



Harnessing Insights from Your Data: Nine Key Components of a Dynamic Enterprise Analytics Plan

Health systems have invested millions of dollars in information technology over the past two decades and now have a treasure trove of data. This data holds the promise for leaders at all levels of the organization to have a richer understanding of their organization's true performance and take swift action to improve cost of care, quality, outcomes and experience. New insights into key performance indicators—whether for clinical, quality, safety, patient and clinician experience, supply chain, finance, revenue cycle or resource utilization—are within the grasp of all stakeholders, in realtime. While data does not hold the promise on its own, applying algorithms, visualization and analytics can surface an abundance of intelligence to drive performance improvement and strengthen overall organizational position.

The challenge is how to best position the organization's analytics program to fully leverage that information. Creating a dynamic enterprise analytics plan is a keystone to align and advance the organization's analytics competency.

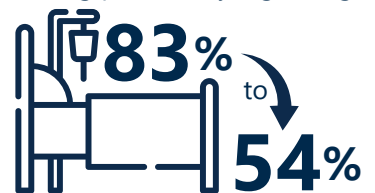
Below, we share a framework that can help guide organizations to ensure they are developing and operating analytics programs that maximize the benefits from technology investments and garner the enormous potential insights from the data. When deployed effectively, a strong analytics program can generate compelling, sustainable financial, operational and clinical results.

RESULTS MATTER:

**HOW OUR CLIENTS
HARNESSED THE
POWER OF ANALYTICS**

SPECIALTY BED USAGE

Reduced usage of specialty beds in one unit that was identified as having particularly high usage from



Purchased beds with very high usage rates and negotiated improved pricing with vendor for rented beds based on the data.

RESULTING IN AN
**ANNUAL SAVINGS OF
\$410K**



A FRAMEWORK FOR VALUE

Nine Key Components of a Plan

As has often been the case with healthcare automation and innovation, the realization of this promise and the true value from analytics investments is far more complex than anticipated. Healthcare organizations face challenges in deriving value from their data at every step of the process—from data acquisition, measurement and monitoring to delivering tools and end-user access. The complexity will only grow as the volume of data and users multiplies, along with the increased demand for information, diversity of information, and requirements for data standardization and normalization.

To overcome these barriers and prepare for this complexity, leading health systems have built analytics plans that cover key critical success factors needed to create high-performing analytics programs.

Implementing and operating a high-performing analytics program involves much more than acquiring technology or technical analytic capabilities. It is essential to address the multifaceted requirements for effective use of these expanded analytics capabilities to create a truly data-driven enterprise. The program must also be adaptive to the continually changing environment.

FIGURE 1. A FRAMEWORK FOR VALUE:
NINE KEY COMPONENTS OF A DYNAMIC ENTERPRISE ANALYTICS PLAN



Aligning with Enterprise Strategy

An organization's enterprise strategy should be at the center of an analytics program; it sets the direction, goals and priorities for how to leverage the program. It is important that an analytics program aligns to the organization's strategy to ensure information is available to measure progress and adjust as needed. With the increasing growth of information healthcare users and systems generate daily, this is a significant challenge. Teams struggle with understanding what data is available, what the data means and how to leverage it to make meaningful decisions. This situation also highlights the need to have a collaborative problem-solving approach between leaders and analytics teams. When analytics teams are involved early in the process, they have a greater understanding of the problem and will advise on available data, analytics tools or what changes need to take place to improve data.

BELOW ARE NINE FOUNDATIONAL COMPONENTS NECESSARY

to ensure you get the most from your analytics program and technology investments.



1. PROGRAM GOVERNANCE

Without effective program governance, it is arduous to achieve benefits and equally difficult to dynamically align priorities in response to changing internal operations and market conditions. Program governance helps ensure that the program, investments and initiatives are squarely aligned with the organization's vision, priority objectives and key initiatives. Traditional approaches to creating an analytics strategy envision three- to five-year plans that often become obsolete within 12 to 18 months or less. Instead, embed flexible planning and reprioritization within program governance to stay aligned with priorities amidst changing market conditions and internal operations.

Program governance also plays an important role in prioritizing resource deployment and investments, matching demand to capacity or allocating additional funding. Establish a program governance committee to oversee the portfolio of current, planned and requested work. This committee is responsible for creating the criteria, guiding principles and workload thresholds used to prioritize work; it also applies that criteria to requested work and ensures the analytics program delivers value, with a closed-loop process for measuring benefits and outcomes. Typically, smaller requests are managed and triaged by the analytics team applying these guiding principles. This helps to ensure smaller requests are more efficiently managed, while more sizable project-level requests would be reviewed and prioritized by the committee. Structure the committee with executive- and VP-level clinical and operational leaders with representation across the enterprise. The program governance committee should meet regularly to ensure alignment, typically once a month.



2. LEADERSHIP

Executive leadership creates the vision for the analytics program, drives the transition to a data-driven culture, ensures resources are available and helps to clear potential obstacles; they also set the tone and empower the governance committee and analytics leadership to drive value.

It is important to bring the executive leadership team together to collaborate on a single vision for analytics and provide program direction. This cohesiveness helps ensure an enterprise view that adapts and grows to changing needs over time. While a single influential leader can often be enough to champion a program, it is best when there's a partnership from multiple executive leaders. Strong executive champions often come from information-driven areas including operations, clinical care, finance and quality. Ideally, at least one executive champion will serve as either a chair or member of the analytics governance committee.



3. PROGRAM AND STAFFING STRUCTURE

There are multiple ways to structure and staff an analytics program, each model with various strengths and challenges (see Figure 2). When determining which model will work best, consider current state, the future state vision, current and anticipated needs, program goals and objectives and the organization’s culture. Organizations can create variants of these models to suit their needs and even transition through models as their analytics programs mature and needs change. Regardless of the model selected, continually measure program performance to ensure it is progressing toward the analytics vision, supporting the organization’s objectives, and responsive enough to tune and adjust to ensure alignment.

FIGURE 2: ANALYTICS STRUCTURAL MODELS AND THEIR STRENGTHS AND CHALLENGES¹

MODEL	STRENGTHS	CHALLENGES
<p>Decentralized Each area develops its own resources and capabilities</p>	<ul style="list-style-type: none"> ● Preserves local control ● Responsive to local needs ● Nimble regarding local priorities 	<ul style="list-style-type: none"> ● Difficult to standardize tools and techniques ● Limited ability to align with the organization’s priorities ● Cross-department efforts are challenging ● Duplication of effort, staffing, talent
<p>Functional Greatest user area (e.g., finance, quality) “hosts” the analytics capabilities</p>	<ul style="list-style-type: none"> ● Concentrates resources with heaviest user ● Assures service level to key stakeholder ● Allows for local standardization 	<ul style="list-style-type: none"> ● Risks limited support for other stakeholders ● Local optimization of tools and techniques
<p>Center of Excellence Central analytics program supporting local analytics teams for at least some areas</p>	<ul style="list-style-type: none"> ● Supports standardization across the organization ● Preserves local control, nimbleness ● Allows advancement of tools and techniques 	<ul style="list-style-type: none"> ● Variable alignment with organizational priorities ● Requires strong, consistent leadership and adoption expectations
<p>Centralized All analytics resources are centralized under a unified program</p>	<ul style="list-style-type: none"> ● Easier to align with organization’s priorities ● Standardized tools, techniques, skills, staffing ● Efficient use of resources ● Prioritization and balancing of demand and capacity 	<ul style="list-style-type: none"> ● May create delay and bureaucracy ● Can lose touch with stakeholders — seem too “corporate”
<p>Consultant Analytics services are centralized or supplemented through a third-party provider</p>	<ul style="list-style-type: none"> ● Eases access to advanced analytics capabilities and talent ● Simplifies analytics program operation (outsources management, establishes a defined “front door,” etc.) ● Provides flexibility with the types of analytics services needed 	<ul style="list-style-type: none"> ● Can be expensive as a long-term solution ● Program may not be as tightly integrated with clinical and operations initiatives

Staffing an analytics program is a function of both the program structure and the organization's needs. Designing, implementing and operating a high-performing analytics program requires new skills and discipline. Don't underestimate the amount and variety of staff currently performing analytics functions. Consider the diverse skills and roles necessary; these include data architects, data integrators, business/data analysts, Business Intelligence (BI) developers and data scientists. Project management, training, team lead, manager and director roles are also important. Another growing need is the evolution of the chief data and analytics officer (CDAO) who provides vision, oversight and leadership for the program and serves as a champion for the use of data and analytics.

Compare these needs with current skills and create a plan to address any gaps. Plan on adding staff and developing skills as your program matures. A best practice is to periodically complete an overall staff review to assess both skills and "wills" (desires and motivation) to identify specific skill gaps and opportunities to further develop expertise.



4. DATA GOVERNANCE

Data governance establishes the source of truth and earns the trust and confidence in the data required to propel action. It sets the foundation for the policies and procedures used to define, manage and oversee information across the enterprise. And, it includes the ability to define, map, validate, control access, assure quality and ensure consistency across users and key stakeholders. With solid data governance processes, an organization can ensure data is standardized, has integrity and is appropriately available to users.

Because data is an enterprise asset, data governance is not an IS function. Successful data governance requires support from operational and clinical leadership across the enterprise. Use a data governance council to oversee and guide the data governance program. Like program governance, structure it as an interdisciplinary committee with leadership-level representation from areas including physicians, nursing, finance, quality, research, IS, strategic planning, patient experience and more. Data governance committees are more effective with director- or manager-level members who are familiar with their functional area workflows and data. Empower this committee to make enterprise-wide decisions and ensure focus is on key data issues. This committee should ensure key data oversight roles and responsibilities (e.g., data stewards and data custodians) are specifically assigned to the organization's data needs. Data stewards are responsible for the oversight of data generated for their areas including data capture, context and business rules. Data custodians are typically in a more technical role (such as database and ETL administrators) and support the data steward and safeguard the transition and storage of data.



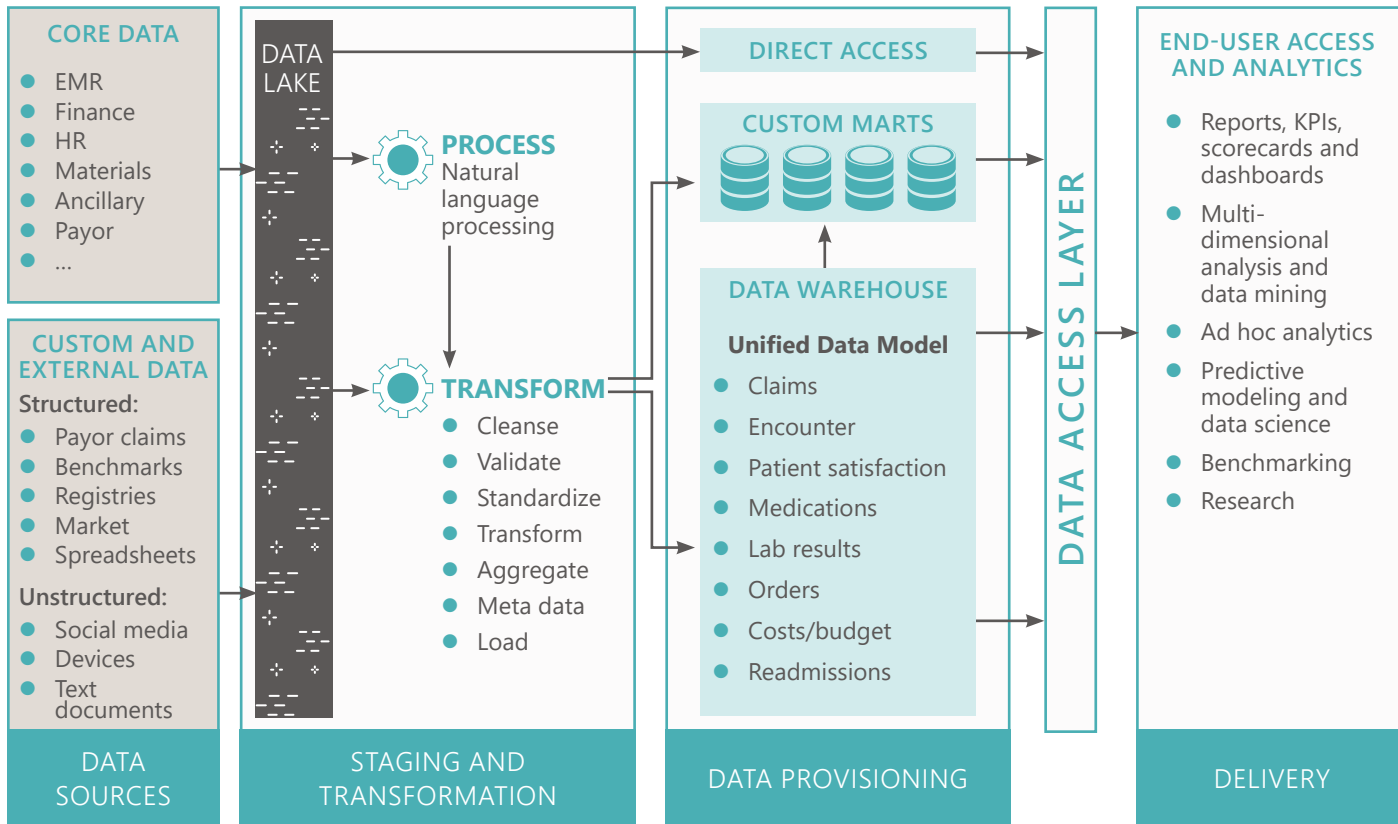
5. DATA ARCHITECTURE

Data architecture is a central component for the entire analytics program. Data architecture includes the data models, rules, policies and standards that determine how the data is collected, integrated, arranged and made accessible for use. There are several underlying architectural elements that mature analytics programs have in common:

- They have adopted a logical enterprise data warehouse (LEDW) architecture with a main physical enterprise data warehouse (EDW) at its core that easily links to other data marts and sources as needed.
- They subscribe to enterprise-guided data governance policies and processes.
- They are Big Data-enabled, leveraging tools best suited for large, diverse and rapidly changing data sets.
- They securely offer the data resource as a self-service to both novice data consumers as well as sophisticated data scientists in role-appropriate ways.

Figure 3 below depicts a typical architecture employed by high-performing healthcare analytics programs. As shown, data are ingested from internal sources such as EHR or ERP systems, as well as external sources, into a data lake. Some of this data is transformed and normalized, as needed, and placed into a unified data model where it can then be used to create standard and ad hoc reports, scorecards, dashboards and custom queries. In addition, power users can use normalized, curated data along with data from the data lake or non-standard sources.

FIGURE 3. TRADITIONAL BEST PRACTICE ARCHITECTURE



As you assess your architecture, consider providing a secure self-service delivery mechanism, such as a portal, that allows novice users to consume standard reports, scorecards or dashboards and power users to run their own sophisticated, ad hoc and Big Data queries. The overriding goal of the architecture should be to ensure secure, highly reliable and timely data can be easily used by all levels of data consumers. Ideally, the architecture provides a means to de-identify data for use in research and other analytic use cases where personal health information (PHI) is not warranted. Think beyond traditional silos of use cases to avoid islands of disparate data and empower the enterprise with a myriad of data sources and use cases to address the broad care cost, quality, outcomes and experience improvement targets.



6. TOOLS AND CAPABILITIES

An effective and efficient analytics program leverages standardized tools to enable both back-end data custodians as well as front-line end-users. For instance, data profiling tools help data custodians and data integration analysts gain a reliable understanding of the quality of the data. Data architects use data modeling tools to help maintain an enterprise data warehouse. End-users leverage both reporting tools that come with many key healthcare applications as well as, ideally, standardized report generation and dashboard/scorecard development tools to meet more advanced needs. In addition, high-performing organizations create self-help means for staff members to securely and appropriately access the data they need to universally grow performance improvement capabilities via an ever-increasing data-empowered user base.



7. CHANGE MANAGEMENT

The implementation of an effective analytics program is a cultural transformation that many enterprise analytics planning efforts fail to recognize. The transition from intuitive decision making to data-driven decision making takes time and requires a thoughtful change leadership approach. Create an implementation roadmap and supporting change management plan that engages all levels of the organization. This roadmap should identify milestones to track phases of the program's implementation and growth. The change management plan will help coordinate and manage the change to accomplish short-term and longer-term milestones to meet the organization's current and future analytics needs.



8. COMMUNICATIONS

A communications plan is vital to the successful execution of an enterprise analytics plan but is often overlooked. Once an analytics vision has been created, develop a multichannel comprehensive communications plan to share the vision and plan across the enterprise. Consistent messaging helps shift the culture to broader support for and adoption of analytics. Initially, messages may be more top-down focused, especially as a new program is implemented. Messages from leadership will be an important element of the plan to reinforce that this is an organizational priority. Additionally, focus on showing how the analytics program will meet all stakeholders' needs. Communicate the structure of the program, how to access services, available tools and capabilities. Similarly, messaging to the analytics team is also important to keep them informed and ensure they see the value of their work and understand the direction of the analytics program. For all stakeholders, it is important to clearly communicate milestones, achievements and lessons learned.



9. TRAINING AND EDUCATION

Training and education are vital to ensure that investments in analytics tools and capabilities achieve envisioned benefits; training is important for the analytics team and analytics end-users alike. Training must be commensurate with the investment required to develop the tools users will need to adopt and get the most value out of the program. To help the analytics team stay current on evolving tools, technology and techniques, create individual training plans for team members, aligned with their career development plans. For end-users, consider at-the-elbow support and training. While orienting users to tools and dashboards can be initially effective, it does little to encourage adoption and long-term use. Train end-users on the data they are using and how to use the tools and dashboards to access the data. Investing individual time with users to apply analytics tools to their problems is an effective way to encourage adoption.

Future returns are well worth the initial effort to plan and implement an effective analytics program. Use this framework and the nine analytics program components to set the foundation for maximizing the benefits from your technology investments and garnering the enormous potential insights from your data.

Sources

1. Adapted from "Smaltz, D., "Leading and Structuring Analytics within Healthcare Organizations: The Business Intelligence Competency Center", in Gensinger, R., Analytics in Healthcare: An Introduction, the Healthcare Information & Management Systems Society, Chicago, IL, 2014.



THE CHARTIS GROUP

BECAUSE RESULTS MATTER:


HOW OUR HEALTH SYSTEM CLIENTS HARNESSSED THE POWER OF ANALYTICS

REDUCED LENGTH OF STAY (LOS)

by 0.2 days, resulting in

2,250 DAYS 

of additional capacity for approximately

500 PATIENTS 

THE BOTTOM LINE:

\$1.4M
TOTAL SAVINGS

IMPROVED CLINICAL DOCUMENTATION

Over a one-year period...

Improved admission assessment completion rate

12%



Increased discharge medication reconciliation

40%

Reduced claim denials for insufficient information from **\$3,500** to **\$460** per participating physician/month

Increased the Case Mix Index from 1.58 to

1.61

Reduced patient office visit cycle time from 38 minutes to

35

INCREASED MARKET SHARE

Early intervention produced an initial outcome of

7.5% INCREASE in diagnostic cases scheduled over a

4-WEEK PILOT



DEVELOPED VALUE-BASED PRODUCT OFFERINGS

Developed a differentiated,

CONSUMER-ORIENTED PRODUCT

and jointly assumed financial risk for the total cost of care for commercial populations, in partnership with a health plan partner as well as through direct-to-employer strategies.



BUSINESS DEVELOPMENT SUPPORT

Developed a detailed analysis of:

- Hospital and health system performance
- Ambulatory networks
- Physician networks
- Service line profiles for all programs in the state



Evaluated financial performance by care setting, service line and geography.



Informed operational and strategic planning and improvements efforts.

IMPROVED POPULATION HEALTH

A CIN identified patterns and guided changes in patients' care, **increasing nursing home patient discharges within 100 days from**

45% to 65%

through physician coaching on appropriate referrals.



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THE CHARTIS GROUP

About The Chartis Group

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