HOW INFORMATION TRANSFORMATION DRIVES HEALTHCARE PERFORMANCE

Abstract

Healthcare delivery in the US is experiencing tectonic change and has rapidly moved towards a Consumer-centric, market-driven environment requiring internal and external rearchitecting of Business Models and the Systems, Processes, and Staff that support them. Increasingly, Information Transformation and Insight-driven Analytics is being used across Healthcare areas providing expanding and enhanced Clinical, Business, and other Administrative insight and visibility that drives real-time decision-making across traditional Patient diagnosis and treatment, better managing high-risk patients, as well as improving the performance of Care delivery and related services. Despite significant investment in Analytics-based Tools, surprisingly today only 1/3 of Healthcare organizations have effectively deployed Insight Analytics.

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Driving Operational Efficiencies and Sustainable Value through Information Transformation and Insight Analytics

Healthcare delivery in the US is experiencing tectonic change, and has rapidly moved towards a consumer-centric, market-driven environment requiring internal and external rearchitecting of business models, and the systems, processes, and staff that support them. Going forward, the increased breadth and sophistication of IT-enabled healthcare delivery will continue to be a key driver for accelerating adoption, impacting all players in the Healthcare Value Chain including patients, providers, and payers.

Increasingly, *Information Transformation*, and *Insight-driven Analytics* is being used across healthcare areas providing expansive and enhanced clinical business, and other administrative insight, and visibility that drives real-time decision-making across traditional patient diagnosis and treatment, better managing high-risk patients, as well as improving the performance of care delivery, and related services. Information Transformation includes real-time analysis methods, and support more rapid, and predictive decision-making capability. Traditional transaction processes will continue to

drive large dataset analysis but these yield to a more real-time integrated Insight Analytics Model that delivers a more responsive, and predictable business, clinical, administrative, and operations performance environment.

The systematic use of aggregated business, clinical, and administrative data spans statistical, contextual, quantitative, qualitative, descriptive, predictive, retrospective, and prescriptive dimensions, driving evidence-based decision-making; incorporating unstructured data (Voice, Text, Social) with structured data to effectively improve healthcare performance in terms of revenue generation, and cost reduction, patient outcomes including more accurate diagnoses, fraud prevention, resource staffing, internal and external reporting - to name a few. Despite significant investment in Analytics-based tools, surprisingly today only 1/3 of the healthcare organizations have effectively deployed *Insight Analytics*.

The goal should be to transition from Information Overload to Predictable Clinical, and Business Performance.

After several years of focused healthcare EMR deployment, meaningful information exchange is often lacking – especially across ACOs, and disparate systems. The ACA ushered in a new Business Model – one that follows performance-driven payment mechanism, and brings with it more risk, and reward if executed effectively. Accountable care organizations, and their medical home component rely on more robust information capture, and meaningful reporting to deliver the targeted value realization and sustainable performance. Additionally, health systems

today require data extractions from more complex repositories to drive performance dashboards, and metrics/KPIs to address Board-level Reporting, Regulatory Compliance, Quality Reporting, etc. This information has a tangible value, and is already an informally valued asset on your balance sheet.

Hospitals can use *Insight Analytics* to improve the value and effectiveness of their physician networks, improve regulatory compliance and reporting, enhance physician network development, and better monitor network referral management, and physician network processes as well as optimize "Referral Leakage".

A variety of tools, and roadmaps can provide the framework to help healthcare providers achieve meaningful use to transform financial, clinical, and administrative data into information that staff, clinicians, and administrators need for effective evidence-based decision-making. Specifically, *Insight Analytics* can be effectively leveraged for enterprise-wide modeling, and KPI/Metric monitoring including:

- Reducing Hospital Re-admissions/Avoid CMS Penalties – Congestive Heart Failure, COPD, etc.
- Care Coordination; Disease Management
- Length of Stay Monitoring
- Claims and Payment Integrity
- Nursing Documentation Dashboard
- Revenue Cycle Management
- Clinical Quality and Outcomes
- Patient/Customer Satisfaction

- Improve workflow, and coordination of care across service lines, and departments
- Chronic Care/Disease Registry/ Population Management
- Track meaningful use metrics, and Key Performance Indicators across service lines, and departments
- Marketing (to assess campaign ROI)
- Labor/Resource Management
- Operational Agility-Business, Administrative

Additionally, *Insight Analytics* provides the requisite insight to better evaluate ACO Model performance or fulfill Centers for Medicare and Medicaid Services (CMS) requirements to avoid reimbursement penalties, and/or solutions to identify, and reduce the occurrences of Potentially Preventable Events (PPEs) including:

- Hospital Acquired Condition Prevention
- Chronic Disease Detection
- Inpatient Length of Stay Management
- At-Risk Population Detection
- Healthcare Plans
- Chronic Care Management
- Tailored Benefit Design
- Wellness Program Management
- Disease Detection/Early Intervention

Beyond traditional reporting and dashboards, several tools exist that provide visualization - allowing users to display clinical, financial, and administrative data visually to better map out a disease outbreak geographically, helping predict

and manage population health more efficiently and effectively. Visual data mining capabilities help find relationships within underlying data, and bring to life and integrate information not previously correlated. Sophisticated tools that are "trained" to work with structured (i.e., numeric, categorical), and unstructured (i.e., text, images) data can now discover patterns not capable or evident when previously performing a static query, for example. Additionally, data can more easily be fed into a Data Warehouse or Data Mart to explore complex, multivariate trends, predictions, and potential diagnoses.

Information Transformation extends *Insight Analytics* to include patient portals, claims submission, Physician Quality Reporting System (PQRS) submission, meaningful use of dashboards, care models, Physician Network Analysis, Preventative Healthcare solutions, provider scoring, fraud detection cost containment, and countless other use cases. This enables healthcare organizations to leverage *Insight Analytics* as an asset to attain a competitive advantage across multiple operational areas, and further support:

- Data aggregation across numerous clinical, business, and admin systems

- Leverages, and integrates workflow process with dashboards, and graphs

- Drives different views of single patient visit, group of test results, etc.

Insight Analytics and Operational Efficiency

For the COO, and operations management professionals, *Insight Analytics* provides

more precise and predictive information for performance, and cost analysis from multiple perspectives, and includes activity costs, relevant costs, incremental costs, fixed and variable costs, and controllable costs – not to mention improving working capital. Additionally the need exists for monitoring, and improving the patient experience, effective marketing campaign analysis, claims, ability to calculate patient/member lifetime value, outcomes, and quality scores – Stars/HEDIS, utilization management forecasting, supply chain replenishment, and vendor performance management – to better anticipate, and/or respond to demand variability.

For health systems considering taking on more risk, and expanding their claims operations capabilities – such as establishing, and/or expanding their current ACO Model – there exists multiple levels of *Insight Analytics* across the claims operation:

- Operational reporting to monitor, run, and drive improvement in day-to-day operations, including traceability from the front-line up to management. ACO reporting includes 33 Metrics to report on

- Ad hoc analysis, and advanced search capabilities can deliver insights from unstructured data, further enabling ongoing optimization within the claims environment

- Provide a tool for organizational change management indicating every milestone, and interpreting the impact of the claims on organization and stakeholders

- The claim department should map, and measure how it impacts the broader

business value chain, elevating the discussion to identify claim's ability to effect business objectives such as profitable revenue growth

Impact of *Insight Analytics* in the Boardroom

Today's healthcare CIO is more focused on information strategy and governance including quality, integration, optimization, and master data management. Insight Analytics in healthcare may sound good but what are the steps to succeed? Volumes of data flows from everywhere across the health system – starting with the CRM system, and flowing through admitting, to various departments, through discharge and billing. And let's not forget social media, and wearable monitors that drive unstructured data, which is the fastest growing part of the overall data volume – and likely the area that receives the least focus. The challenge is putting all these information assets to work, and effectively leveraging and integrating to support the organizational, and transformational goals – which is why we refer to this as *Insight Analytics*.

An optimal Approach includes the following guidelines:

- Develop use case scenarios where Information Transformation can drive sustainable impact: enhancing operational efficiencies, reducing costs, improving revenues, enhancing the member/patient experience

- Organize use cases according to their business, and technical acceptance risks, and relevant implications

- Develop a framework for measuring value realization, and its quantitative and qualitative impact

- Evaluate existing capabilities, and determine what gaps need to be filled, identifying obstacles that pose a challenge to implementation

- Devise guidelines articulating management tasks, applications/tools, support, change management, and performance metrics

- Deliver training to ensure employees are prepared to interpret business, clinical, and administrative findings, and how these align with, and impact organizational goals

Path Forward

Strategies for moving forward can include either a 'Top-down' or 'Bottom-up' approach. A top-down approach starts with the informational needs derived from focused questions needing to be answered. The health system then determines where this information exists, and starts to map out strategies to answer questions around that specific area. In the bottom-up approach, the health system maps out existing data sources, and devises a strategy to combine parts or all of that data into a Data Warehouse in an appropriate format. Healthcare Process Transformation areas include:

- Improve Patient Care: shorter wait times from synchronized resource scheduling, and patient workflow

- Improve Patient Safety: access to diagnostic information, reducing chances for medical errors

- Optimize Operational Costs: supplies utilization, and re-stocking, purchasing, supplier performance

- Optimize Revenue Cycle Management: reduce time, and cost to collect reimbursements

- More Accurate, and Timely Regulatory Compliance: care quality, operational, patient safety metrics

- Referral Analysis: referral patterns impact multiple areas, and the bottom line; i.e., "Referral Leakage"

- Meaningful Use Stage 2 – monitoring progress at all levels, and driving certification, and compliance

- Inpatient/Outpatient Metrics– clinician dashboard with access to inpatient/outpatient metrics, and KPIs

The Importance of an Information Architecture

It is difficult to anticipate future health system information needs; this is why it is important that the Information Architecture align with the Business Architecture. Consider establishing an information storage strategy to capture information not stored in a transaction system but is important for reporting and trending that might be needed in the future. Operational data storage can then be limited to the data needed to support existing *Insight Analytics* Requirements to maximize performance.

This approach provides potential interface with other entities such as payer to interface to third-parties without giving a third party access to the transaction data, and provides a way for the payer to review, and "massage" information before sharing it externally. This also provides a bridge between production and data storage, and creates an environment that is business-driven, and optimized for *Insight Analytics* versus transaction processing.

Challenges to Expect

A number of challenges exist that must be planned for, including:

- Lack of Organizational Readiness: most health systems have a top-down organizational structure often limiting decision-making capability of business and clinical employees to continuously optimize business processes

- Effective Business Value Articulation: a major inhibitor is the lack of end-to-end understanding of how insight-driven analytics deliver business value to validate its importance in relation to business strategy, and success

- Integration of Disparate Systems: align and plan for the interoperability of disparate systems for optimal impact

- Cost/Return on Investment (ROI): Insight Analytics provides sustainable value realization, however it does not occur overnight, and may require additional investment to achieve

Summary

Effective healthcare Information Transformation requires a pragmatic yet assertive approach to delivering impactful I*nsight Analytics*. The proven approach of Infosys leverages IT Assets with proactive application of strategy, and best practices to deliver a holistic, enterprise-wide information aggregation, integration, and utilization framework transforming clinical, business, and administrative functions into higher-performing, and more profitable areas.

About the Author

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Larry Howe brings 25+ years of Healthcare Industry Strategy, Business Transformation, Process Optimization, and IT-enabled Consulting experience to Fortune 100 Clients (payer and provider). Larry is instrumental in defining, delivering, and managing E2E and B2C Solution Delivery across Operations/Admin/HR/Finance/IT Transformations, Regulatory Compliance (ACA and ICD10), Consumer Engagement/Digital Experience, ACOs/PCMHs, Population Health, Care Coordination and Management, BI Analytics and Big Data, BPO/ITO, and Risk Management.

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