



## Putting the Building Blocks in Place for Effective Predictive Analytics at a Healthcare Organization

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# Agenda

- Background and Key Objectives
- Setting the Foundation for Data and Analytics Transformation
- Lessons Learned Across Governance, Value Discovery, Information Management, EDW, Analytics Organization, and Change Management
- Value Realization
- Setting Expectations for the Future

# Learning Objectives

- Recognize the changing data and analytics requirements faced by healthcare providers with health plans
- Analyze a new seven-step data and analytics operating model
- Appraise the integration challenges a data and analytics transformation represents in a joint payer/provider organization
- Evaluate experience-based recommendations for staging a successful data and analytics transformation in a complex digital environment
- Assess the benefits an end-to-end data and analytics transformation can deliver

# Data Overload and Increased Focus on Health Outcomes



## **Presbyterian Healthcare Services had made several strategic technology investments**

- Facets - Health plan operations (e.g. claims processing)
- Cactus - Provider credentialing
- Epic – EMR



## **Proliferation of data and new applications**

- Clinical encounters, physician profiles, membership data, claims, cost accounting, etc.
- Data rich, information poor: Lots of data without any actionable information



## **Strategic need to differentiate**

- Budgeted care, outcome-driven clinical excellence, other industries more advanced in data and analytics
- PHS needed to optimize the electronic data and information it was capturing

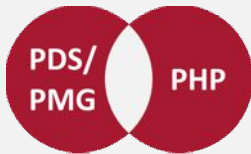


**The solution? A data and analytics strategy that would achieve the Triple Aim and serve a philosophy of One Presbyterian**

# What is the Vision for Analytics at PHS?

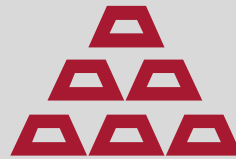
## Macro View:

### Enterprise Focus



Comprehensive analytics approach

### Leadership Driven



Data and Analytics Board  
Analytics Program Steering Committee  
Spoke Steering Committees

### Analytics Culture



Promote analyst collaboration via  
Communities of Practice (CoP)

### Analytical Talent



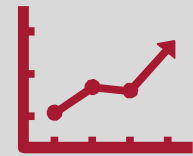
Develop top notch analytical  
skills in house

### Experimentation



Create a “test-and-learn” culture  
by leveraging data

### Long Term Vision



Commit to competing on  
analytics for the long haul

# What is the Vision for Analytics at PHS?

## Micro View:

Reporting → Analysis  
→ Analytics



Data to Insights

Ad-hoc → Strategic  
Standard Deliverables



80/20 to 20/80

Data and Report →  
Collaborative Problem  
Solving



Partnership

Reactive → Proactive



Data Driven Culture

Operationalization of  
Analytics



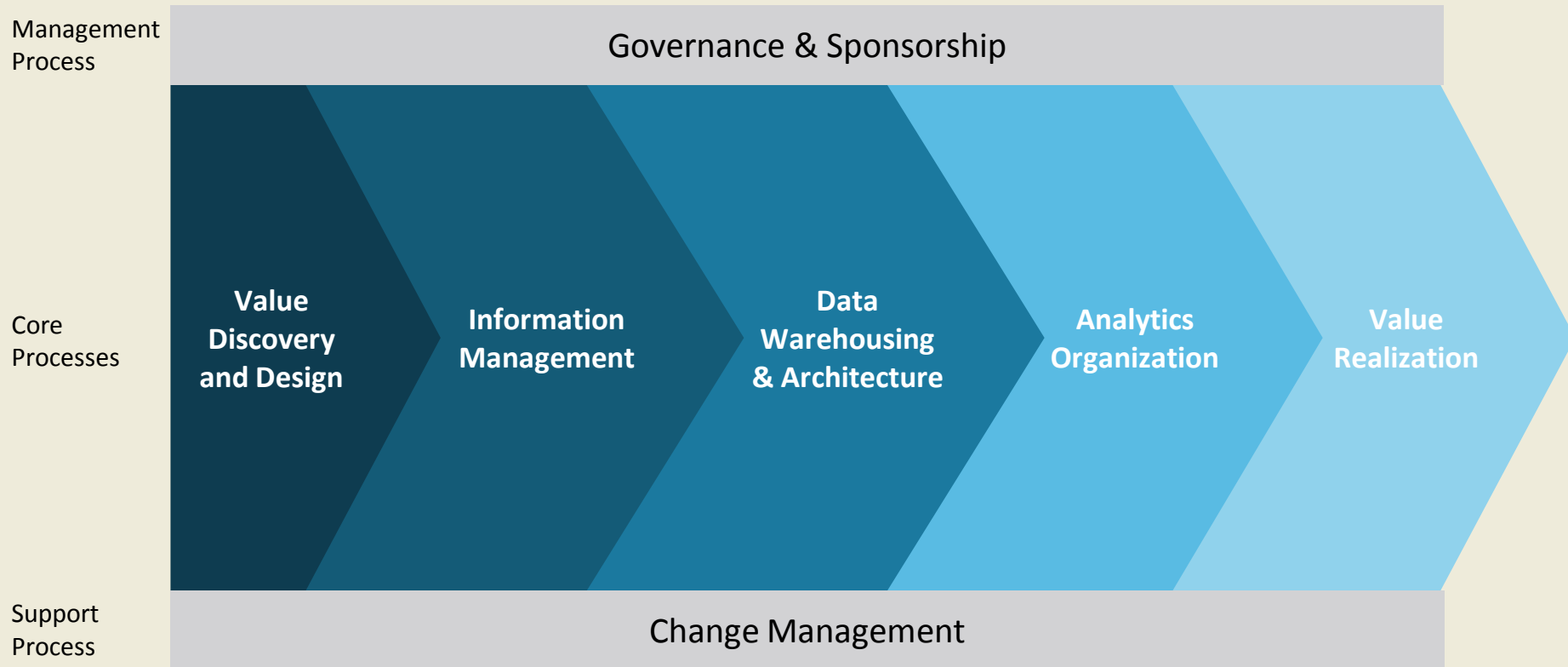
Leverage insights in  
operations/workflow

ETL → Insights



Efficiency and Work-Life Balance

# The “7-fold Path”: A Unique Data and Analytics Operating Model to Guide the Way



# Step 1: Governance and Sponsorship - 2015

## Assuring Stewardship

30 milestones set for  
2015

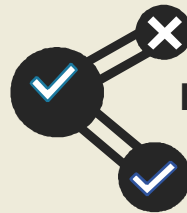
Tied directly to  
performance incentives

90% compliance rate  
needed for incentive  
payout

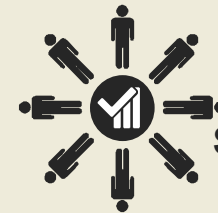
Milestones included:



Forming a  
Board Committee  
for Data and  
Analytics



Embedded Operational  
Leadership into  
Analytics Program  
Steering Committee



Forming New  
Strategic Partnerships  
to Advance Analytic  
Capabilities

### SUCCESS!

PHS reached **100%**  
of its **30 individual  
milestones** for 2015

### THE INSIDE SCOOP

- **Enhanced milestones – process vs. outcomes based**
- Governance committees are helpful for decision making, but **accountability needs to have a single leader**
- **Need “skin in the game” from operational leadership**

### WHAT'S NEXT?

Changing the  
milestone framework  
to **Foundational**,  
**Efficiency**, and  
**Applied** milestones



# Step 1: Governance and Sponsorship - 2016

## Sustaining Stewardship

70 milestones set for 2016

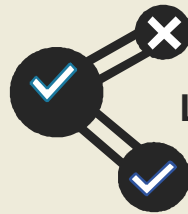
Tied indirectly to performance incentives

Value creation as an organizational focus

Milestones included:



Board Committee serving as a balance between advisory and governance committee



Operational Leadership guiding development and delivery of value creation opportunities



Continue forming New Strategic Partnerships to Advance Analytic Capabilities

### SUCCESS!

PHS reached **21/21 milestones** for **Q1** of 2016 while accomplishing **15/21 milestones** for **Q2** of 2016

### THE INSIDE SCOOP

- **Continual review and revision of the milestones is critical to keep up with the changing priorities of the enterprise**
- Coordination among work streams is pivotal for analytics success
- **Focused and sustainable efforts to engage business stakeholders is essential**

### WHAT'S NEXT?

Ensure continuous alignment of Analytics Organization milestones to PHS strategic milestones

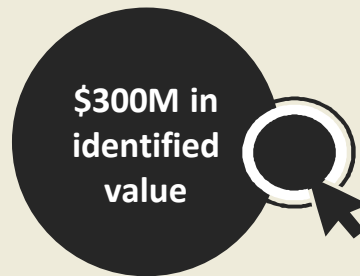
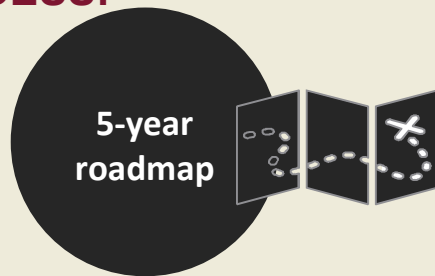
# Step 2: Value Discovery and Design - 2015

## A Strategy Anchored in Value

Polled business unit leaders to identify:

- Key business problems
- How analytics can drive the most value for customers and the enterprise

### SUCCESS!



### THE INSIDE SCOOP

- Focus on **incremental and discrete value** over broad-sweeping opportunities (e.g. analytics to improve patient activation instead of analytics to improve population health)
- Look for opportunities **to leverage existing analytical platforms or cloud solutions** to minimize investment while increasing speed-to-value

### WHAT'S NEXT?

Continued emphasis on **execution and outcome measurement**

# Step 2: Value Discovery and Design - 2016

## A Strategy Anchored in Execution

172 Value Creation Opportunities (VCOs) requirements identified  
Completed mapping those requirements against various Business Intelligence (BI) tools

### SUCCESS!

4 VCOs + 4  
organization  
spokes



172  
Enterprise  
level Business  
Requirements



65% quick  
wins + 12%  
innovation +  
13% Under  
review



172 Total Requirements

- 65% Quick Wins
- 12% Innovation
- 13% Under Review

### THE INSIDE SCOOP

- **Clear and Distinct separation** of high level business requirements vs. detailed/granular business requirements
- Consider following **Crawl-Walk-Run** approach as it relates to capability ramp-up

### WHAT'S NEXT?

Striking balance between  
**Descriptive**  
reporting/analytics vs.  
**Prescriptive + Predictive**  
analytics

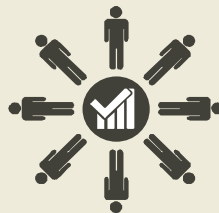
# Step 3: Information Management (IM) - 2015

## Getting the Infrastructure Right

**Analytics prioritization helped define tools, reports, metrics and data that would need to be governed**



**\$3.5 - \$6.5M savings through portfolio management**



**Set up an IM organization**



**Implemented technology in support of IM governance**



**Improved Unique Customer Identifier (UCI) data quality**

### **SUCCESS!**

IM governance infrastructure operationalized; optimized investments in analytics tools; integration in support of One Presbyterian; improved completeness and consistency of UCI

### **THE INSIDE SCOOP**

- **Transition individual contributor role to full department**
- Crawl, walk, and run approach preferred
- Move from **homegrown tools to industry standard technology**
- Include **operational leadership** in IM Governance Council

### **WHAT'S NEXT?**

- **Implementing data documentation and data quality tools**
- Applying metrics governance for the first set of analytics prioritized on the data and analytics roadmap

# Step 3: Information Management (IM) - 2016

## Delivering the Value



Completed provider domain data quality profiling



Cataloging reports from 33K to 7.5K + complete metadata documentation for 2.5K reports

### SUCCESS!

- Foundational built to value realization
- Addressed scalability and sustainability aspect of infrastructure
- Tools as well as P&P to support data driven culture in place

### THE INSIDE SCOOP

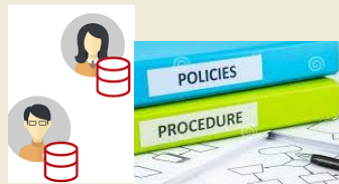
- **Domain prioritization is the key**
- Design a pilot prior to proceeding for enterprise level scalability
- **IM governance is an overarching entity and not a stand alone function** for maintaining data consistency across the board

### WHAT'S NEXT?

Leverage IM governance to support **democratization of data**, which in turn encourages **data literacy** across the organization and thus promotes **data-driven culture for decision-making**



Top 5 data quality issues for PHS initiatives identified

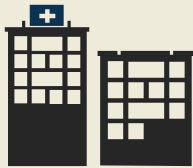


Data quality and data ownership policies developed

# Step 4: Enterprise Data Warehouse - 2015

## Emphasis on Integration

Building a technical infrastructure that helps deliver the One Presbyterian vision



### Cross-enterprise integrated analytics

- For hospitals, clinics, health plans
- Access control



### Leveraging tools already in place at PHS

Filling gaps with single-source vendor



### Tool suite supporting:

- Data services/data repository
- Data management
- Data discovery
- Analytics
- Information delivery



### New integrated data model

Supports needs across PHS delivery system and health plan

## SUCCESS!

- Build of new data warehouse underway
- Data loaded in alignment with value creation opportunities

## THE INSIDE SCOOP

- Ensure a **master data management solution** is part of the EDW implementation to minimize “garbage in, garbage out”
- Ensure appropriate level of **detailed business requirements** before loading the EDW

## WHAT'S NEXT?

- Integrating data from **high priority source systems** into the integrated payer/provider data model
- Identifying **bolt-on analytic platforms** that align with the data model and roadmap

# How to Get to Useable Data for Short Term Value Creation?

**Building Blocks and Optimal Path to get us there while simultaneously Delivering the Value**

Timeline

2017-18

2018-19



**Where we are  
(2016)**



**Building  
Blocks**



**Building  
Structures**



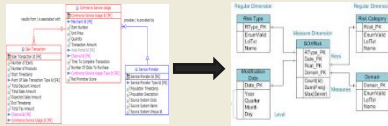
**What will it  
look like  
(2019 and On)**



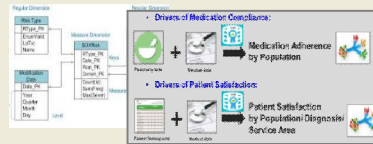
# Step 4: Enterprise Data Warehouse - 2016

## Use Case Driven Build

### Value driven dataware house built



Transition from Atomic data model to Dimensional data model



Use case driven dimensional data model implementation approach to derive value



Rationalize primary data sources and business intelligence tools



Design and implement instantaneous data sharing logic and rules – e.g., Access privileges

### SUCCESS!

- Data source prioritization complete
- Data loaded in alignment with Use Case prioritization

### THE INSIDE SCOOP

- **Leverage Use Case driven data load approach** to populate EDW
- **Synergize the coexistence of triad** (i.e., EDW, EMR and BI tools)

### WHAT'S NEXT?

- Integrating data from high priority source systems into the integrated payer/provider data model
- Identifying **bolt-on analytic platforms** that align with the data model and roadmap



# Step 5: Analytics Organization - 2015

## Putting PHS on the Map as a Data & Analytics Leader

- Embraced a data-driven decision culture
- Established an organization and leadership structure that supports analytics talent and development



Implemented a  
hub-and-spoke  
org model



Leveraged  
“Analytics  
Champions”



Outlined an  
analytics job family  
with multiple career  
tracks



New VP  
of Data and Analytics plus  
Hub-and-Spoke leadership



New roles to serve  
descriptive, prescriptive,  
and predictive analytic  
projects

### SUCCESS!

Transitioned 25% of staff into the Analytics Organization; expanded data access and outcomes for staff; increased transparency in career development

### THE INSIDE SCOOP

- Commit to a decision and over-communicate the intent and rationale for shifting structure
- Know your talent and involve them in the design and transition to the new structure
- Be patient and sensitive to perceived changes in control

### WHAT'S NEXT?

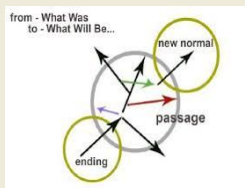
In 2016, PHS will be focused on growing the existing and attracting new talent



# Step 5: Analytics Organization - 2016

## Establishing PHS on the Map as a Data & Analytics Leader

- Refine organizational and leadership structure to support analytics talent and development



Complete transition of analytical talent



Establish and host community of practice (CoP) event (s)



Focus on developing a sustainable and reliable Demand Management (DM) process



Create focused training courses such as developing consultative skills set



Evaluate and track performance of Analytics Organization

### SUCCESS!

- Completed transition of analytical talent
- CoP operational promoting interaction and providing a forum for analytical talent
- DM model finalized

### THE INSIDE SCOOP

- Focus on Change Management efforts
- Define and track CoP accountability for successful integration of knowledge within organization
- Transition Management Team (TMT) feedback is critical

### WHAT'S NEXT?

In 2016-17, PHS will be **focused on development of knowledge centers**

# Step 6: Change Management (CM) - 2015

## Fostering Socialization and Engagement

Ensuring ongoing communication, socialization, and engagement



- Change management executive sponsors
- Change management workgroup



Multi-year change management, training & communication plan



- Intervention toolkit
- Custom communication vehicles



- Involved learning center, marketing & communication, Change management consultant, and HR resources

### SUCCESS!

- Applying interventions based on change readiness survey
- Adoption satisfaction score of 4 out of 5

### THE INSIDE SCOOP

- **Communication through various channels is the key**
- Underscore the importance of change management in various data and analytics work streams
- Ensure **appropriate resourcing for change management staff**
- Unwavering leadership support around data-driven culture

### WHAT'S NEXT?

- Continue interventions
- **Embedding change management into operations based on analytical insights**



# Step 6: Change Management (CM) - 2016

## Fostering Adoption

Ensuring continual and targeted Socialization, Engagement, and Adoption (SEA)



Conduct CM workshop quarterly to assist the transition



Evolution from Onboarding checklist to Onboarding experience



Socialization, adoption and engagement plan for IMG, EDW and BI tools



Targeted training and enablement AO resources



Developed value tracking dashboard

### SUCCESS!

- Onboarding Experience
- Training experience

### THE INSIDE SCOOP

- Socialization, adoption and engagement plan as it relates to **BI tools, IM governance and EDW to be developed early on but to be executed just in time**
- CM is a **continuous process vs. a one-time event**

### WHAT'S NEXT?

- Develop and implement **knowledge centers**
- Promote and support **data driven culture**

# Step 7: Value Realization – 2015/2016

## Seeing is Believing

PHS has recognized tangible benefits: Financial, organizational, infrastructural



**\$4M - \$6M** in identified savings through overpayment and predictive analytics



Improved UCI completeness to **99.4%** and consistency to **97.4%** across core EMR and claims platforms



**\$3.5 - \$6.5M** in identified savings through portfolio maximization



Integrated payer/provider data model



Enhanced palliative care predictive modeling with AUC of **.946**



Decreased turn-around time in physician gaps in care dashboard from **1 week** to **30 minutes**

# **Analytics to Achieve the Triple Aim**

## **Presbyterian Healthcare Services' Data and Analytics Program Delivers Broad Benefits**

- Technical foundation that is a single source of truth
- Analytics supporting better health, cost leadership and exceptional experience
- Information that is managed as an asset across delivery system, medical group and health plan
- Talent model that drives innovation, integration and engagement across the enterprise and for the patients and communities PHS serves
- Leveraging the principles of change management

## **Looking Ahead**

- Focusing on accelerating value and growing analytic talent, which includes:
  - Leveraging cloud solutions - Enables “quick wins”
  - Setting up R&D Informatics, Integrated Informatics, and Tool & Solution Development teams for the Hub-and-Spoke Analytics Organization
  - Focus on prototyping, predictive modeling, and point-of-care decision making
- Maintaining a disciplined process of data integration into the EDW
- Ensures data integrity and upholds a single source of truth