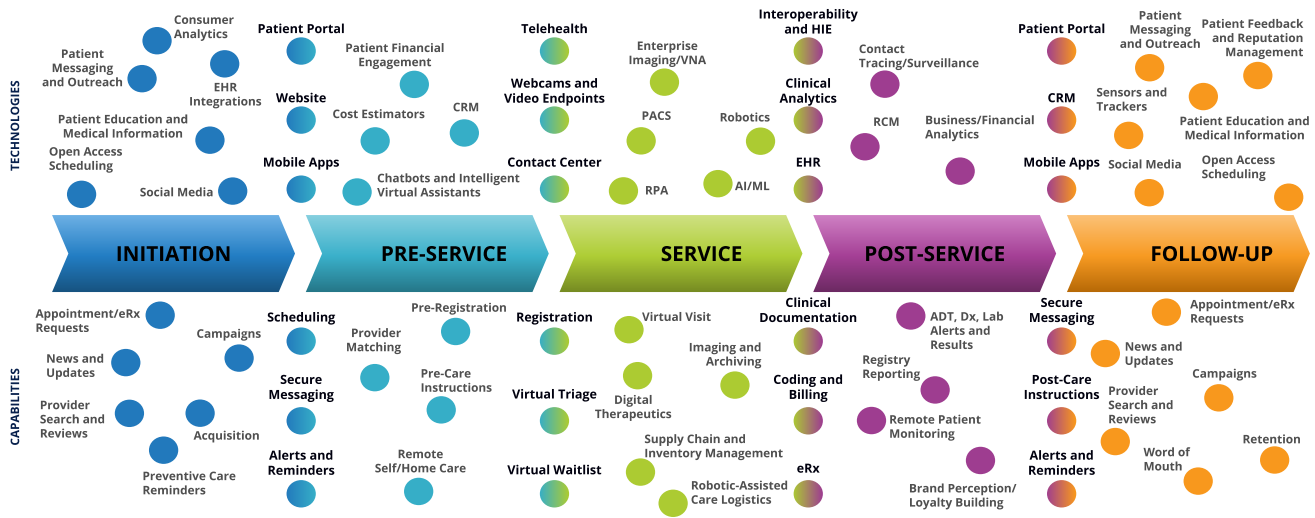
Source: IDC, 2020

However, healthcare organizations cannot physically meet the shifting wants and needs of all patients sustainably. Instead, there must be some reliance on digital touchpoints to serve as an enabler for interactive care journeys. For example, as organizations contended with the pandemic, the disruption catalyzed a pivot to virtual care. This enabled organizations to scale care beyond the physical walls, deliver value, and meet patients where they were while minimizing any likelihood of cross-infection between patients and staff. IDC survey data collected during that initial pandemic wave revealed that 83.9% of patients had a virtual care visit for the first time, and 72.5% interacted with a front-end conversational AI chatbot or symptom checker.

IDC defines the digital front door as “all the touchpoints where providers and payers can digitally interact with patients or members to drive better access, engagement, and experiences across the service continuum.” A digital front door is a mix of technologies that meets patients and workers where they are through a holistic approach. This approach combines front-end service optimization, the scaling of virtual and digital care, and an end-to-end platform (see Figure 2). Non-clinical data can play a vital role in informing digital front-door strategies. For example, artificial intelligence and machine learning that leverage knowledge of a patient’s preferences can help the organization better engage with that patient to optimize the front-end service experience (e.g., open-access scheduling, patient financial engagement, and virtual triage).

FIGURE 2

The Digital Front Door



Source: IDC, 2020

Making a Case for Non-Clinical Data

Currently, 37.5% of healthcare data is patient data, and IDC predicts that the size of the global healthcare datasphere will exceed the 10ZB level by 2025. Organizations need to find ways to integrate and put that data to good use. Non-clinical data can shed much light on critical factors that impact outcomes more than direct care does. There is no way to comprehensively capture all non-clinical data in an EHR. Also, it is no secret that EHRs were built initially to file claims. While progress continues to shift EHRs from traditional systems of record to next-generational systems of engagement, forward-thinking organizations must act. The exponential amounts of data, especially non-clinical data, available to the industry present too great an opportunity to miss.

*37.5% of healthcare data is patient data, and IDC predicts that the size of the global healthcare datasphere will exceed the 10ZB level by 2025.*

There is no empathy without intelligence. As healthcare organizations optimize their ability to aggregate, harmonize, and treat data as a value-added asset, more attention must be given toward data governance and quality initiatives, especially regarding non-clinical data, since it may be sensitive, disparate, and even outdated. However, when combined with clinical and patient-generated health data (e.g., IoT), non-clinical data can generate an added level of visibility into areas that enable an inimitable level of service differentiation – by having the intelligence and insight to champion the experience. Therefore, healthcare organizations need to look beyond traditional sources (e.g., EHR, clinical, claims data), now more than ever, and consider the vital role that non-clinical data can play in clinical outcomes.

It is never “all about the data” in healthcare but having “the right data” (see Table 1). For example, suppose latency is removed via real-time access to the data. In that case, it makes it easier for a healthcare provider to address patient non-compliance or take proactive steps to adjust a patient’s behavior. Furthermore, besides supporting real-time views and cutting-edge DX use cases like the digital front door, an optimized non-clinical data environment can predictively help organizations understand patients’ social, cultural, and economic constructs. This information completes the picture of who that person is and goes well beyond their symptoms.

As a result, non-clinical data will align intelligent workflows and engagements with more empathic and meaningful experiences in healthcare. Furthermore, when such technologies as machine learning, for example, are applied to core and emerging use cases in healthcare (e.g., matching patient needs and programs), there is a greater likelihood for the initiative to improve outcomes. Non-clinical data will impact core and emerging use cases to help address areas including, but not limited to:

1. **Gaps in care:** the differences between best practices in care and what is actually delivered
2. **Social determinants of health:** environmental and social factors that affect a wide range of health outcomes
3. **Care coordination:** the organization of activities and sharing of information to deliver safer and more effective care
4. **Patient engagement:** the involvement of patients in their care to improve conditions and monitor outcomes

TABLE 1

## Non-Clinical Data Sources

Source	Description
SDOH	Social Determinants of Health data are conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks – grouped into 5 domains: economic stability, education access and quality, healthcare access and quality, social and community context, and neighborhood and built environment.
PGHD	Patient-Generated Health Data is data created, recorded, or gathered by or from patients (or family members or other caregivers) to help address a health concern – includes, but is not limited to: health history, treatment history, biometric data, symptoms, and lifestyle choices.
RWD	Real-World Data is data relating to patient health status and/or the delivery of healthcare routinely collected from a variety of sources – for example, EHRs, claims and billing activities, product and disease registries, patient-generated health data including in-home use settings, and data gathered from other sources that can inform on health status, such as mobile devices.
RWE	Real-World Evidence is the clinical evidence regarding the usage and potential benefits or risks of a medical product derived from real-world data analysis. It can be generated by different study designs or analyses, including but not limited to randomized trials, including large simple trials, pragmatic trials, and observational studies (prospective and/or retrospective).
Social	Social media data is all the raw insights and information collected from social media activity and tracks how individuals engage with an organization's social media content through numbers, percentages, and statistics, which includes (and is not limited to) the following metrics: shares, likes, conversions, comments, mentions, impressions, and clicks.

<b>Consumer</b>	Consumer (or customer) data refers to all personal, behavioral, and demographic data collected by marketing companies and departments from their customer base.
<b>Climate</b>	Climate data is historical weather data over daily, monthly, seasonal, and yearly measurements of temperature, precipitation, wind, degree days, radar data, and 30-year Climate Normals.

## II. Industry Definitions and Core Attributes

- **Healthcare Digital Transformation:** the application of 3rd Platform–related technologies (i.e., cloud, big data, social, and mobile) to fundamentally improve all aspects of healthcare
- **The Future of Customers and Consumers:** an empathic relationship between customers, consumers, and brands built on what the customer or consumer wants and how they want to be treated through the technology lens of awareness, engaging, learning, and measuring
- **Consumer Experience:** shopping, selecting, and paying for care through providers and insurance via enrolling and paying for insurance, managing a claim, provision of service(s), and payment (by the patient and/or health plan)
- **Patient Experience:** arranging for and receiving care with set expectations and observations made about direct patient care events, encounters, interactions, processes, and outcomes
- **Patient Engagement:** actively involving patients in their care by campaign outreach, establishing shared goals, and personalizing wellness/care plans to improve specific health conditions and monitor outcomes

## III. Key Business Priorities

1. Formulation of a non-clinical data mission as part of the broader vision and strategy for data governance
2. Introduction of an impetus to shift from being non-clinically data-rich over time to non-clinically data-driven
3. Execution of tactics and objectives to increase organizational maturity on the utilization of non-clinical data
4. Identification of silos to be streamlined for access to non-clinical data across disparate systems
5. Realization of protocols to ensure non-clinical data consistency, quality, and integrity
6. Implementation of policies and training that meet non-clinical data compliance and regulatory standards
7. Deployment of privacy and security measures to ensure non-clinical data is always secure and protected
8. Advancement of continuous learning and adaptation of methods to promote non-clinical data utilization

## IV. Trends

Key trends to consider include:

- **Accelerated Disruption** — Crisis, Resilience, and Opportunity: The pandemic has redefined disruption. Survival of the fittest is linked not to size or strength but to resilience and the ability to change — to move quickly, adapt, seize opportunities, and be ready for the next disruption. Distressed healthcare organizations are having to make rapid pivots toward new care models or quickly adjust them. The immediate imperative is to manage costs and quality, balanced with strategic investment into collaboration and security across the ecosystem. Now is not the time to sit back and wait but instead to make bold strategic bets that increase the organization's resilience and keep pace with change by increasing clinical and operational performance and innovation. Past challenges and crises have proven to be inflection points for healthcare organizations that later thrive during the next positive cycle.
- **The Next Normal** — Resilient Business and Operating Models: In the post-COVID-19 economy, expected changes in consumer behavior, consumption, and supply will force healthcare organizations to adopt digital-first clinical and operating models that can survive lockdowns, restrictions, social distancing, supply disruptions, and more. New realities and expectations will redefine service expectations and the need for disruptors to close technology gaps. Economies of scale will be challenged by the need for automation while relationships to varying extents shift from face-to-face to virtual. Hybrid work models, scalability, security, throughput, and redefining internal processes for remote collaboration and communications require immediate attention but will have lasting effects.
- **Engagement Redefined** — Safe, Secure, and Sustainable Digital Experiences: The pandemic has focused on what people care about and shifted how consumers, patients, and healthcare organizations engage and interact. Organizations need to provide a safe, secure, and seamless experience. Individuals care about the privacy and safety of their data as well as how it is collected and used. As a result, healthcare organizations need to understand the different contextual and personal expectations of the person at the heart of the relationship — whether they are a new patient, existing patient, care-seeking consumer, family member, or employee — and shift how they engage and support them in this emerging reality to create experiences that are empathic, personal, convenient, compelling, and relevant today.

## V. Considerations

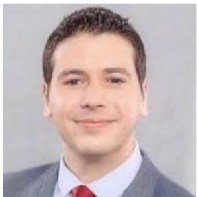
1. Only small proportions of non-clinical data, estimated at less than 10%, are being used in clinical decision making currently, but awareness regarding the value and benefits of such data is on the increase.
2. Evidence-based practices guiding how to combine non-clinical data with clinical data are still in their early days, especially in consideration of target patient demographics, populations, and conditions that would benefit most.
3. Clinical trustworthiness, reliability, and credibility of certain types of non-clinical data (e.g., PGHD) are still being explored, but multiple studies point to the benefits of incorporating SDOH, longitudinal views, and RWD/RWE.
4. Reimbursement for utilization of non-clinical data can be unclear at times, but more guidelines are being published (e.g., CMS reimbursement models on the use of PGHD in remote patient monitoring).
5. Moves to the cloud to manage non-clinical data may prove to be a heavy lift considering petabyte (PB) levels of data involved.

## VI. Conclusion

Healthcare is being catapulted through rapid digital transformation and change. The industry is increasingly expected to behave no differently from others in terms of offering convenience, personalization, and services that are one click away. The pursuit of value through non-clinical data sources will help improve clinical outcomes by better understanding patients as individuals. Forward-thinking health IT leaders will acknowledge that non-clinical data offers value-added benefits that can help practitioners elevate experiences and organizations prepare for the future. The future of healthcare is paved with data-driven empathy in the experience and digital resiliency in any response – and it is a future where non-clinical data can no longer be ignored.

*The pursuit of value through non-clinical data sources will help improve clinical outcomes by better understanding patients as individuals.*

## About the Analyst



### **Mutaz Shegawi, Research Director**

*Mutaz Shegawi leads the provider research practice at IDC Health Insights, covering topics of most relevance to healthcare provider organizations looking to digitally transform and become more digitally native than their competition. Mutaz advises the executive, clinical, and technical leadership of the world's foremost technology supplier and buyer organizations by producing data-driven research and thought-leadership insights that help to navigate strategic challenges in health IT.*

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