

2015 Defense Health Information Technology Symposium

Partnership for Improvement in the MHS What does it mean for DHA HIT?



“Medically Ready Force...Ready Medical Force”

“A joint, integrated, premier system of health, supporting those who serve in the defense of our country.”



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Learning Objectives



1. Describe the analytics requirements for the Partnership for Improvement (P4I).
2. How does the new EHR, Shared Services, Portfolio Rationalization, Governance, and Analytics align?
3. Describe the benefits of a new Analytics Service Offering in executing the Military Health System's requirements.
4. Examine the analytics technology modernization in the midst of an EHR modernization.

Agenda



- MHS Review - P4I and the High Reliability Organization
- MHS Review's impact on the alignment of the new EHR, DHA HIT Shared Service, Governance, Portfolio Rationalization, and Analytics
- The Analytics' Service Offering considerations
- Analytics' technology modernization considerations

MHS Review

What is it?

How should DHA HIT respond?

MHS Review - Summary



- On May 28, 2014, the SECDEF issued a memorandum calling into action a 90-day comprehensive review of access to care, quality of care, and patient safety within the MHS.
- On October 1, 2014, the SECDEF issued a memorandum to advance an MHS culture of excellence.
 - ❑ Patient safety, quality of care, and access to care
 - ❑ Use principles of High Reliability Organizations (HROs)
 - ❑ Establish the Performance Management System (PMS = P4I)
- “This is not a headquarters initiative. To achieve success, the principles of an HRO will need to be adapted across the enterprise. As identified in the MHS Review, there are fundamental cultural changes that need to occur . . .”

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MHS Review – HRO Defined



- High Reliability Organization - an organization that has succeeded in avoiding catastrophes in an environment where normal accidents can be expected due to risk factors and complexity.
 - ❑ Preoccupation with failure
 - ❑ Reluctance to simplify interpretations
 - ❑ Sensitivity to operations
 - ❑ Commitment to resilience
 - ❑ Deference to expertise

MHS Review – HRO Interpreted

Better
Technology



Better
Information



Transform
Health Care

Goal 5: Achieve Rapid Learning
& Technological Advancement

Goal 4: Empower Individuals with Health IT to
Improve their Health and Healthcare System

Goal 3: Inspire Confidence & Trust
in Health IT

Goal 2: Improve Care, Pop Health, and Reduce Costs
through the Use of IT

Goal 1: Achieve Adoption & Information Exchange
through Meaningful Use of IT

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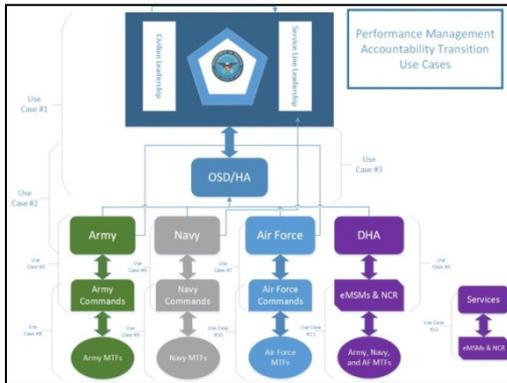
MHS Review – PMS



- Performance Management System – Performance Management includes activities which ensure that goals are consistently being met in an effective and efficient manner.

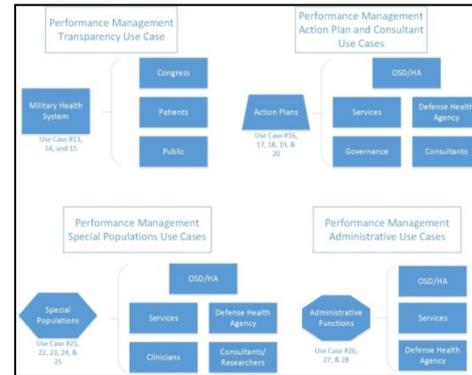
Use Cases

Hierarchal



Transparency

Special Populations



Consultants & Product Lines

Administration

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MHS Review – P4I Core Measures



Lower Cost

- Per Member Per Month (PMPM)
- Total Purchased Care Cost
- Private Sector Care Cost per Prime Enrollee
- OR Utilization
- Prime Enrollment
- Pharmacy Percent Retail Spend
- Productivity Targets
- PCM Enrollment Targets
- ER/UCC Leakage

Better Care

- HEDIS Diabetes Care
- HEDIS Cancer Screening In.
- HEDIS Appropriate Care In.
- HEDIS Mental Health F/U
- HEDIS All Cause Readmits
- Oryx Transition of Care In
- AHRQ Prevention Care In
- Risk Adjusted Mortality
- NSQIP All Cause Morb In
- NPIC Post-Partum Hem

- NPIC Shoulder Dystocia
- PSI 5 – Foreign Body Ret
- HAI (CLABSI)
- Satisfaction w/ Getting Care
- Avg # Days 3rd Future Apt
- Avg # Days 3rd Acute Apt
- % Direct Care Enroll SecMes
- PCM Continuity
- Overall Sat - Inpat care
- Overall Sat - Outpat care

Improved Readiness

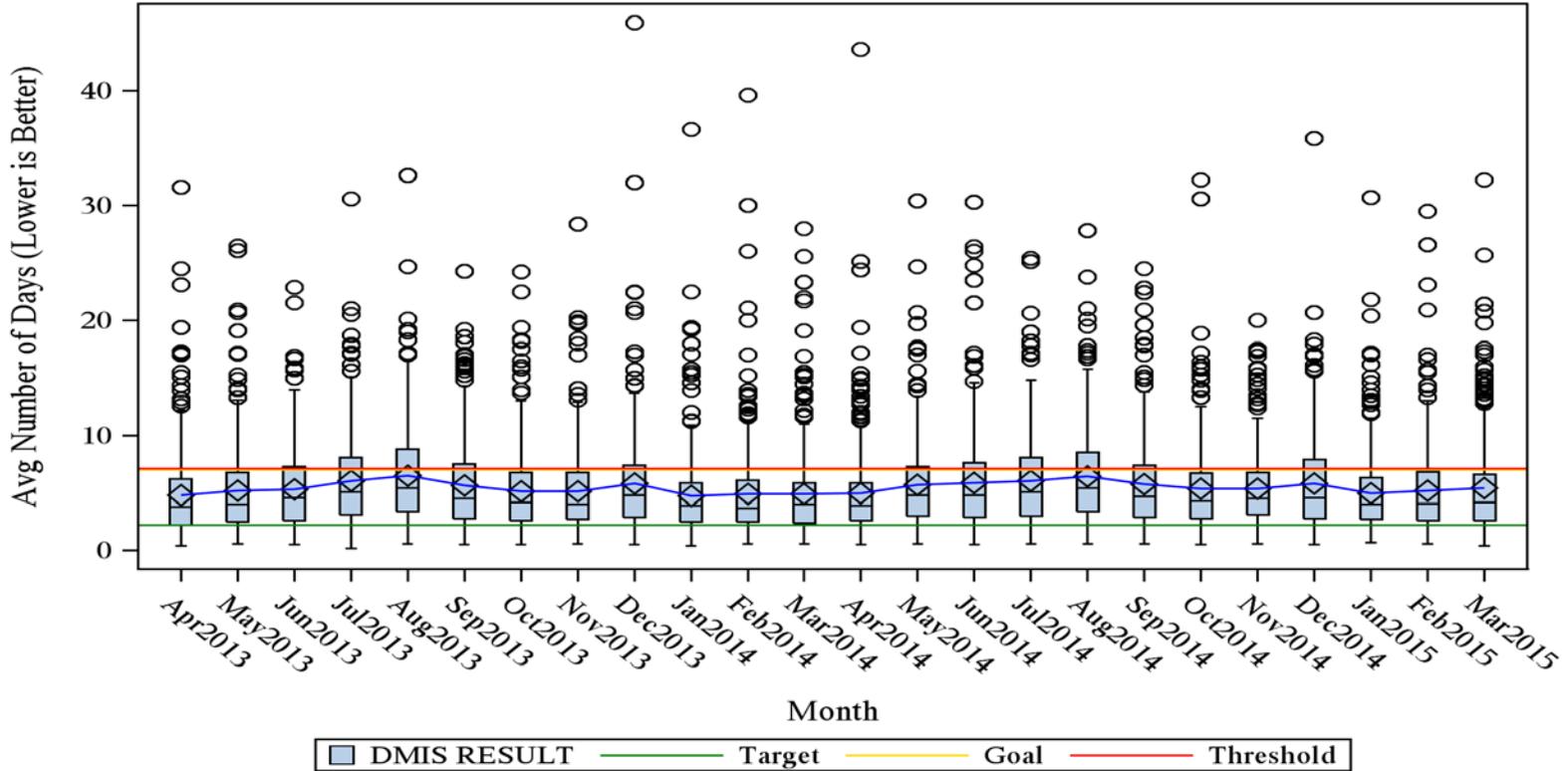
Individual Medical Readiness

Better Health

None

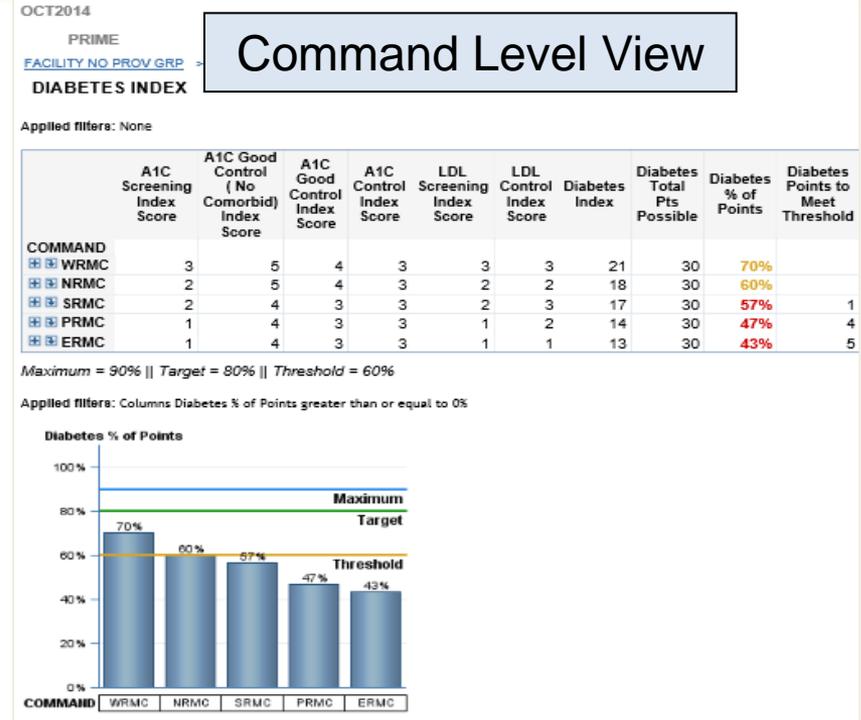
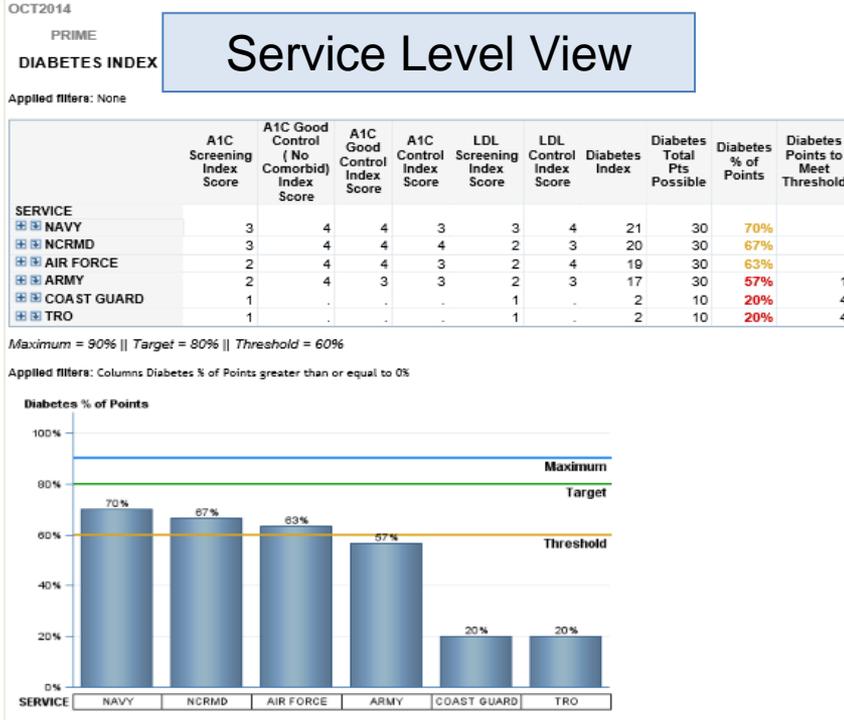
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Avg Number of Days to 3rd Next Available Future Appt Enterprise View



Box shows values between the 25th percentile and the 75th percentile.
 Diamond represents mean value. Solid blue line is the MHS Average.
 Circles represent outliers. Outliers identified as 1.5 times IQR.

HEDIS Diabetes Index: Service and Command Views



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PSI 5 - Foreign Body Retention: Enterprise and Service View

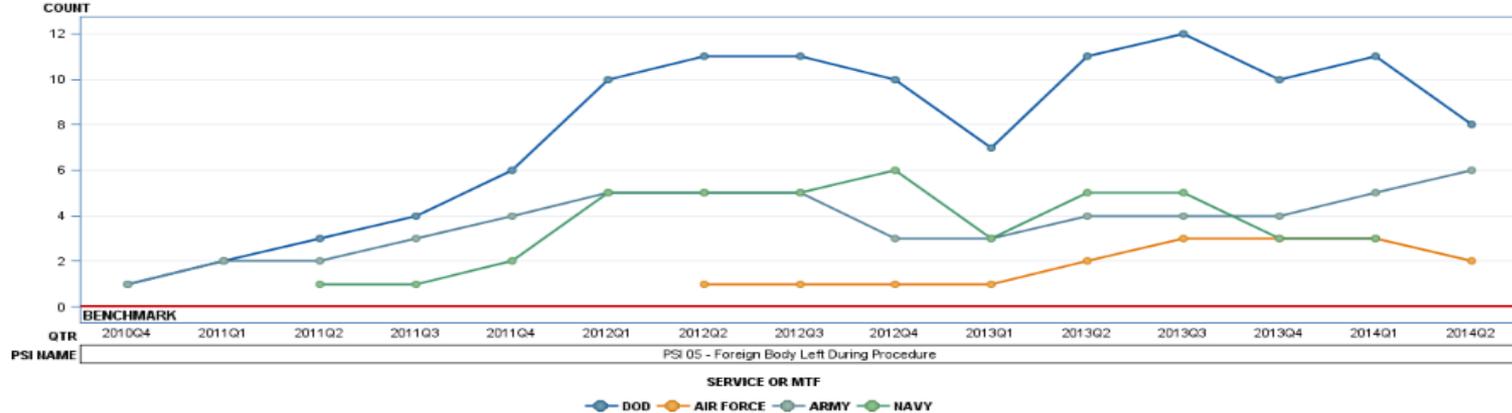


1. DOD / SERVICE DOD

Enterprise and Service View

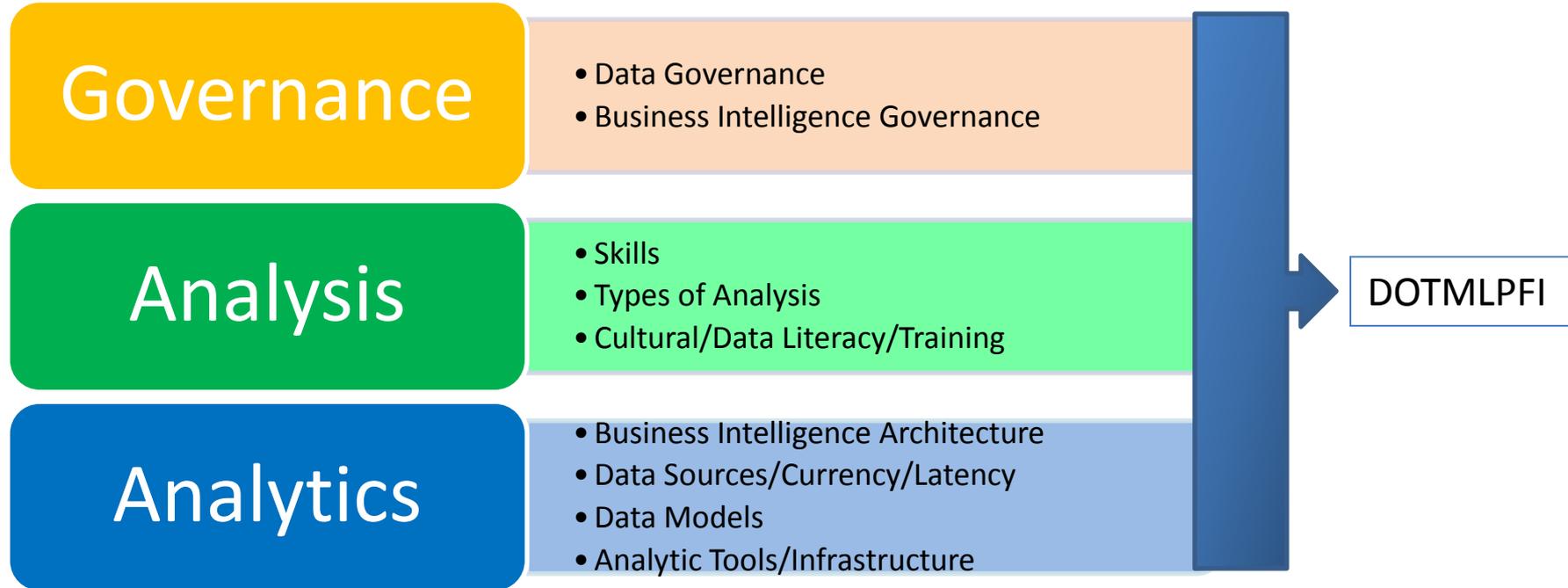
RATE TYPE: COUNT
COMPARISON: Lower is better
BENCHMARK: 0.00

PSI NAME CY QTR	2014Q2		2014Q1		2013Q4		2013Q3		2013Q2		2013Q1		2012Q4		2012Q3		2012Q2		PS
	STATUS	COUNT																	
SERVICE OR MTF DOD	●	8.00	●	11.00	●	10.00	●	12.00	●	11.00	●	7.00	●	10.00	●	11.00	●	11.00	
AIR FORCE	●	2.00	●	3.00	●	3.00	●	3.00	●	2.00	●	1.00	●	1.00	●	1.00	●	1.00	
ARMY	●	6.00	●	5.00	●	4.00	●	4.00	●	4.00	●	3.00	●	3.00	●	5.00	●	5.00	
NAVY	●	-	●	3.00	●	3.00	●	5.00	●	5.00	●	3.00	●	6.00	●	5.00	●	5.00	
NCRMD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



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Tasks - Analytics Maturity Model



Analytics Maturity Model from Advisory Board

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Scope - Analytics Adoption Model



Level 8	Personalized Medicine & Prescriptive Analytics	Tailoring patient care based on population outcomes and genetic data. Fee-for-quality rewards health maintenance.
Level 7	Clinical Risk Intervention & Predictive Analytics	Organizational processes for intervention are supported with predictive risk models. Fee-for-quality includes fixed per capita payment.
Level 6	Population Health Management & Suggestive Analytics	Tailoring patient care based upon population metrics. Fee-for-quality includes bundled per case payment.
Level 5	Waste & Care Variability Reduction	Reducing variability in care processes. Focusing on internal optimization and waste reduction.
Level 4	Automated External Reporting	Efficient, consistent production of reports & adaptability to changing requirements.
Level 3	Automated Internal Reporting	Efficient, consistent production of reports & widespread availability in the organization.
Level 2	Standardized Vocabulary & Patient Registries	Relating and organizing the core data content.
Level 1	Enterprise Data Warehouse	Collecting and integrating the core data content.
Level 0	Fragmented Point Solutions	Inefficient, inconsistent versions of the truth. Cumbersome internal and external reporting.

The MHS Review linked HRO principles, Performance Management System with Better Technology & Better Information

<https://www.healthcatalyst.com/healthcare-analytics-adoption-model/>

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Requirements and Operating Model

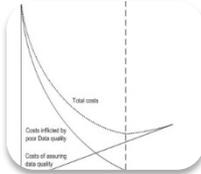
Requirement Categories



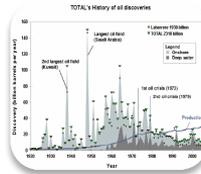
Visualization



Data Drill Down



Data Quality



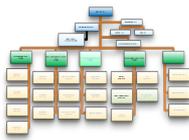
Data Discovery



Data Latency



Analytic Tools



Operations



Analytic Logic

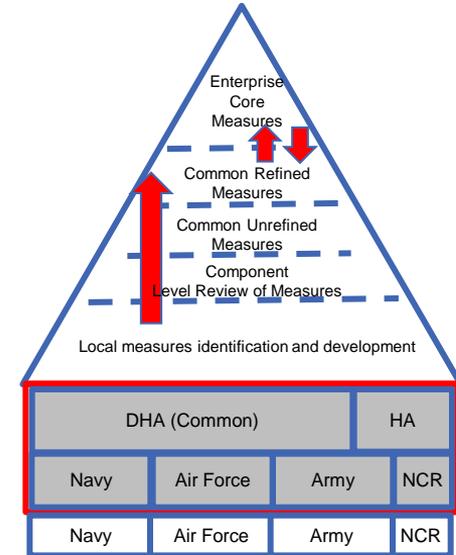


EHR & Information System



Training

Operating Model



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Ten Success Factors for MHS' Analytics Modernization



- Leadership
- Joint Governance
- New EHR
- Analysts Workflow
- Data Governance & Management
- Health IT Shared Service
- Analytics Service Catalogue
- Technology Investment
- Analytics Service Offering
- Scalability and Usability

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Leadership – P4I

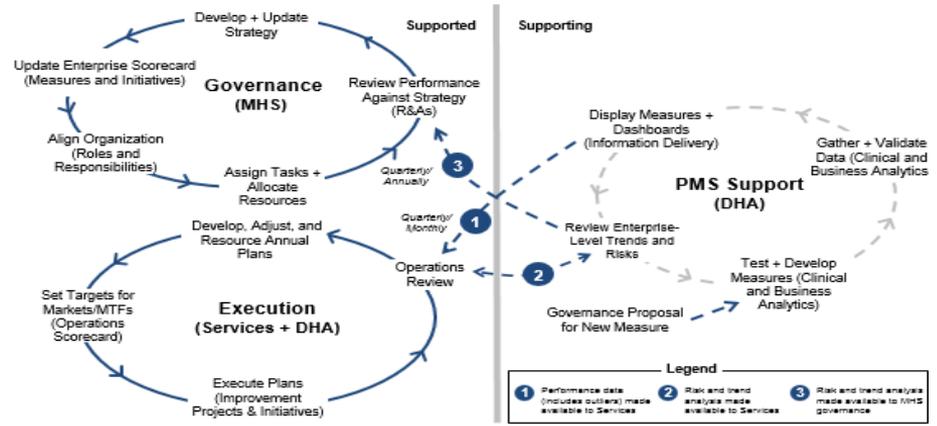


■ “By July 15, 2015, I want a report that clearly demonstrates the PMS capability to drive system wide improvement for the identified common executable goals against common standards and for the dashboards to have measures identified in all areas covered by the MHS Review.” (SECDEF Memo, 1 OCT 2014)

Demonstrating PMS Capability to Drive System-Wide Improvement:

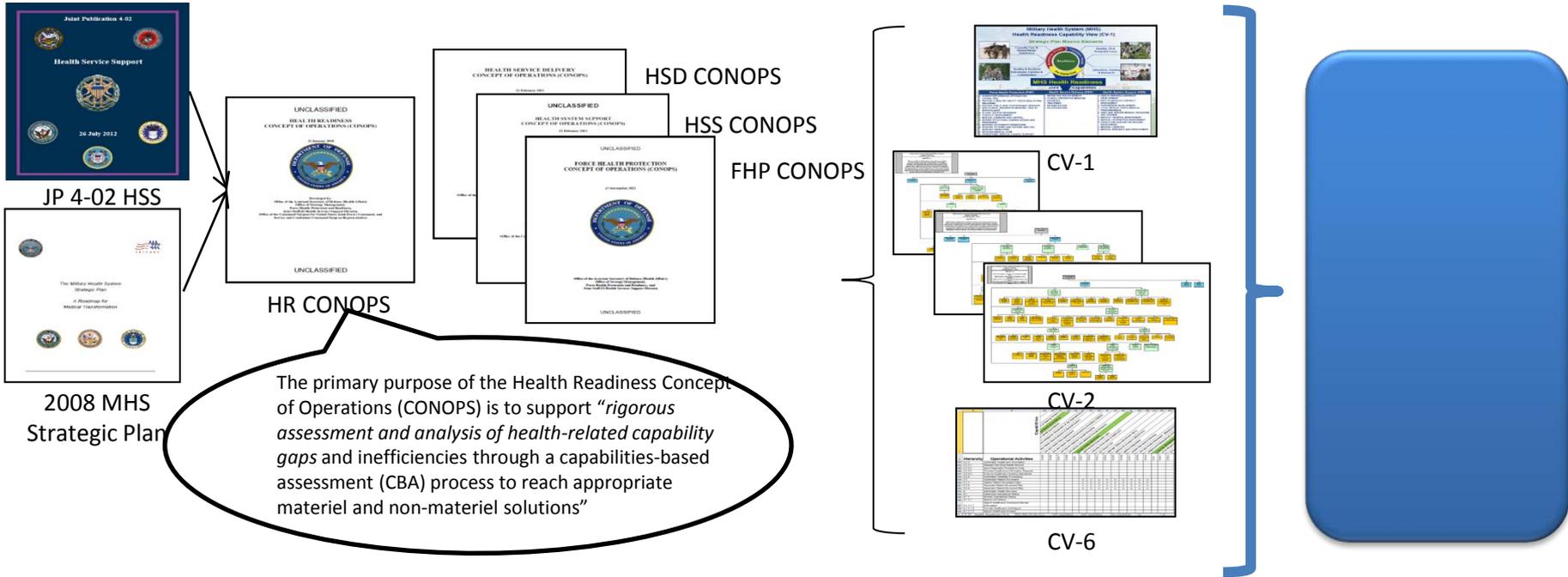
- Governance selects focus areas for improvement, informed by PMS support.
- Once approved, focus areas are communicated to the Execution components.
- In addition to selecting focus areas, governance decides roles and responsibilities, and what elements of change package should be developed centrally.
- PMS provides Governance and Execution customers with information to monitor improvement.

Approved 30 Core Measures with 5 initial Focus Areas
Action Plan groups own the implementation and dissemination



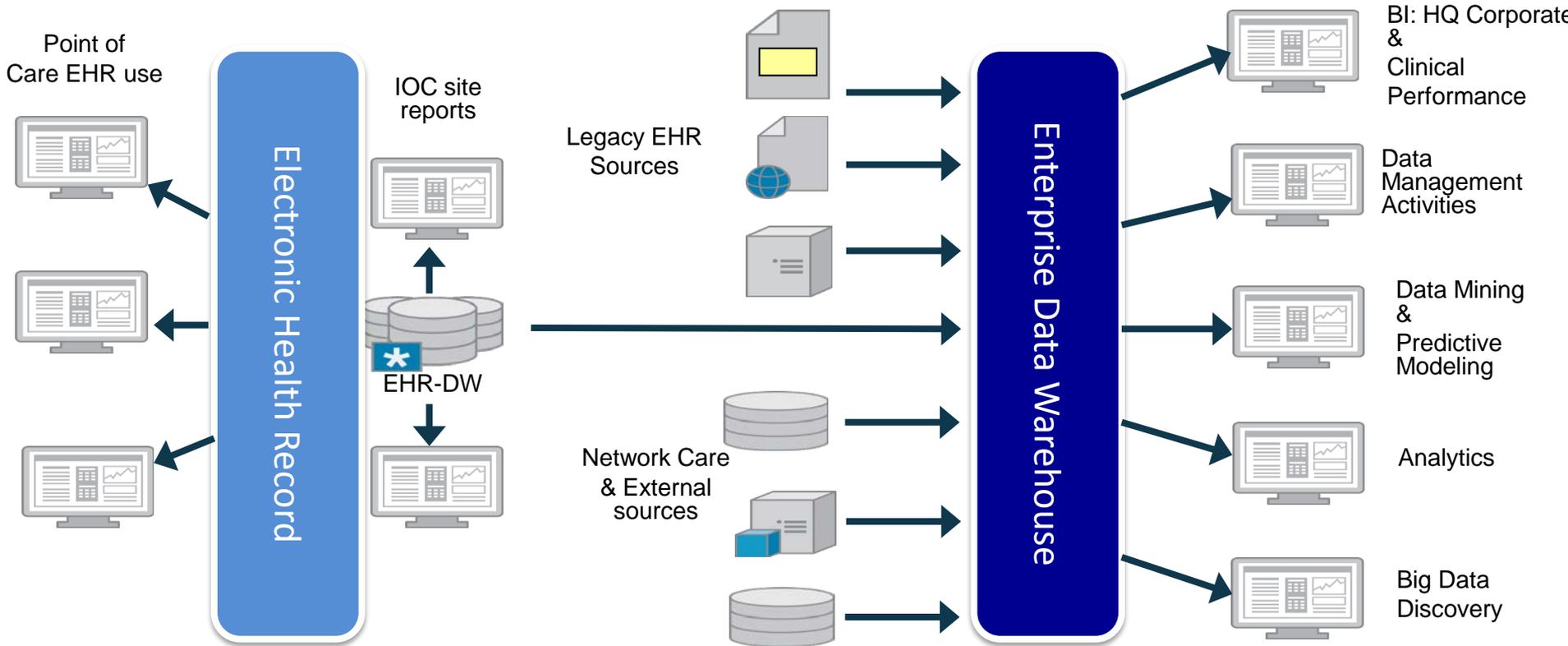
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Analytics Capability and DHMSM

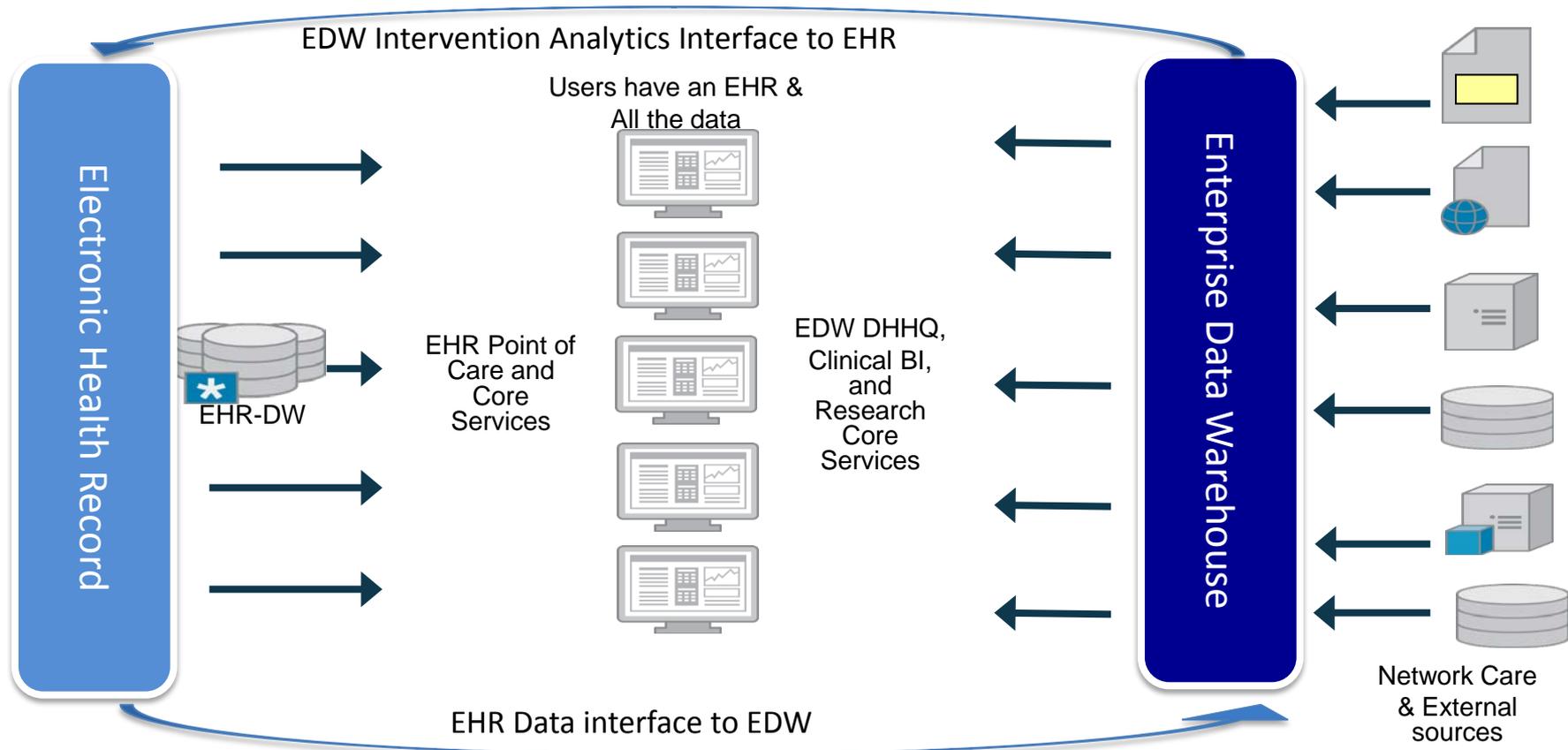


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Vision at DHMSM IOC



Conceptual Closed Loop Vision at FOC



New Analysts Workflow



Analysis Workflow Process c/o SAS

Current – most “data work” is completed by “Super Analysts” and completed “by hand” monthly

Pros – deep understanding of data; meticulous

Cons – little automation; large storage volume; proprietary SQL code; reduced ad hoc availability

In the Future – discovery measures are automated when governance approves

Pros – experts in ELT/ETL, modeling, BI automate; cost/measure decreases; more ad hoc and special studies

Cons – disconnects between analysts/IT; “data quality” unknowns

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Data Management & Governance

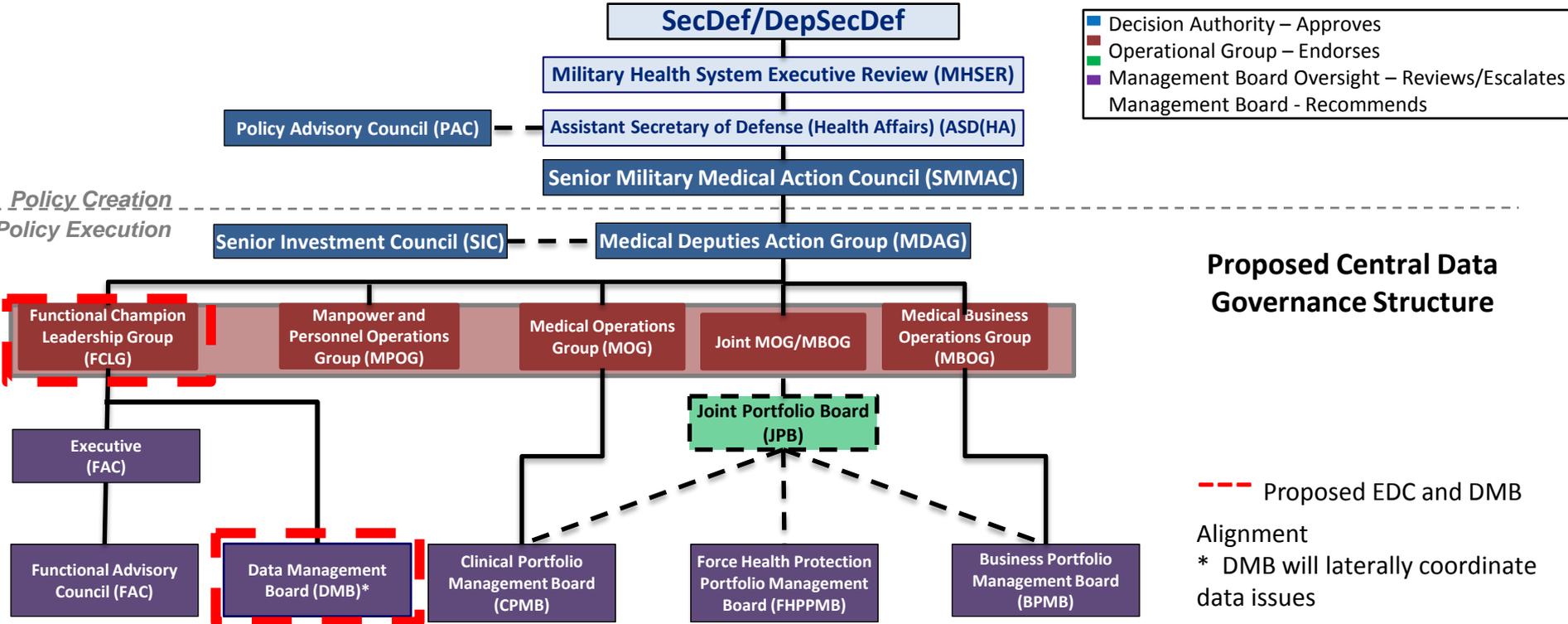


- The DHA Data Manager resides within the DHA HIT Information Delivery Division and is organizing the service offerings.
- The Data Services Branch is organized into four Sections: Governance, Architecture, Acquisitions, and Operations
- MHS data activities are fragmented -- evidenced by portfolio duplication, failed IT projects, duplicate patient issue, and millions of non-standard terms in EHRs.
- Data Management is a critical core mission capability and every strategic initiative is dependent on its execution – EHR, HIE, Interoperability, Portfolio Rationalization, and Analytics

“Governance and process issues are far greater impediments to success than the technical issues that must be confronted during the process of creating shared services.” Gartner - Shared Services in Government: Critical Success Factors, Kost, Published: 10 August 2012

Central Data Governance

Data Governance Organizational Alignment



Data Governance An Enterprise Responsibility



Clin/Business Sectors

- Specify information Needs
- Clarify constraints and drivers
- Nominate Information efforts
- Participate in data management analysis and governance support

Data Governance & Management

- Provide data governance
- Balance needs of all data stakeholders
- Provide guidance, strategy and standards adoption for enterprise data
- Provide accountability for data and related controls (data stewardship)
- Manage data as an Enterprise Asset

Info Technology

- Provide infrastructure and systems supporting business information needs
- Provide the data disciplines supporting proper data management
- Participate in data management analysis and governance support

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New MHS Analytics Service Offering



Data Services



Web Strategies & Collaboration



Enterprise Intelligence

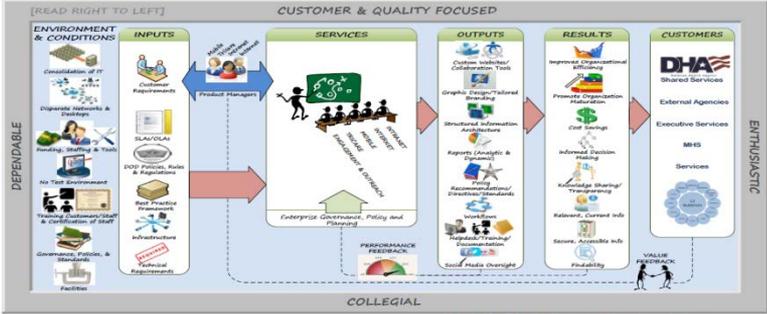


Health Information Exchange



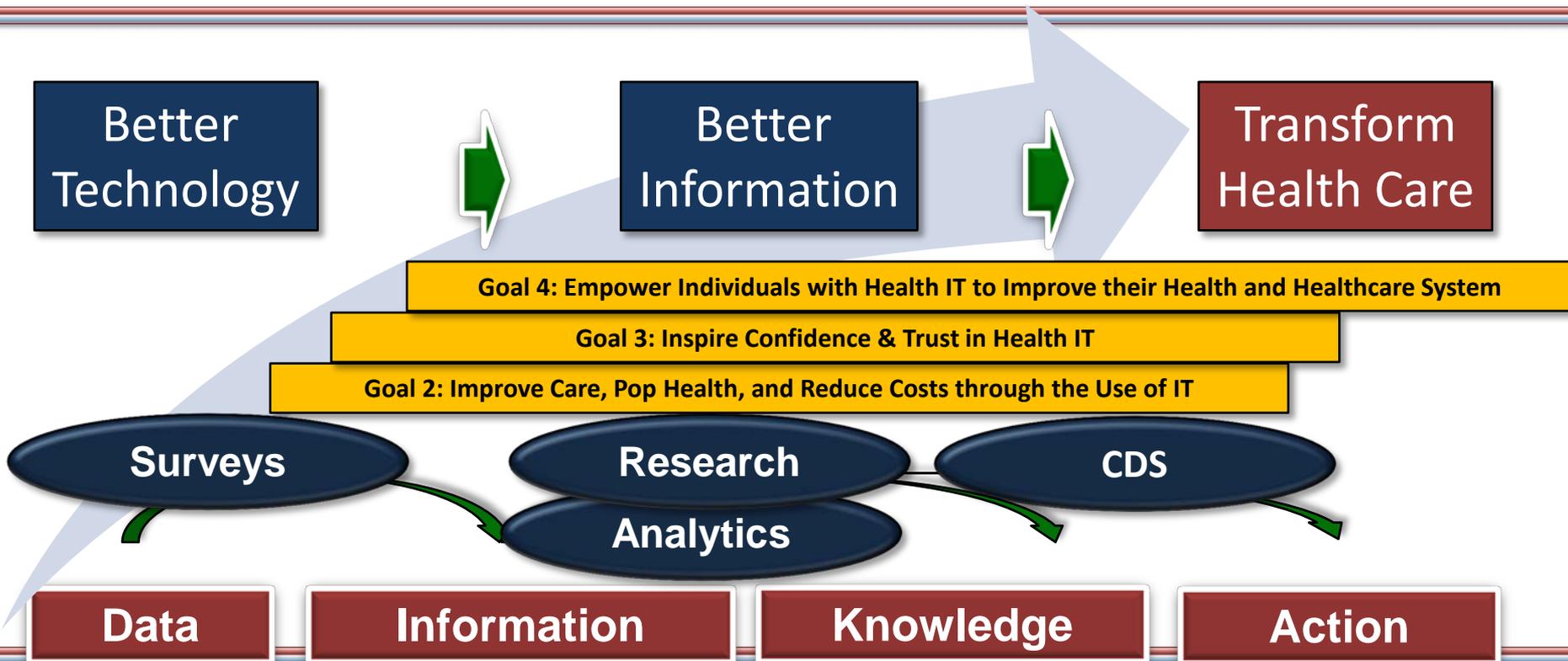
Registries

Information Delivery Division



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New Analytics Service Catalogue



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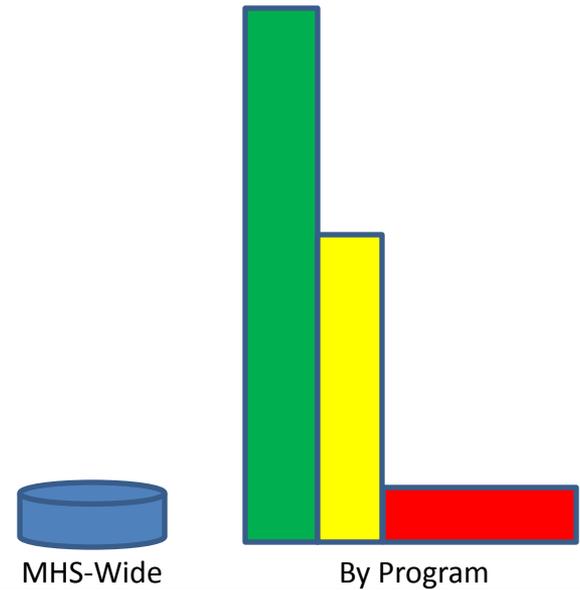
Analytics Strategy

Population Health, Genomics, and Value-Based Healthcare

MHS & the Analytics Adoption Model

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Adoption Rating



<https://www.healthcatalyst.com/healthcare-analytics-adoption-model/>

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The World We Live In...

Business Transactions

(patient billings, payroll, purchases...)

+

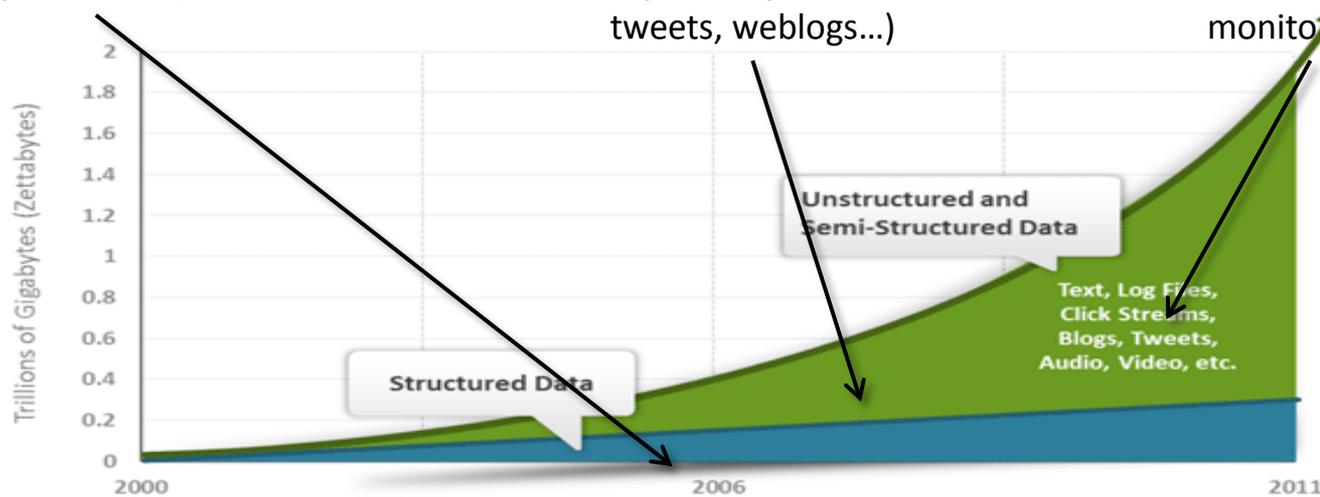
Interactions

(patient visits, hospital stays, “likes”, tweets, weblogs...)

+

Observations

(clinical notes, X-rays/MRIs, machine sensors, patient remote monitoring...)



Source: IDC 2011 Digital Universe Study (<http://www.emc.com/collateral/demos/microsites/emc-digital-universe-2011/index.htm>)

Institute of Medicine

Core Metrics for Health and Health Care Progress



■ Problem Statement – April ‘15

“Thousands of measures are in use today to assess health and health care in the United States. Although many of these measures provide useful information, their sheer number, as well as their lack of focus, consistency, and organization, limits their overall effectiveness in improving performance of the health system.”¹

■ Cost

A preliminary survey conducted in support of this study found that health systems require an average of 50 to 100 full-time equivalent employees, including physicians, at a cost ranging from \$3.5 to \$12 million per year, to carry out these efforts.

■ What does this mean to DHA?

¹ Blumenthal D, Malphrus E, McGinnis JM, eds; for the Institute of Medicine Committee on Core Metrics for Better Health at Lower Cost. *Vital Signs. Metrics for Health and Health Care Progress*. Washington DC: National Academies Press; 2015

How Big is the Data?

Colorectal Cancer Screening Measure Method

FORMULA: This measure calculates the rate of colon cancer screening among TRICARE Prime enrollees 51-75 years of age. Eligible enrollees must have evidence of one of the following:

Fecal occult blood test within the last 12 months
Flexible sigmoidoscopy within the last 60 months

Colonoscopy within the last 120 months



A single measure for Colorectal Cancer Screening requires processing over 10B data fields for a single measure

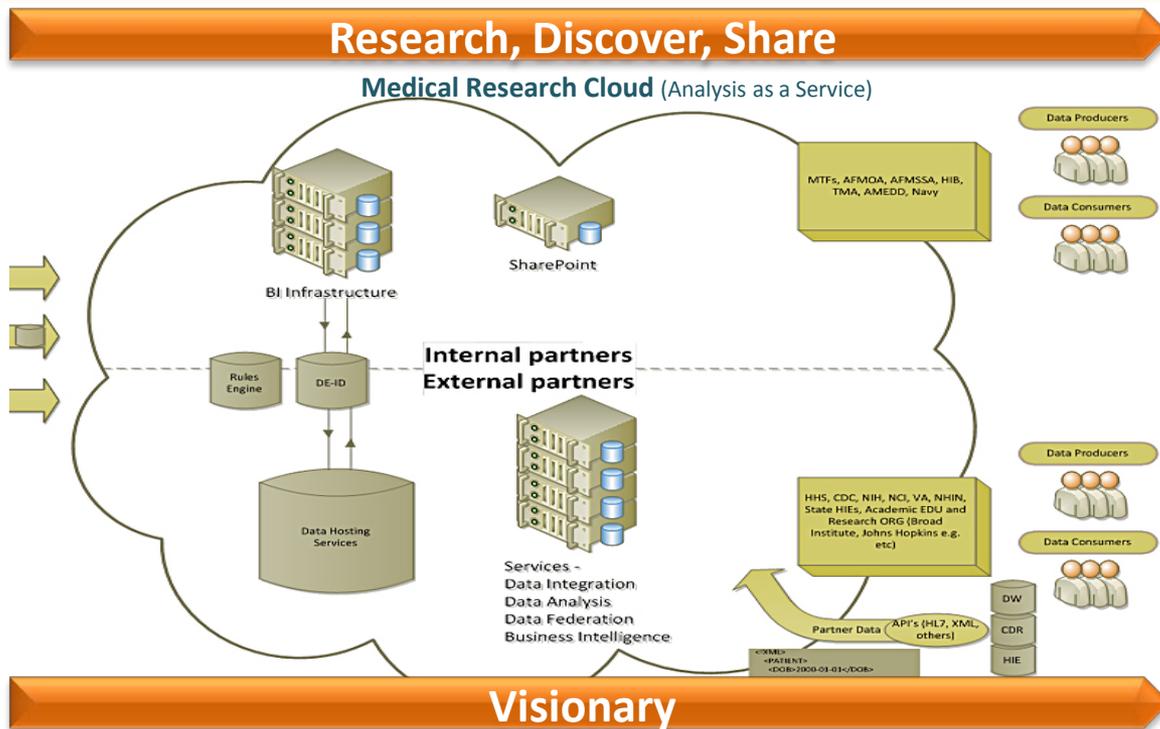
Performance measure require a retrospective approach; adults are not included in the denominator for this measure until age 51 (1-year look back).

Year	Appointments	Diagnosis	Encounters	Lab Encounters	Lab Orders	Procedure	Rad Encounters	Rad Orders	Grand Total
2006	11,420,515	105,058,074	62,021,424	3,377,190	6,929,213	67,200,685	670,298	1,197,158	257,874,557
2007	47,498,367	447,477,645	261,989,898	14,941,311	25,006,125	282,976,556	2,909,159	3,640,023	1,086,439,084
2008	48,635,998	485,792,177	279,983,524	16,110,541	26,772,136	301,973,101	3,101,140	3,867,530	1,166,236,147
2009	52,458,980	526,415,772	300,421,773	17,092,112	28,451,720	323,141,142	3,337,618	4,139,785	1,255,458,902
2010	52,380,100	558,777,939	314,318,810	16,413,722	27,797,799	337,740,486	3,214,459	4,179,124	1,314,822,439
2011	52,492,797	578,886,231	321,234,929	21,870,937	35,766,149	344,104,706	4,270,788	5,345,367	1,363,971,904
2012	53,790,859	600,183,512	325,522,094	22,434,318	36,587,839	350,175,508	4,375,046	5,496,035	1,398,565,211
2013	54,504,451	603,386,189	324,073,012	20,714,862	33,522,775	350,442,907	4,011,136	5,057,719	1,395,713,051
2014	28,907,742	186,840,892	105,518,337	2,696,672	4,875,354	110,651,197	2,096,824	2,772,973	444,359,991
Grand Total	402,089,809	4,092,818,431	2,295,083,801	135,651,665	225,709,110	2,468,406,288	27,986,468	35,695,714	9,683,441,286

MHS Medical Research Cloud

Emerging Requirements

- A secure Clinical Data Warehouse
- Data Availability
 - Limited Data Sets
 - De-identified Data Sets
 - Encrypted Data Sets
- A “valet” data team:
- Remote access through Virtual Desk Top
- Partners in Problem Solving, Policy Analysis, Program Evaluation



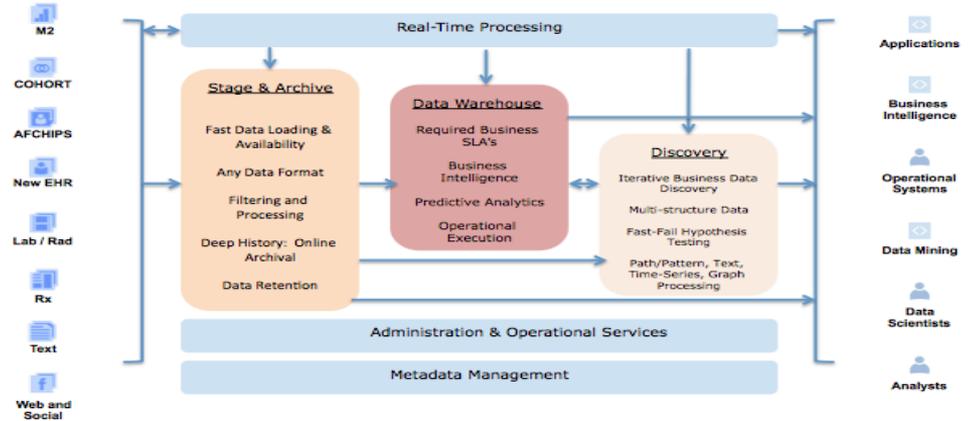
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Modern Healthcare Analytics



Six functional components of a complete and modern Healthcare Analytics platform:

1. Stage & Archive
2. Enterprise Data Warehouse
3. Discovery Analytics
4. Real-time Processing
5. Administrative & Operational Services
6. Metadata Management



Collectively, these six functional areas comprise a complete and modern Healthcare Analytics system; each functional component has its own unique set of specialized use cases it is responsible for, and when brought together, can meet the organization's IT information requirements for both today and be highly adaptive for tomorrow's unknown information demands.

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Baseline Requirements



Preceding a set of ‘evaluation criteria’ for a complete and modern Healthcare Analytics Platform, there are a series of foundational requirements – these must exist in any solution to enable success and longevity for all information deliverables into the business’ decisioning processes:

1. Data model completeness

- ✓ Data model entities are dimensionally conformed – Patient, Provider, Location, Procedure, Diagnosis, etc. are standardized across all business areas to promote a ‘single version of the truth’
- ✓ Data models are easily extensible (because they are conformed and standardized)
- ✓ Data model must include a time component (to enable historic trend analysis)
- ✓ Data models contain all appropriate data elements
- ✓ Data elements are at the proper grain to create aggregate measures

2. Accessibility of the data model and its contents

- ✓ Analysts must be able to easily aggregate measures
- ✓ Dimension hierarchies must be accurate and useful (drill up, drill down, drill across)
- ✓ Navigation of dimension hierarchies must support low-level, granular measure exploration (metric precision)

Baseline Requirements



Preceding a set of ‘evaluation criteria’ for a complete and modern Healthcare Analytics Platform, there are a series of foundational requirements – these must exist in any solution to enable success and longevity for all information deliverables into the business’ decisioning processes:

3. Data Accuracy

- ✓ Data must reconcile back to source accurately; data is accountable back to its source (data traceability)
- ✓ Data must have organizational confidence of its existence within the model (data quality)

4. Data Transparency

- ✓ Measures are documented, validated and approved (sanctioned measures)
- ✓ Measures must be consistent across data marts (measure integrity)
- ✓ Complex measures can be broken down into their individual components for further investigational analysis (measure valence).

Evaluations



- Please complete your evaluations

Contact Information



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Questions?



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