Advancing Analytics: An Organizational Roadmap

Andrea Frazier, Strata Decision Technology

May 2, 2022

strata

Our Experience: Over 50% of US Healthcare Runs on Strata

400+ healthcare delivery systems

2,000+ hospitals

60% of children's hospitals

50% of academic medical centers

50% of cancer centers

strata

Agenda

- Today's Objectives:
  - Identify use cases for advanced analytics to make an impact within organizations
  - Understand the major components of an advanced analytics approach—strategy, software, data, governance, skills and talent
  - Make informed "build versus buy" decisions to support analytics strategy

strata

Analytics: The Current Landscape

Analytics Today: The Landscape

- Health systems are awash in data, but face several challenges:
  - Linking cost and financial data with key clinical and operational data
  - Creating consumable analytics that are accessible to the right stakeholders
  - Defining pathways for action on those analytic insight

- Success with analytics is not: Presenting all of the data, in every possible combination. **Success is: Focusing on the key pieces of data that *tell the story* and point to actionable *solutions***

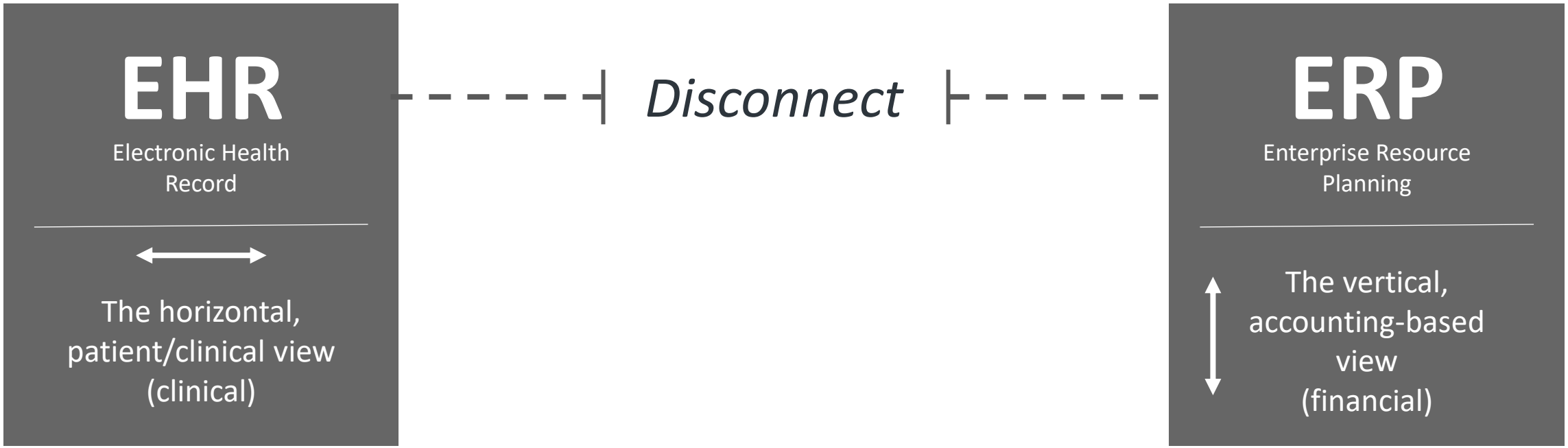
strata

Analytics Today: Common Concerns

1. Analytics can be an area of high spend, and quantifying return is difficult
2. For maximum value, strategic operational, financial, and analytics investment should be driven by strategy
3. Healthcare organizations must operate across the entire continuum of analytics
4. Organizational analytics ideally occurs in a hybrid of federated and centralized models
5. Organizations are rightly concerned about shiny object syndrome

strata

Analytics Today: The Analytic Gap



strata

Bridging the Gap to Drive Transformation

NEEDED TO DRIVE TRANSFORMATION

Create a High-Performance Organization

HEALTHCARE IQ

Health systems are now leveraging their significant investment in their IT foundation by deploying cloud-based EPMs to help their team analyze their opportunities, drive performance and transform their organization.

EPM

Enterprise Performance Management

Drives your planning, analytics and performance management for the organization. Reduces variation, increases productivity, eliminates waste and helps create a high-performance healthcare organization.

YOUR FOUNDATION

Support Clinical and Operations Workflow

HEALTHCARE IT

All provider organizations have invested in EHRs and have deployed or are in the process of deploying cloud-based ERPs. This has provided a foundation for their team for their clinical, supply chain and human resource processes.

EHR

Electronic Health Record

Automates documentation, orders, clinical communication, billing, etc.

ERP

Enterprise Resource Planning

Manages business processes and transactions including accounting, supply chain, HR, etc.

strata

Analytics Today: Common Needs

All require Financial and Clinical + Horizontal and Vertical data

Operate as a System to Create Scale	We need to plan and manage performance consistently across entire system (systemness)
Establish Centers of Excellence (Service Lines)	We need to plan and measure performance by service line (horizontal) and function (vertical)
Expand Reach via Provider Integration	We need to plan and drive performance across the continuum; Integrate all settings of care
Reduce Variation (Cost + Quality) to Drive Scale	We need to connect financial and clinical data to identify opportunities and drive performance
Thrive in Both FFS and Value-Based Arrangements	We need to reduce the cost of care to better serve our communities and fuel our mission

strata

Analytics Today: Common Goals

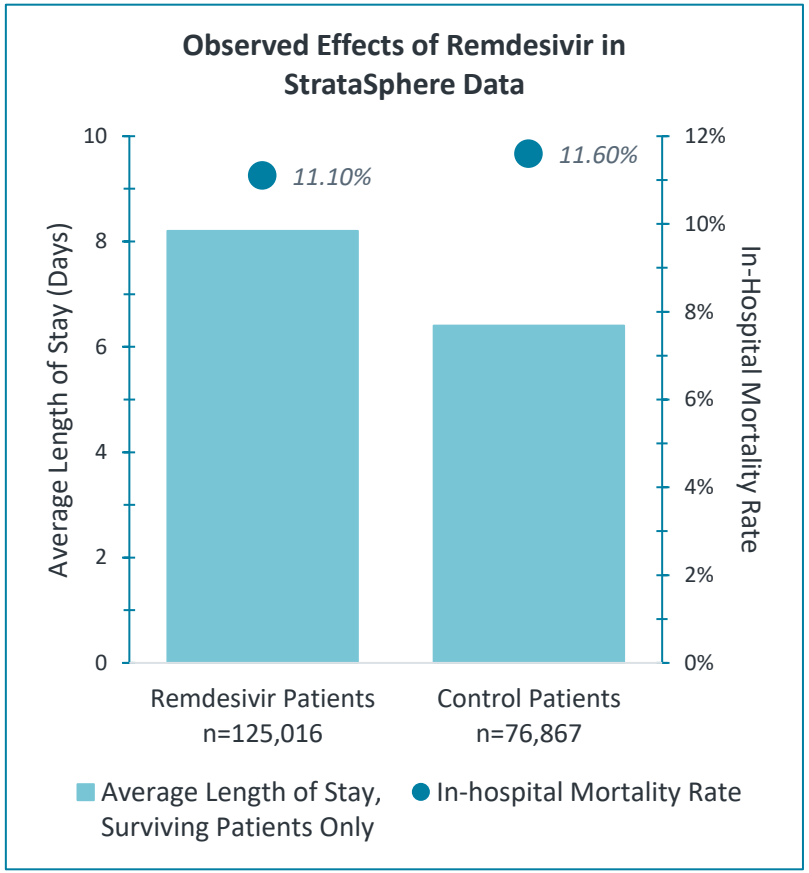
All require Financial and Clinical + Horizontal and Vertical data

Identify Opportunities	We want to understand the potential impact of new programs or protocols
Improve Patient Care	We want positive impacts to our bottom line to also enhance our mission for patient care
Automate Data Flows	We want to efficiently connect information from multiple platforms….
Provide Actionable Data in Real-Time	..Because our ultimate goal is for that information to inform timely decisions
Forecast/Predict Results	We want analytics that prepare us for the future, instead of merely summarize the past

strata

Analytics In Action: StrataSphere Remdesivir Report

- StrataSphere is Strata's comprehensive data-sharing platform, allowing health systems in our network to understand their financial data in comparison to their peers
- Data in StrataSphere is used for benchmarking selected KPIs, comparative analytics, and industry insights—standardized reports like our National Patient and Procedure Volume Tracker
- This data also allowed us to address a single, actionable question—how did the use of Remdesivir impact familiar, quantifiable KPIs like Length of Stay, Mortality, and Cost?



strata

Common Components of Healthcare Analytics Platforms

What is “Analytics”?

strata

De-mist-ifying the Analytics Word Cloud

"Everything we need to know about analytics, we learned in kindergarten?"

Not quite, but analytics "buzzwords" have their roots in math we all know.

Algorithm	A series of steps or instructions
Feature Engineering	Applying specialized knowledge to group, transform, or categorize data
Machine Learning	Building and maintaining algorithms that can classify data or predict outcomes, based on patterns identified in historical data
Neural Networks, Deep Learning…	Specialized types of machine learning imitate specific types of thinking or decision-making processes
Random Forests	A method of averaging a large number of decision trees—that is, figuring out the likeliest path and outcomes

strata

De-mist-ifying the Analytics Word Cloud

"Data's just data, right? Marts and lakes and warehouses are just buzzwords?"

Not quite—there are differences, and each can play a role in your analytics strategy.

Database	A data storage mechanism, usually for a specific application or type of data.
Data Mart	A set of data specific to a particular use case, department, often purpose-built to support specific inquiries. Insights are focused and can come quickly, but scope is limited by design
Data Warehouse	A central repository that stores raw data from multiple sources. Data warehouses include predefined schemas that prime the data for analytics. A data warehouse might be on-premises or "live in the cloud."
Data Lake	Also a central data repository, but one without schemas—the analyst will determine how to connect the data. A data lake allows great analytic flexibility but can require a significant skill investment

strata

Analytics: The Building Blocks

SIGNALS	Research	Better understand healthcare with curated research and understandings
	Insights	Receive insights and global opportunities from analytic toolsets
	Analytics	Create dashboards for your organization and self-service reporting
	Benchmarks	Compare your organization to others or make comparisons from within
EXPAND AND EXTEND	Data Feeds	Load additional data sources, allowing more comprehensive analytics
	Data Connection	Connect analytics tools within an organization and to external toolsets
FOUNDATION	Data Ingestion	Import data into the system in a scalable and efficient way
	Advanced Reporting	Build and distribute visualizations, reports, and insights
	Data Sharing	Allows signals to be created from across networks of organizations
	Architecture	On-Prem, Cloud—how to guarantee performance and on-demand scalability

strata

Analytics as a Continuum: Data

A centralized set of data marts, updated manually	⟷	A vast Enterprise Data Warehouse drawing on dozens of data sources
The data feeds fueling your current budgeting process	⟷	Clinical data, quality metrics, financial information dating back several years
A small set of internal data marts, including categorizations and historic averages	⟷	Data marts containing industry-peer based benchmarks, Census data, financial standards …

Readiness Assessment-- Data integration and access are the most commonly cited analytic limitations. Focus on scalability and current needs.

strata

Analytics as a Continuum: Teams

Analysts from financial and clinical teams, maintaining a few key dashboards and scorecards	⟷	A large team of statisticians, data scientists, and subject matter experts maintaining a library of complex studies
A project lead who makes sure key operational voices are heard	⟷	Dedicated subject matter experts advising the team on end user needs and actionable next steps
A designer who ensures a consistent look and feel across analyses	⟷	Business intelligence professionals optimizing visual impact and insight for every analysis
A programmer maintains a few datasets optimized for analytic insights, supporting a key initiative	⟷	IT teams devoted to creating multiple data views, building out complex architecture, and maintaining extensive toolsets

Readiness Assessment—Many organizations centralize analytics teams; many use a distributed model. Skillsets and project mix often contribute to this decision.

strata

Analytics as a Continuum: Tools

SQL queries to assemble data for a pivot table

Complex programs in Python, SAS, MATLAB…

A quantitative method for visualizing the status of KPIs

A full BI toolset, or even suites of dashboards programmed in languages like R

Excel workbooks

Geomapping software, external benchmarking tools…

Readiness Assessment—Most organizations have multiple toolsets at the center of their analytics strategy. Focus on right-sizing toolsets and planning a path for growth

strata

Analytics as a Continuum: Products

Decision Support insights		Machine Learning capabilities
Simple, well-designed tabular reports		Drillable layers of complex visualizations
Automated alerts when KPIs are off-target		Predictive models forecasting “What-If” outcomes

Readiness Assessment—Analytics is an information-driven way of arriving at action. Simpler analytic outputs addressing today’s issues can be building blocks for future complex models.

strata

Analytics In Action: Return on Analytics

- EPSi (now part of Strata) and HFMA partnered to learn how health systems were quantifying the value of analytics—"ROA" or Return On Analytics
- 71% of organizations try to capture metrics on analytic effectiveness
  - When these metrics were in place, organizations most often used the success of specific projects or reports to measure effectiveness
- Organizations most frequently planned to improve their analytics programs by bringing in more data
- Most organizations saw gaps in alignment between strategy and analytics

Best Practices for Increasing Return on Analytics

-Focus on actionable, applicable information, delivered in context

-Educate your analytics teams on the financial, operational, and clinical stories in your organization

-Providing better data, faster, reduces the gap between poor performance and remediation

strata

Implementing an Analytics Strategy

The Big Questions

Big Questions: A Checklist

1. What use cases does this address?
2. How do our end users receive this information today?
3. Is there a viable proof of concept project?
4. What investment will this take to be successful?
5. What security investments should we make?
6. When will we scale up?

strata

Question 1: Use Cases

Successfully identifying needs for analytics investment starts with clearly articulating the use cases. Be sure you can articulate

- What is the priority for each use case?
- How do we address those use cases today…and why do we want to change?
- What could we do differently, if we had more information?
- What processes could we eliminate, if we had more information?

strata

Question 2: End Users

Ultimately, the success of an analytics program rests on how insights are consumed.

- Who will use the information we will generate?
- Which toolsets can they comfortably access?
- How can they best consume data?
- What are their current pain points, and what needs aren’t being met?
- Will new information enable new actions?

strata

Question 3: PoC

A strong proof-of-concept project can provide an important testing ground for analytic investment.

- Can we identify one area for a quick win?
- What would we miss out on by starting small and building up?
- What is the next step?

strata

Questions 4&5: Investments

We'll discuss build vs buy decisions in depth, but there are some basic questions that can help you to optimize investment in analytics

- What tools do we already have?
- How should we train or augment our team?
- What else do we need to get started?
- Can we pay as we go?

Security questions often arise around analytic data and tools. Efficiency can increase greatly if these are documented up-front

- What risks surfaced in the initial security assessment?
- What tools do we already have to address those?
- How will we maintain a long-term security plan?

strata

Question 6: Next Steps

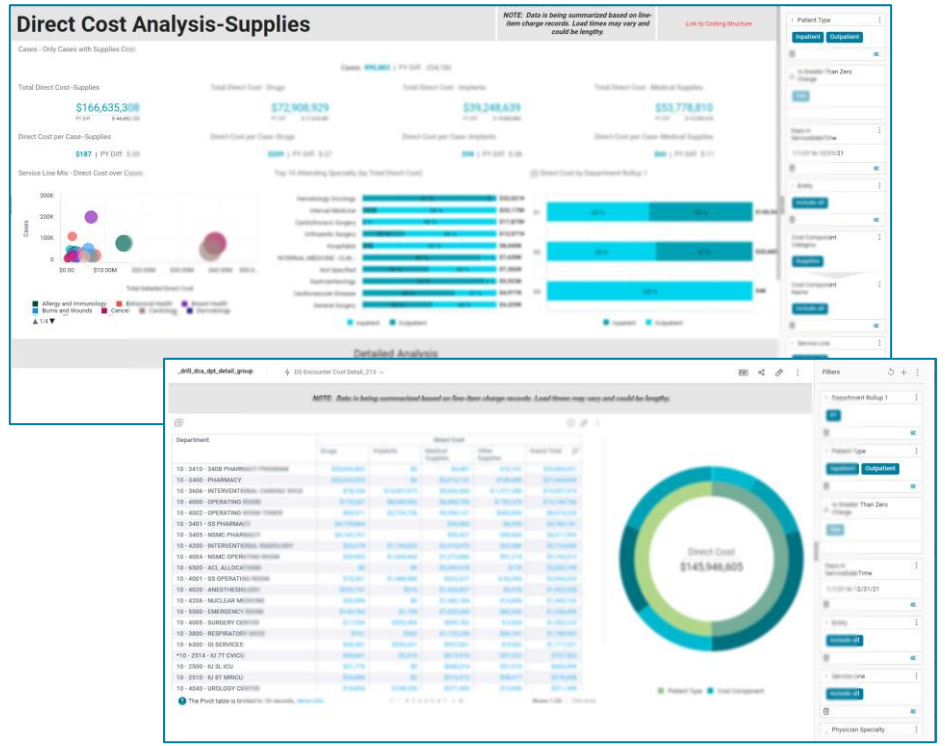
Analytics solutions will always be works-in-progress. While the scale-up plan will be subject to revision, a path forward can increase confidence in your answers to questions 1-5 .

- What are the milestones in the project?
- Based on today's needs, where is the finish line?
- How will we assess impact?

strata

Analytics In Action: Build vs Buy Decisions

- Several of the checklist questions may include “build or buy” options.
- Dedicating internal resources to “build” can allow organizations to
  - Create tools that account for specialized needs
  - Continually build teams’ analytic acumen
  - Pivot as new opportunities arise
- As you look to external resources, consider
  - Are you looking for a jump-start? An ongoing partnership?
  - What pilot projects have the most potential to drive innovation and adoption?



What’s Next?

What's Next: Day-to-Day Analytic Operations

Continued transformation of budgeting processes

- The abrupt changes necessitated by COVID-19 sped up the move away from a single annual budgeting process.
- Data and analytic needs will require adjustment to take advantage of opportunities.

Contract structures will require more analytic acumen

- As analytics become more sophisticated across all industries, evaluating the optimal position will become more nuanced.

Accelerated need to evaluate new players in the market

- New questions and opportunities will arise more frequently
- These may drive changes in data availability or access

strata

What's Next: Analytic Horizons

More emphasis on collaborative efforts

- Collaborations between health systems, as well as collaborative efforts with payers, community agencies, and others will increase
- More organizations will embrace analytic challenges including accessing and normalizing data, measuring outcomes, and categorizing financial impacts

Benchmarking to peers

- An increasing emphasis on data sharing will allow better understanding of best practices
- Improved data normalization and standardization will allow insights to flow across systems

Understanding an evolving labor market

- Increasing emphasis on data-driven satisfaction, planning, recruiting and retention efforts
- More sophisticated models will simplify staffing to demand

strata

Thank you!