

New Revenue Streams in Health Data Monetization

Abstract

The healthcare industry is in the midst of a major paradigm shift. Thanks to the needs of today's digitally-empowered customers, there is an increased focus on patient outcomes and wellness as well as emerging payment models. This results in enormous data assets. Further exploration of these assets is crucial for many reasons. These include understanding the changing care and financial risks, deriving a holistic view of the customer, and enabling research for providing quality care. These factors increase the value of these data assets by several times.

It isn't just these levers which are moving the healthcare industry into a new era. Disruptive technologies such as big data, analytics, cloud, wearables, mobility apps, cryptocurrency, and blockchain-based data marketplaces among others, are responsible for increasing the volume, variety, and velocity of data that companies have to deal with.

As we know, there are established methodologies practiced today to monetize data but they have not been fully realized. Our white paper explains how healthcare organizations can get a head start for monetization of data as they stabilize their digital platforms.

Data – The New Global Currency

The exponential growth of health data is not only from internal systems such as electronic health records (EHRs) but also from external touch points at the consumer's end. A combined study done by IDC and Seagate finds that healthcare data is projected to have a compound annual growth rate (CAGR) of 36 percent through 2025¹, which is faster than manufacturing, financial services, or media.

The following exhibit shows multiple drivers for positive changes in the healthcare industry that fuel data-driven innovation:



Exhibit 1 – Convergence of Multiple Trends/factors has Created a Tipping Point for Innovation²

Having recognized data as a true enterprise asset, healthcare organizations reap the benefits of this asset through analytics. Highly competitive organizations move up in the value chain by monetizing these analytics for generating a new revenue stream. This transition truly emphasizes data being considered as a new global currency.

Data monetization, according to Gartner³, refers to using data for quantifiable economic benefit. This can include indirect methods such as, but not limited to:

- Measuring business performance improvements
- Productizing information (i.e., new information-based offerings)

- Informationalizing products (i.e., including information as a value-add component of an existing offering)
- Selling data outright (via a data broker or independently)

Definition	Data Analytics	Data Products	Data Services	Monetization Revenue	Impact
Measurable business performance improvements	Yes			Bottom Line	Indirect
Beneficial terms from business partners	Yes			Bottom Line	Direct
Information exchange, Productizing Information	Yes	Yes	Yes	Top line	Direct
Informationalizing products	Yes	Yes	Yes	Top line / Bottom Line	Direct
Selling data outright		Yes	Yes	Top line	Direct

Exhibit 2 – Data Monetization Methods and Revenue Streams

Already, we are seeing a larger number of new entrants in healthcare, such as Microsoft⁴ and Amazon⁵ leverage the data collected from their wide variety of platforms for their own vertical growth. It is only the next logical step for these organizations to monetize the data beyond their vertical growth.

Monetizing Data – Opening New Avenues

The massive health data can be a source for deriving substantial values beyond the clinical use, which has been the sole purpose of collection.

This is in alignment to the concept of harvesting the abundance in TCS’ Business 4.0™ approach for organizations’ strategic growth. Diligent data sharing by healthcare organizations with their partners creates innovative research to solve complex healthcare problems. New revenue streams are created which enable greater financial benefits through data monetization.

There are three approaches that an organization can adopt to monetize data



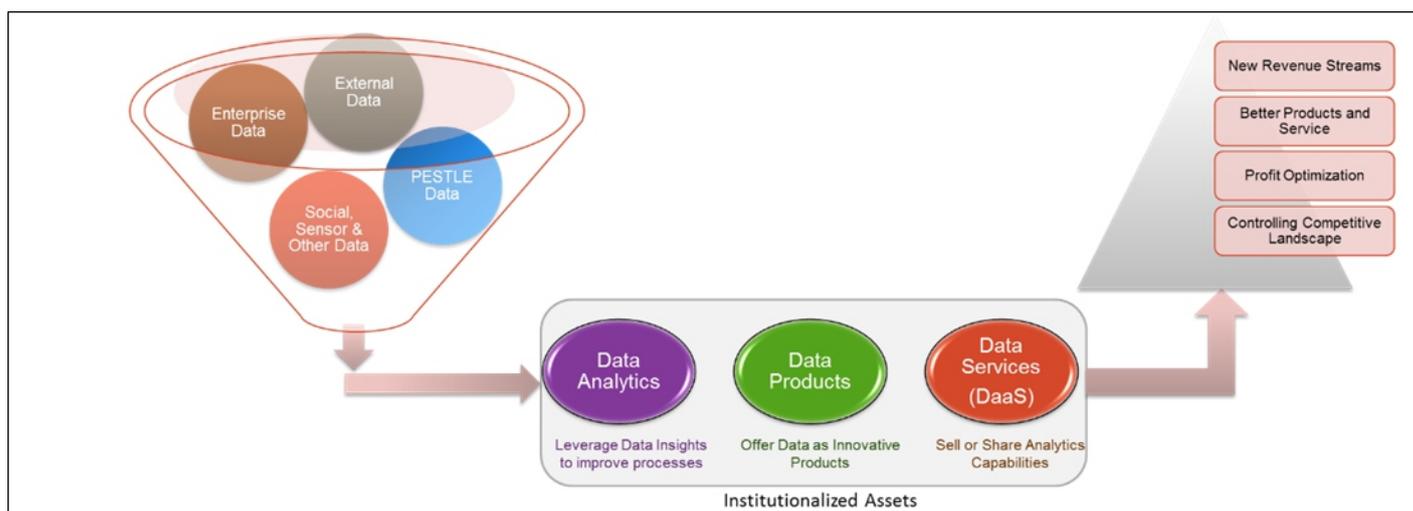


Exhibit 3 – Data Monetization Approaches⁶

- One of the prevalent approaches for monetizing data assets is by leveraging analytics to derive insights which can help businesses understand consumer preferences, stratify population risk, and even predict undesirable events. Application of advanced analytics techniques on combined clinical and claims data provides a holistic view of patient populations. Outcomes of this analytics help in reducing unnecessary clinical procedures and driving greater care coordination.
- Another way is to offer data-oriented personalized products to the customers as add-on services. For example, an insurer can provide wellness recommendations utilizing data from individual's personal health devices, in the form of an offering or product against a fee. A US startup recently established a blockchain-based data marketplace to enable users to create a more accurate picture of their health than on EHRs. It allows them to monetize their health data and assist in tailor-made health recommendations that actually help improve their condition.
- Another approach of data monetization is to share the data assets achieved through either of the above methods in its raw, native form (known as Data-as-a-Service). For example, a large health insurer can offer a predictive analytical model for specific chronic conditions as a service or as an API that small insurance companies can buy and leverage to power their own analytics practice.

Focus on Compliance

While data monetization provides a wide range of opportunities for organizations, they must also be aware of legal concerns created by these opportunities. There are stringent regulations in the healthcare industry and rightly so, considering the sensitivity of said health data. Any data monetization strategy should consider the regulatory requirements pertaining to Protected Health Information as mandated by HIPAA, Sensitive Personal Data as defined by General Data Protection Regulation, Personal Information Protection and Electronic Documents Act in Canada, or any other data privacy laws. Following are some of the aspects that need to be considered while formulating data monetization strategy:

- Does the health information under discussion have appropriate explicit authorization or consent from patients for such monetization activities?
- Is the de-identified health information going to be used for monetization activities, provided de-identified data cannot be re-identified?
- What is the ownership status of the health data being exchanged?

It is imperative that healthcare organizations aspiring to monetize data ensure data safeguarding and security to avert any criminal use.

Formulating an Appropriate Data Monetization Strategy

A robust monetization strategy is essential for any organization in order to transform its data assets into directly or indirectly sellable products. The first step for formulating such a strategy is to perform a comprehensive enterprise-wide assessment to establish a baseline. After assessment, enterprises should also consider external factors such as:

- Target customer base for monetizing data assets
- Regulatory protocols that govern data security and exchange
- Identification and prioritization of the right use cases and resultant products
- Benchmarking of strategy against other similar institutions

Exhibit 4 depicts one of the data monetization models that we propose, and considers two key dimensions 'Data Value' and 'IT

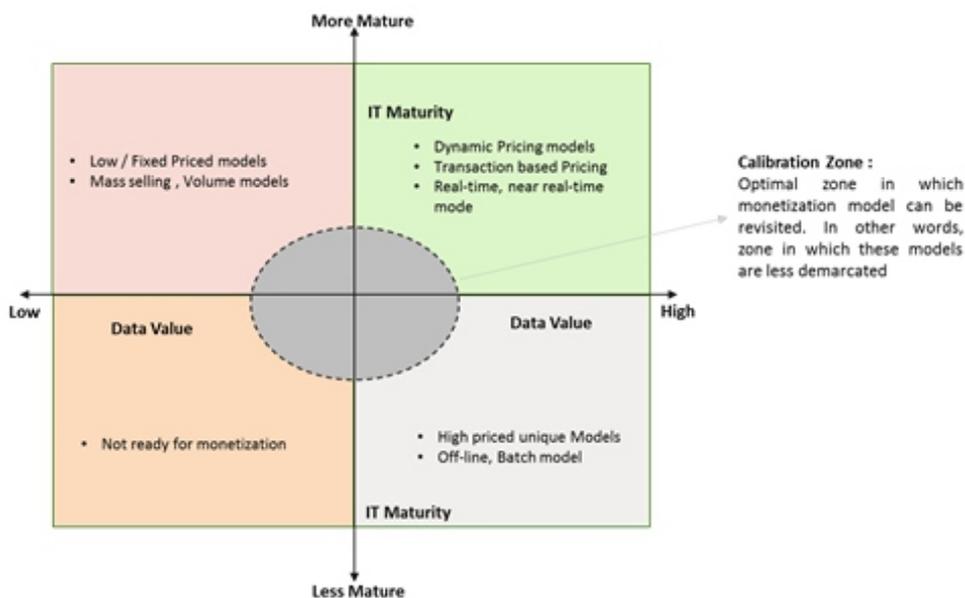


Exhibit 4 – Data Monetization Model

Maturity’. Needless to say, assessing data value and IT maturity is an exercise by itself and is specific to an organization.

In general, organizations tend to maximize monetary benefits in the green quadrant - the zone of aspiration to move towards. The calibration zone indicates the organizational state wherein data monetization models have minimal degree of separation. Hence this zone is ideal for switching monetization models.

Potential Use Cases in Healthcare

From the payer’s perspective:

- Health insurers can offer analytics tools to self-insured employers for running comparisons within defined patient populations to identify cost drivers. Insurers can use de-identified data (claims and outcomes) from multiple self-insured employers and create this offering.
- Clinical and claims data along with computational models can be provided to healthcare providers for their service and operational reorganization. In the changing world of value-based services, this will enable healthcare providers to improve quality of care while minimizing their financial risk.

From the provider’s perspective:

- Diagnostic labs collect vast amounts of diagnostic data, which, in turn, can be shared as a de-identified paid offering with pharmaceutical research organizations who can use it to gain more insights on disease conditions and symptoms.

- Companies can build analytical models and algorithms based on historical clinical data and sell them to other providers/healthcare partners through data marketplaces. These can include models for predicting hospital readmission within populations with certain chronic conditions such as chronic obstructive pulmonary disease (COPD), diabetes, and so on.
- Providers can market their data and statistical models to give details on drug adherence of patients. This would help pharma companies to understand drug efficacy better and manage their markets appropriately.
- Long-term health care providers and assisted living facilities can market their care data of aging populations to establish extended independent care models, which will be useful for device manufacturing companies that sell IoT/sensor devices.
- Providers can monetize wellness and routine test data for retail market players such as health food and electronics companies such as Fitbit for their product strategy.

Making the Most of Data

Despite organizations viewing their 'data' as an asset, they have not exploited it to its fullest potential. Due to digital disruptive innovations causing a flurry of data generated in healthcare ecosystems, healthcare organizations can reap tremendous monetary benefits. The strategy should create a balance between the monetization approaches and regulatory requirements associated with data security.

With the data monetization market poised to touch a valuation of \$707.86 billion by 2025⁷, cutting edge technologies such as blockchain and cognitive analytics will take insights and revenue we can obtain from data to the next level. This opportunity not only creates new revenue streams for these organizations but can also help in promoting wellness among the communities they serve – directly or indirectly.

References

1. <https://www.seagate.com/files/www-content/our-story/trends/files/idc-seagate-dataage-whitepaper.pdf> (Nov 2018)
2. <https://assets.kpmg.com/content/dam/kpmg/au/pdf/2018/healthcare-reimagined-report-2018.pdf>
3. <http://www.gartner.com/it-glossary/data-monetization/>
4. <https://www.foley.com/files/Publication/b5702375-940f-4379-ba5f-f2e885088780/Presentation/PublicationAttachment/b74426c3-097c-4381-8366-3cfd3a0b852e/Monetization%20of%20Data%20White%20Paper.pdf>
5. <https://www.theverge.com/2018/11/27/18115077/amazon-electronic-health-records-software-text-analysis-medical>
6. <https://www.cleverbridge.com/corporate/three-approaches-to-monetizing-data/>
7. <https://www.transparencymarketresearch.com/data-monetization-market.html>

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