

Value of
Clinical and Business
Data Analytics for
Healthcare Payers

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Abstract

As there is a growing need for data analysis, be it for meeting complex regulatory requirements, or for fraud detection or for ways to manage effectiveness of providing care, Healthcare payers must plan and implement solutions that make secondary use/re-use of data which is already available in various applications. The objective of data analysis must not be limited to regulations or mere business incentives, but should also encompass improved quality of care, mitigating risk and improving profits.

Read this whitepaper to get an overview of the different sources of data, that payer systems can consider, the challenges encountered, opportunities presented and listing of some of the common dashboards that payer industry implements. The recent advancements in technologies like Business Intelligence, Visualization and Big Data and tools, supplements this effort positively.

As data analytics and related technologies gain prominence with advancements in hardware technologies and cloud solutions, this helps streamline processes and contribute to the revenue and efficiency. There are numerous benefits accrued by implementing the right data analytics model and supporting tools to manage data thus enabling, visualization and flexibility for decision makers.

Many organizations, especially in the Payer segment are restrained by the inefficiencies, ineffective use of available data and regulatory compliance. These organizations have a large volume of data, but do not have systems and technology to extract the insights and are unable to plug the leaks or take advantage of the data collected. On the other hand, organizations that have analytical systems limit the scope of data management for processes and payments (Financial and Operational data). The data collected from internal systems is not used efficiently to get better health outcomes.

Introduction

Opportunities are plenty for Healthcare Payers

a) Data Analytics for Customer Insights:

Currently payers are using analytics in one form or the other, like informatics, actuarial science, operations, and decision support. In comparison to other industries, the Healthcare industry was slow to adopt data analytics and harvest the benefits from the latest technologies and the increase in hardware capabilities. The hidden information and insights like areas contributing more to cost, less to revenue or new revenue areas or trends are not clearly or readily visible.

Here the data patterns are discovered automatically by using various algorithms and statistical techniques. Text Mining is conducted, wherein complex techniques like NLP (Natural Language Processing), statistical or computational algorithms are used to discover a pattern similar to data mining from text information. Optimization can also be considered which involves mathematical techniques to find optimal solutions while satisfying constraints.

b) Data Analytics for Predictive Analytics:

Healthcare payers can employ analytics for a wide range of applications. Many of the existing systems are skewed towards processes and payments based on administrative data. However, there are several opportunities that research data can offer to help define outcomes. Based on the level of existing analytics maturity & sophistication used by the Payer, further analytics can be implemented. This is an important phase as organizations must assess the current levels of implementation to understand the additional opportunities that can be leveraged, type and category of analytics to be considered and the short-term or long-term goals to be achieved. It could be as simple as forecasting based on past data where the value of a variable is estimated at a future point in time through statistical techniques.

c) Advantages of Data Warehousing:

Organizations are already using Data Warehousing models like the Ralph Kimball methodology, to consider extending the framework to accept unstructured data. Modern analytics need to consider integration with multiple disparate systems either with structured or unstructured data from operational systems or flat files. There is also a necessity to classify the solution, based on how the outcome has to appear either as descriptive, predictive or prescriptive analytics. Predictive analytics uses past data to construct predictive models whereas prescriptive models use past data to suggest an action.

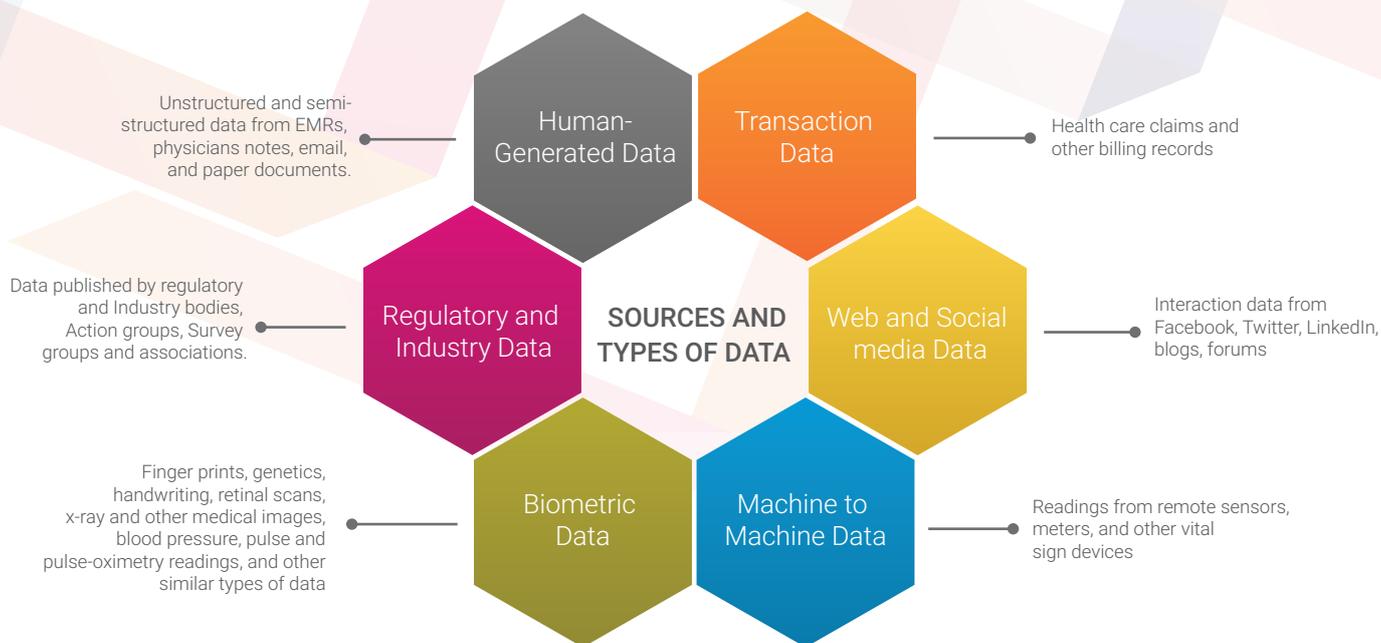


Fig. 1: Various data sources that could be put to analysis

d) Data analytics to help in System Management:

Healthcare payers must consider building systems for business operations, clinical/health outcomes and for other functions as well. Business operations should be built for Facility Utilization, Staff Utilization, Compliance Reporting, Meaningful Use, Institutional Safety, Provider Contracting, Supply Chain optimization, and/or for Operational Data Integration and Quality. Despite existing fraud prevention programs and their supporting analytics, a significant percentage of revenue is lost to fraud.

Systems in finance and fraud like billing quality, fraud detection, and claims excellence, underwriting and risk management will not only reduce costs, but also streamline processes. Having systems for commercialization like portfolio optimization, service/product line development, marketing strategy, customer lifetime value, price optimization, channel optimization, rebate optimization, consumerism, social network analysis, and customer segmentation will contribute more to businesses in more than one way.

Implementation in categories like research and development with performance management, monitoring and optimization, enrollment, inclusion/exclusion criteria, efficacy and safety analysis, supply optimization, programming management helps build an integrated and synchronous system. With increased regulatory conditions on governance, systems in clinical and health outcomes like comparative effectiveness, disease management, patient compliance, safety and signal detection, evidence-based medicine are not only leading to cost benefits but much more.

There should be extra care taken to ensure that there are no violations of compliance or industry norms. Healthcare organizations must validate for the regulatory standards such as HIPAA, which requires anonymization of data, authentication to access the systems and security for data transmission. All of these analytics require the extraction of deeper insights from the data, rather than simple reporting which basic analytics provides.

If organizations have OLTP (OnLine Transaction Processing) based systems and wish to leverage and to generate business intelligence, OLAP (OnLine Analytical Processing) systems need to be built.

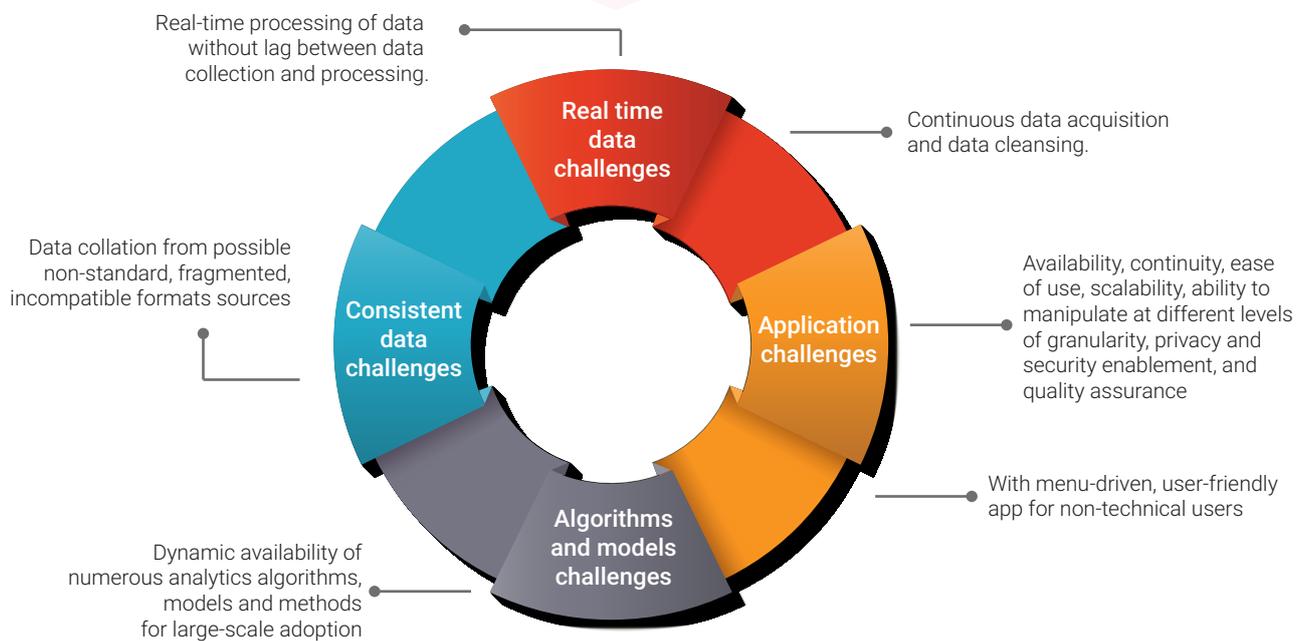


Fig. 2: Data Analytics platform challenges

Go that extra mile; Use tools and technologies to leverage

OLAP tools enable users to analyze multi-dimensional data interactively from multiple perspectives. OLAP consists of three basic analytical operations: consolidation (roll-up), where all data is accumulated and computed, like data from different member hospitals or any such category;

drill-down, which allows to navigate through the details, and slicing and dicing allows taking a specific set of data of the OLAP cube and viewing from different viewpoints to find opportunities and uncover problems.

Implementation must again be spread into Analysis, Reporting and Mining. Analysis and mining of the insights alone does not empower the user. It should be presentable in the right reporting tools. Modern day reporting tools like QlikView or Panorama Necto have plenty of capabilities. Portal solutions built with industry standard data models and dashboards for business user consumption along with the ability to convert the data retrieved from a query into multi-series, multi-dimensional graphs that results in better assessment of risk and opportunity.

Analyzing performance against historical performance, plans, forecasts, and competitive results with reports like Utilization Analysis, Claims Spending Analysis, Employee/ Membership Analysis, Provider Analysis, Financial Analysis, Pharmacy Analysis, Claims Lag Reporting, Population Profile or Population Risk Analysis, etc., gives payers an edge over competition with clearer decision support, better outcomes, efficiency with higher customer satisfaction.



Fig. 3: Sample Business and Clinical Data Analytics Reports for Payers

Happy Beginning!

Analytics should be embedded into the daily operations of an organization so that it becomes the normative way of doing things. In addition, analytics needs to be made successful in producing the intended results on an assured, repeatable basis. Eventually the analytics should improvise to give way to its own reinvention as it adapts to the needs of the organization.

Though there are many major challenges along the way, choosing the right technology partner and tools aids smooth implementation.

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