



# Maturity Models as a Foundation for Preparing for Population Health

**HIMSS** Analytics<sup>®</sup>

**Heart of America HIMSS  
Education Event  
April 3, 2014**

# HIMSS North America ...transforming health through IT

**James E. Gaston**  
MBA, FHIMSS  
Senior Director of  
Clinical & Business  
Intelligence  
HIMSS Analytics

The screenshot shows the HIMSS website homepage. At the top, there is a navigation bar with links: About HIMSS | Join HIMSS | Contact Us | Vendor Center | View Other HIMSS Sites | Member Center | Policy Center | Press Room. Below this is the HIMSS logo with the tagline "transforming health through IT". To the right of the logo are social media icons for Facebook, Twitter, LinkedIn, and Google+, along with a search bar labeled "Search HIMSS" and a "Log In" button.

A dark blue navigation menu contains the following items: News, Professional Development, Resource Library, Bookstore, Membership, Get Involved, and Events.

The main content area features a large banner for the "ICD10 Playbook". The text reads: "The ICD-10 PlayBook provides critical information to assist you and your staff in transitioning to ICD-10. [Learn More](#)". To the right of the text is a photograph of a doctor and a patient looking at a tablet. Below the text is a small thumbnail image of the ICD10 Playbook cover.

Below the ICD10 Playbook banner, there is a paragraph: "HIMSS is a global, cause-based, not-for-profit organization focused on better health through information technology (IT). HIMSS leads efforts to optimize health engagements and care outcomes using information technology. [Learn more.](#)"

Below that is another paragraph: "HIMSS Annual Conference & Exhibition is the industry's largest health IT educational program and exhibition center. HIMSS15 will take place April 12-16, 2015 in Chicago, IL. [Learn more.](#)"

On the right side of the page, there are three prominent buttons: "Volunteer" (purple), "Join Now" (teal), and "Share Your Story" (dark blue). Below these buttons is a promotional banner for "HIMSS 14 ANNUAL CONFERENCE & EXHIBITION" held from "FEBRUARY 23-27, 2014 | ORLANDO, FLORIDA". At the bottom right, there is a section titled "Upcoming Events".

# HIMSS Analytics... Know. Understand. Prepare. Change.

James E. Gaston

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The screenshot shows the HIMSS Analytics website homepage. At the top, there is a navigation bar with links for Home, Press Room, and Contact Us, along with social media icons and a search bar. The main header features the HIMSS Analytics logo and the tagline "It's How You Know What's Next." Below the header, there is a navigation menu with links for Data, Research, Consulting, Maturity Models, and About Us. The main content area is dominated by a large banner image of a mountain peak with a flag on top. The banner text reads: "Ascend to EMR-readiness with the most accurate intelligence in the industry. Be prepared for what's next." Below the banner, there is a paragraph stating: "HIMSS Analytics supports improved decision making for healthcare organizations, healthcare IT companies and consulting firms by delivering high quality data and analytical expertise." The page is divided into three columns. The left column is titled "News & Exclusives" and lists three news items from March 2014: "HIMSS Analytics Honors Stamford Hospital with Stage 7 Award", "HIMSS Analytics Honors Cedars-Sinai Health System With Stage 7 Award", and "HIMSS Analytics Honors 263 Ohio State". The middle column is titled "Gain Insight" and "Contribute", offering a library of research reports and a study to verify organization's standing. The right column is titled "Set your course, reach your goals." and features the "EMR Adoption Model" (EMRAM) tool, with a table showing options for United States, Canada, and a new United States Ambulatory EMRAM. A large button at the bottom right says "United States EMR Adoption Model SM".

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**HIMSS ANALYTICS**  
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Search  **Go**

Ascend to EMR-readiness with the most accurate intelligence in the industry.  
**Be prepared for what's next.**

**HIMSS Analytics supports improved decision making for healthcare organizations, healthcare IT companies and consulting firms by delivering high quality data and analytical expertise.**

**News & Exclusives**

**March 20, 2014**  
[HIMSS Analytics Honors Stamford Hospital with Stage 7 Award](#)

**March 13, 2014**  
[HIMSS Analytics Honors Cedars-Sinai Health System With Stage 7 Award](#)

**March 04, 2014**  
[HIMSS Analytics Honors 263 Ohio State](#)

**Gain Insight**

View featured publications or search our library of research reports to stay abreast of HIT trends and uncover opportunities.

**Contribute**

Participate in the HIMSS Analytics Annual Study to verify your organization's standing and streamline your goals toward achieving Meaningful Use.

**Set your course, reach your goals.**

The **EMR Adoption Model<sup>SM</sup>** (EMRAM) identifies and scores hospitals using an 8 step scale that charts the path to a fully paperless environment.

United States EMRAM	Canada EMRAM	<b>NEW!</b> United States Ambulatory EMRAM
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**United States EMR Adoption Model<sup>SM</sup>**



Health Care Advisory Board  
Care Transformation Center

RESEARCH BRIEFING

# Three Key Elements for Successful Population Health Management



RESEARCH AND INSIGHTS • PERFORMANCE TECHNOLOGIES • CONSULTING AND MANAGEMENT • TALENT DEVELOPMENT



» **Information-powered clinical decision-making**

- Use robust patient data sets to support proactive, comprehensive care
- Operate within an integrated data network
- Position a leader to merge data analytics with clinical care

» **Primary care-led clinical workforce**

- Elevate PCP to “CEO” of care team
- Mobilize community workforce to extend care team reach

» **Patient engagement and community integration**

- Map services to population need
- Overcome non-clinical barriers to maximize health outcomes
- Integrate patient's values into the care plan
- Use community stakeholders to connect patients with high-value resources

# Key Population Health Focus Areas



# HIMSS Analytics Maturity Models

EMRAM<sup>SM</sup> & Ambulatory EMRAM<sup>SM</sup>

Continuity of Care<sup>SM</sup>

DELTA Powered<sup>TM</sup>

# HIMSS Analytics Maturity Models support Population Health Management

- 1. EMRAM Adoption Model<sup>SM</sup>** over a decade in healthcare
  - Well established, refined and accepted
  - Foundation for EMR and core technologies
- 2. DELTA Powered<sup>TM</sup> Analytics Maturity Model** launched at HIMSS12
  - Analytics maturity industry standard model
  - DELTA Powered Suite of tools
- 3. Continuity of Care<sup>SM</sup> Model** launched at HIMSS13
  - International model
  - Aimed at bringing coordinated care and patient engagement



# HIMSS Analytics EMRAM Model<sup>SM</sup>

- HIMSS Analytics devised the EMRAM to allow the industry to track the progress of adopting applications in the EMR environment.
  - 8-stage model
- Hospitals can gain their EMRAM score by completing their study profile in the HIMSS Analytics<sup>®</sup> Database.
- For more information about the HIMSS Analytics EMRAM model, please visit:  
<http://www.himssanalytics.org/emram/index.aspx>

# US EMR Adoption Model<sup>SM</sup>

Stage	Cumulative Capabilities	Q4 2011	Q4 2013
<b>Stage 7</b>	Complete EMR, CCD transactions to share data; Data warehousing; Data continuity with ED, ambulatory, OP	1.2%	2.9%
<b>Stage 6</b>	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS	5.2%	12.5%
<b>Stage 5</b>	Closed loop medication administration	8.4%	22.0%
<b>Stage 4</b>	CPOE, Clinical Decision Support (clinical protocols)	13.2%	15.5%
<b>Stage 3</b>	Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology	44.9%	30.3%
<b>Stage 2</b>	CDR, Controlled Medical Vocabulary, CDS, may have Document Imaging; HIE capable	12.4%	7.6%
<b>Stage 1</b>	Ancillaries - Lab, Rad, Pharmacy - All Installed	5.7%	3.3%
<b>Stage 0</b>	All Three Ancillaries Not Installed	9.0%	5.8%

Data from HIMSS Analytics® Database © 2014 HIMSS Analytics

N = 5,337

N = 5,458

# HIMSS Analytics EMRAM Scores

EMR Adoption Model <sup>SM</sup> (EMRAM)				
	Average	Median	Min	Max
Entire HIMSS Analytics <sup>®</sup> Database	4.0240	4.1700	0.0000	7.0710
West North Central Region* (N=723)	3.9593	4.1910	0.0000	7.0710
Arkansas (N=87)	3.3700	3.3500	0.0000	6.0710
Iowa (N=121)	4.4978	5.0790	0.0420	7.0710
Illinois (N=199)	4.5251	5.0150	0.0000	7.0710
Kansas (N=141)	3.0513	3.4140	0.0000	6.0360
Kentucky (N=109)	3.8165	3.3670	0.0000	7.0310
Missouri (N=137)	4.3577	4.2470	0.0000	7.0630
Nebraska (N=90)	3.6405	3.5060	0.0100	7.0080
Oklahoma (N=123)	3.5005	3.5000	0.0000	6.0710
Tennessee (N=146)	3.5582	3.4140	0.0000	6.0710

HIMSS Analytics<sup>®</sup> Database Q4 2013

\*West North Central Region includes Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.

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West North Central Region* (N=723)	3.9593	4.1910	0.0000	7.0710
Kansas City Core Based Statistical Area (CBSA) (N=40)	4.0177	3.466	0.0000	7.0550
Kansas (N=141)	3.0513	3.4140	0.0000	6.0360
Missouri (N=137)	4.3577	4.2470	0.0000	7.0630

HIMSS Analytics<sup>®</sup> Database Q4 2013

\*West North Central Region includes Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota.

# HIMSS Analytics Essentials Report

C&BI

Clinical Data Warehousing/Mining

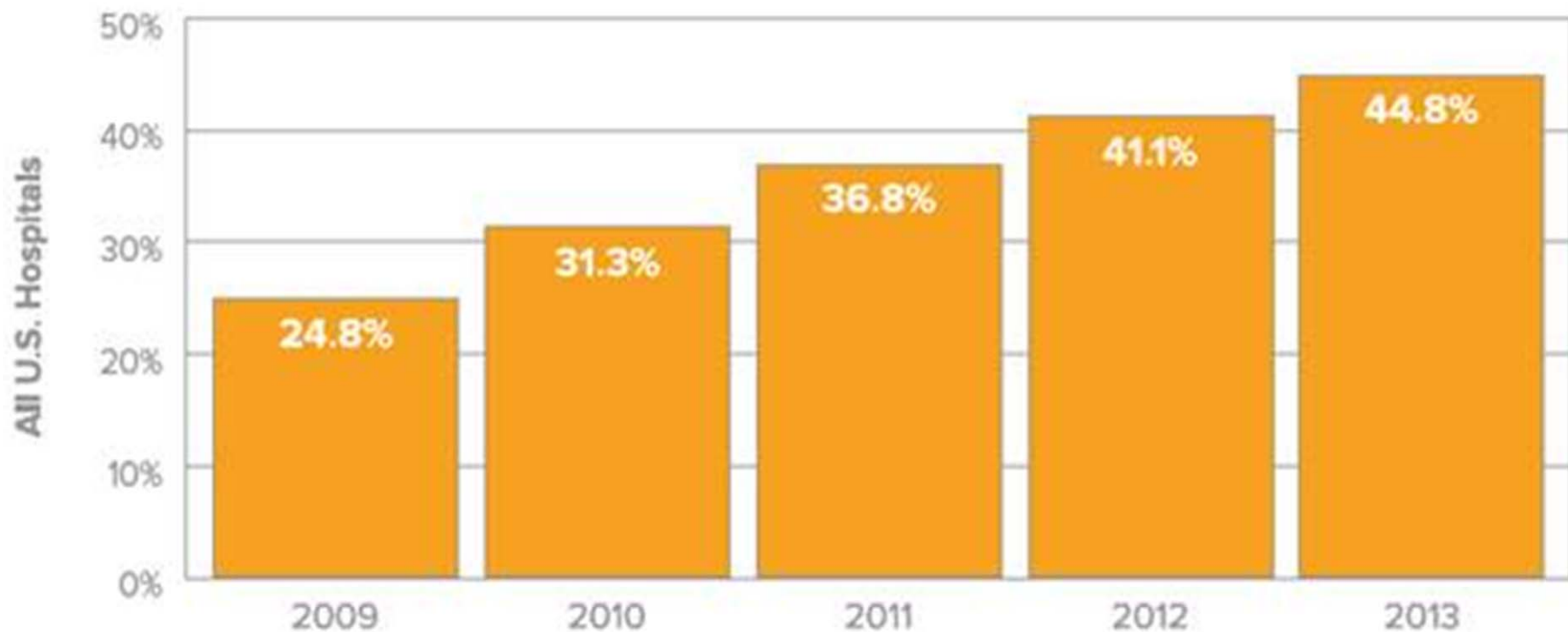
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# Collecting Clinical Data...

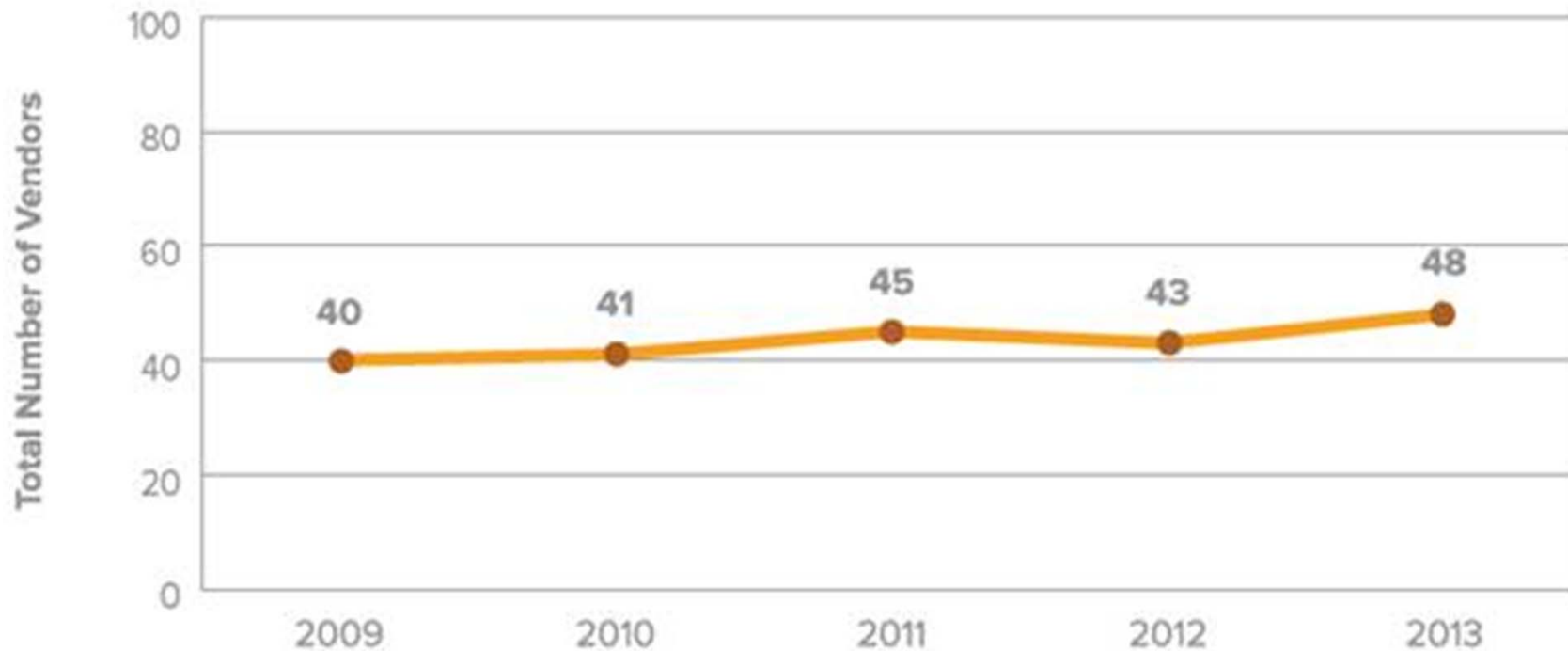
**Chart 1:** Percent of U.S. Hospitals with Clinical Data Warehousing/Mining



NOTE: Total number of hospitals in HIMSS Analytics® Database on September 30, 2013 = 5,407  
Historical data courtesy of the Dorenfest Institute

# More....

**Chart 2:** Number of Clinical Data Warehousing/Mining Vendors In the U.S. Hospital Market



Of the 48 vendors servicing the U.S. hospital market...

- Over one-third (38.3 percent) of the market is serviced by three vendors.
- Meditech has the highest market share in this market (14.7 percent)
- Over one-quarter (26.0 percent) of the market uses a vendor outside of the top six market share vendors.

# Clinical Business Intelligence Market

Table 1: Vendor Market Share by Hospital Size

Vendor	N	%	Under 26 Beds	26 – 99 Beds	100 – 199 Beds	200 – 299 Beds	300 – 399 Beds	400 – 499 Beds	500+ Beds
Total	1,529	100.0%	245	380	288	214	135	106	161
CERNER	277	18.1%	17%	14.5%	17.4%	22.9%	22.2%	19.8%	18.6%
EPIC	200	13.1%	9.0%	5.5%	18.1%	14.0%	13.3%	20.8%	21.7%
McKESSON	140	9.2%	6.9%	8.2%	6.9%	12.6%	13.3%	11.3%	9.3%
MEDITECH	100	6.5%	9.0%	5.8%	8.3%	7.9%	8.1%	1.9%	1.2%
SIEMENS	93	6.1%	3.7%	6.6%	5.9%	5.6%	8.1%	10.4%	5.0%
BUSINESS OBJECTS	80	5.2%	7.8%	3.7%	3.5%	4.2%	2.2%	3.8%	13.0%
All Others	406	26.6%	33.9%	19.2%	32.3%	26.2%	25.9%	28.3%	22.4%
Not Reported	60	3.9%	4.1%	5.5%	3.1%	2.3%	3.0%	1.9%	5.6%
SELF-DEVELOPED	173	11.3%	8.6%	31.1%	4.5%	4.2%	3.7%	1.9%	3.1%
Market Not Automated		73%	83%	74%	73%	66%	67%	57%	56%

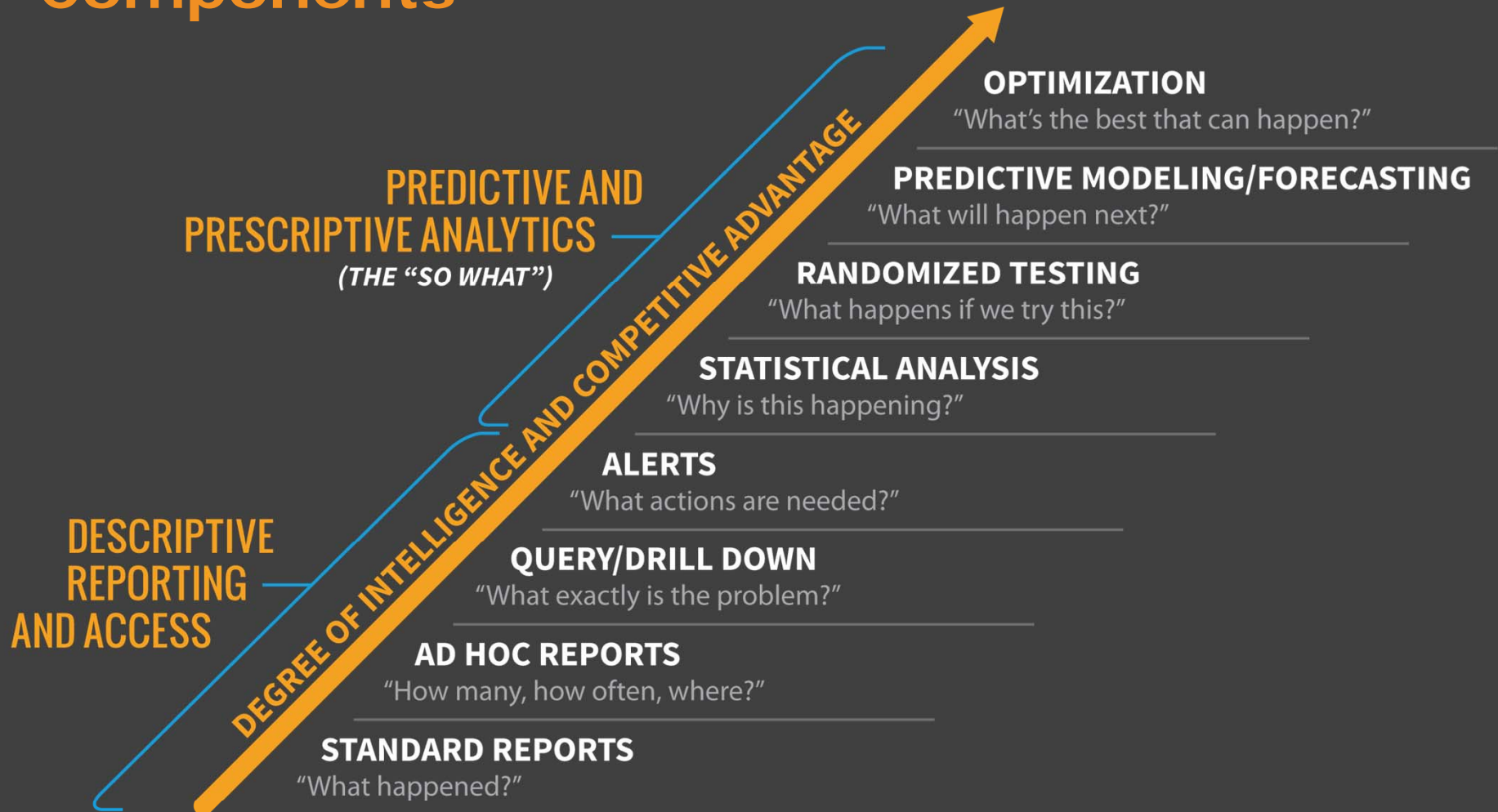


NOTE: The color gradations reflect the market share profile for each bed size grouping

## Vendor market share by hospital size reveals...

- Cerner is the market leader in the under 100 beds and 200 – 399 beds segments
- Epic emerges with the highest market share in the 100 – 199 beds and 400+ beds market
- Self-Developed applications are the third most reported solution
  - Hospitals with less than 100 beds were more likely use Self-developed applications

# Business Intelligence and Analytics Components



Adapted from *Competing on Analytics*, Davenport and Harris, 2007

# DELTA Powered™ Suite

Analytics Maturity Model

Analytics Assessment (DPAA)

Generic Maturity Roadmap

Certification and Recognition

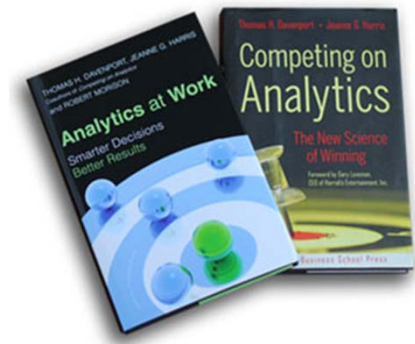


HIMSS Analytics has collaborated with The International Institute for Analytics (IIAnalytics.com) to create and administer the

## **DELTA-Powered Analytics Assessment™**

for healthcare organizations based on the DELTA model as presented in

***Analytics at Work*** and  
***Competing on Analytics***



# The International Institute for Analytics (IIA)



IIA is an independent research firm that guides organizations to better leverage the power of analytics. Working across a breadth of industries, IIA uncovers actionable insights, learned directly from our network of analytics practitioners, industry experts and faculty. We deliver critical information that helps your business run smarter.

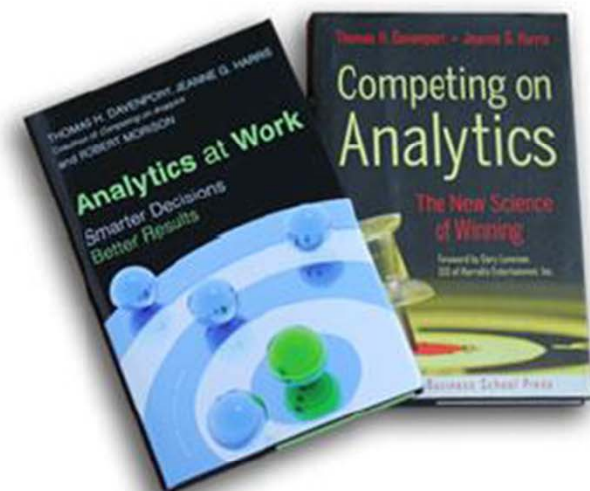
Learn more at [iianalytics.com](http://iianalytics.com)



Tom Davenport  
IIA Research Director and Co-Founder  
Author of *Competing on Analytics* and  
*Keeping up with the Quants*

# DELTA MODEL

The **DELTA-Powered Analytics Assessment™** is based on the DELTA model framework, as presented in *Analytics at Work* and *Competing on Analytics*.



The DELTA model consists of five foundational categories:

- Data** For meaningful analytics data must be clean, common, integrated and accessible
- Enterprise** Analytical competitors take an enterprise approach to managing systems, data and people
- Leadership** Analytical organizations have leaders who fully embrace analytics and lead company culture towards data driven decision-making
- Targets** Analytics efforts must be aligned with specific, strategic targets that are also aligned with corporate objectives
- Analysts** Organizations need analytical talent that covers a range of skills from employees capable of basic spreadsheets to accomplished data scientists



# DELTA Powered™ Analytics Maturity

## Key Qualifiers



**Data Enterprise Leadership Targets Analysts**

**HIMSS Analytics**

**HIMSS Analytics**

# DPAA Participating Organizations

Akron Children's Hospital

Blackstone Valley Community Health Care

Butler Health System, Inc.

Carolinas HealthCare System

Centura Health Corporation

Cleveland Clinic

Dartmouth-Hitchcock

Duke University Health System, Inc.

Intermountain Healthcare

KishHealth System

Lakeland Regional Health System

Marshfield Clinic

Northeast Georgia Health System, Inc.

Northshore University Healthsystem

Orlando Health, Inc.

Seoul National University Bundang Hospital

Southwest Kidney Institute, PLC

The Stamford Hospital

Trinity Health System

UAB Health System

UC Davis Health System

University of Missouri System

University of Pittsburgh Medical Center

University of Virginia Medical Center



# DPAA Benchmark profile

From the 22 benchmark organizations a total of 1,825 respondents have completed the survey:

Analytics Enablers: 399

Analytics Providers: 589

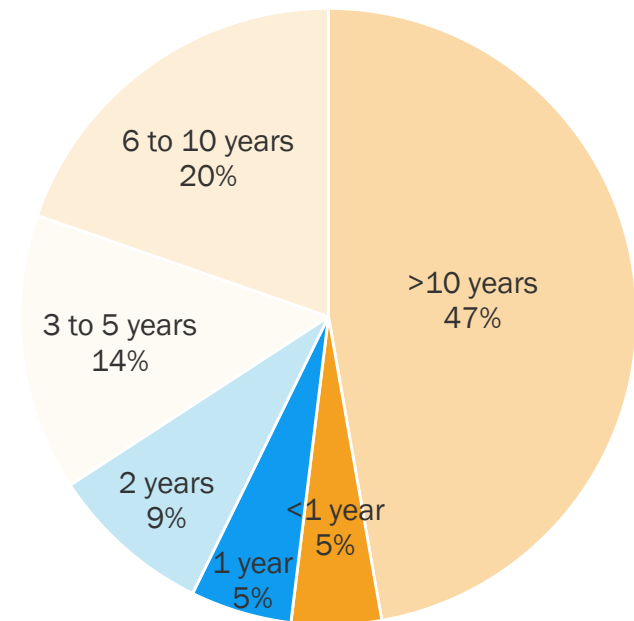
Analytics Users: 837



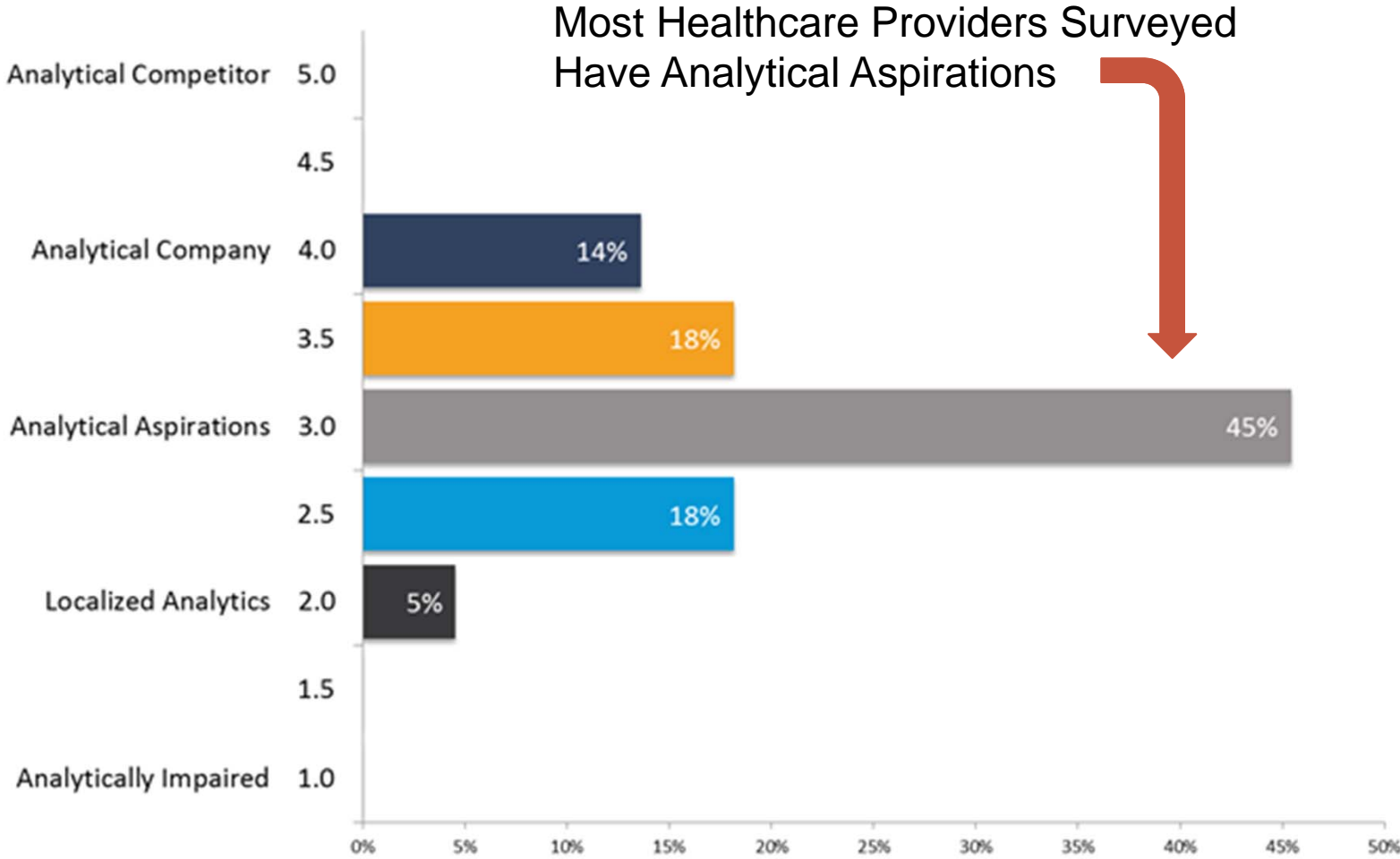
Job Title		
	N	%
President or CEO	23	1%
CXO, Sr or EVP or Board Member	120	7%
Division Head, VP or GM	183	10%
Department, Unit Manager or Director	476	26%
Manager, Administrator or Supervisor	377	21%
Non-management position	646	35%

Functional Role		
	N	%
Information Technology / Systems	23	1%
Analytics	21	1%
Corporate Administration / General Management	13	1%
Finance / Accounting / Claims	10	1%
Clinical: Outpatient Services	8	0%
Administrative / Clerical	6	0%
Quality Control / Assurance	6	0%
Clinical: Inpatient Services	6	0%
Clinical: Ancillary Services	6	0%
Research	2	0%
Other	1724	94%

## Tenure

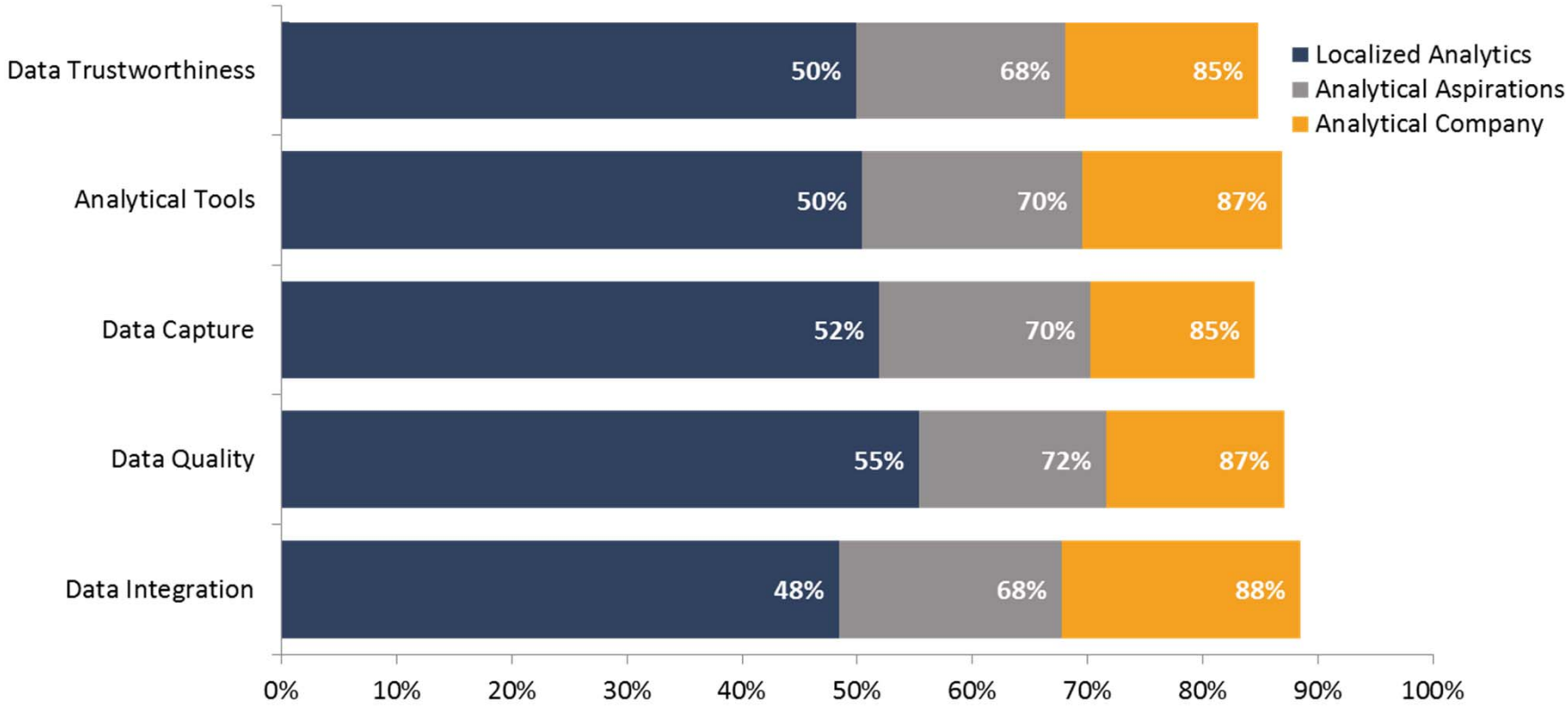


# Hospitals With High EMRAM Scores still Lag with Analytics



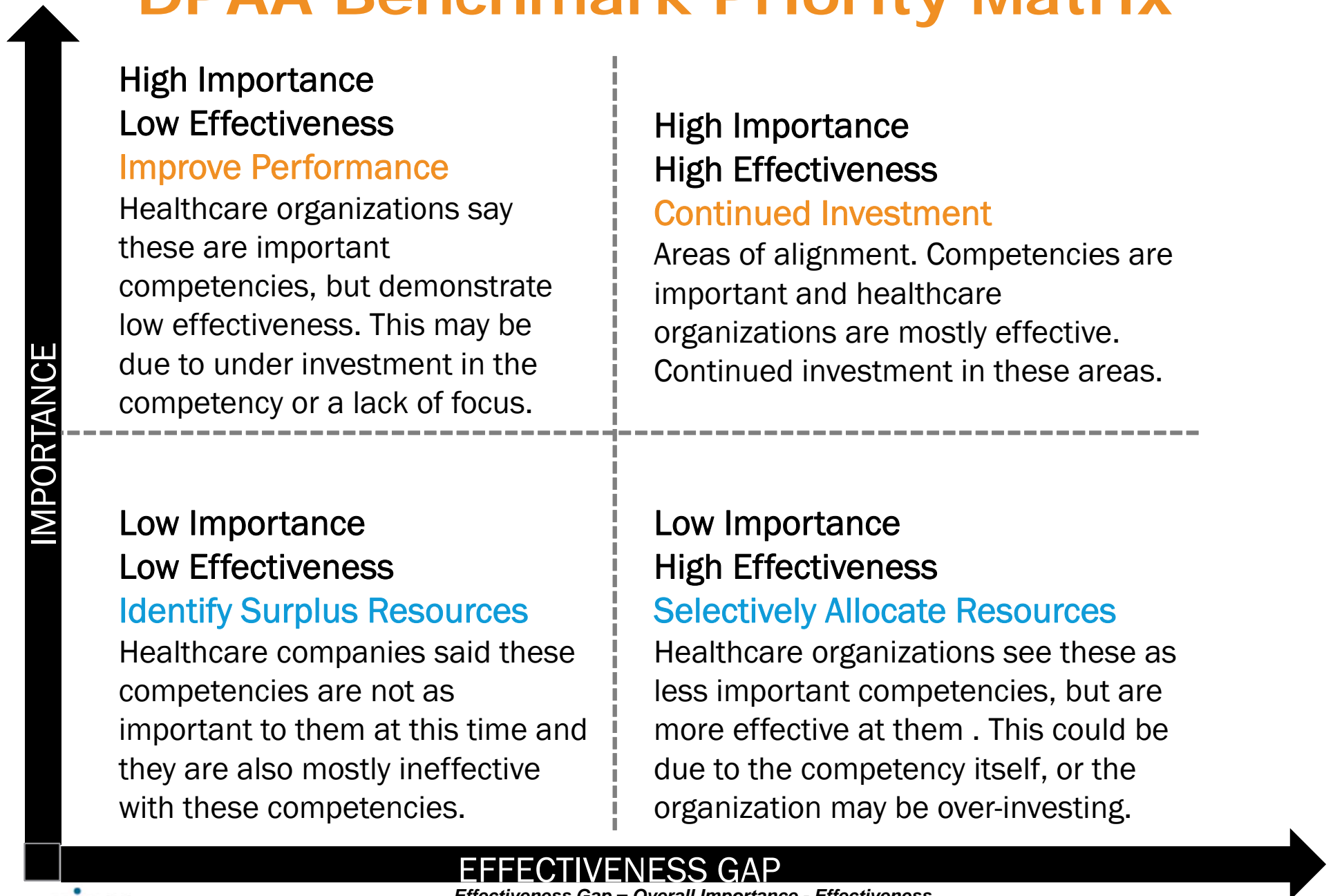
# Data Concerns Are Most Important to Hospitals

Organizations Are Not As Effective With Data As They Want To Be

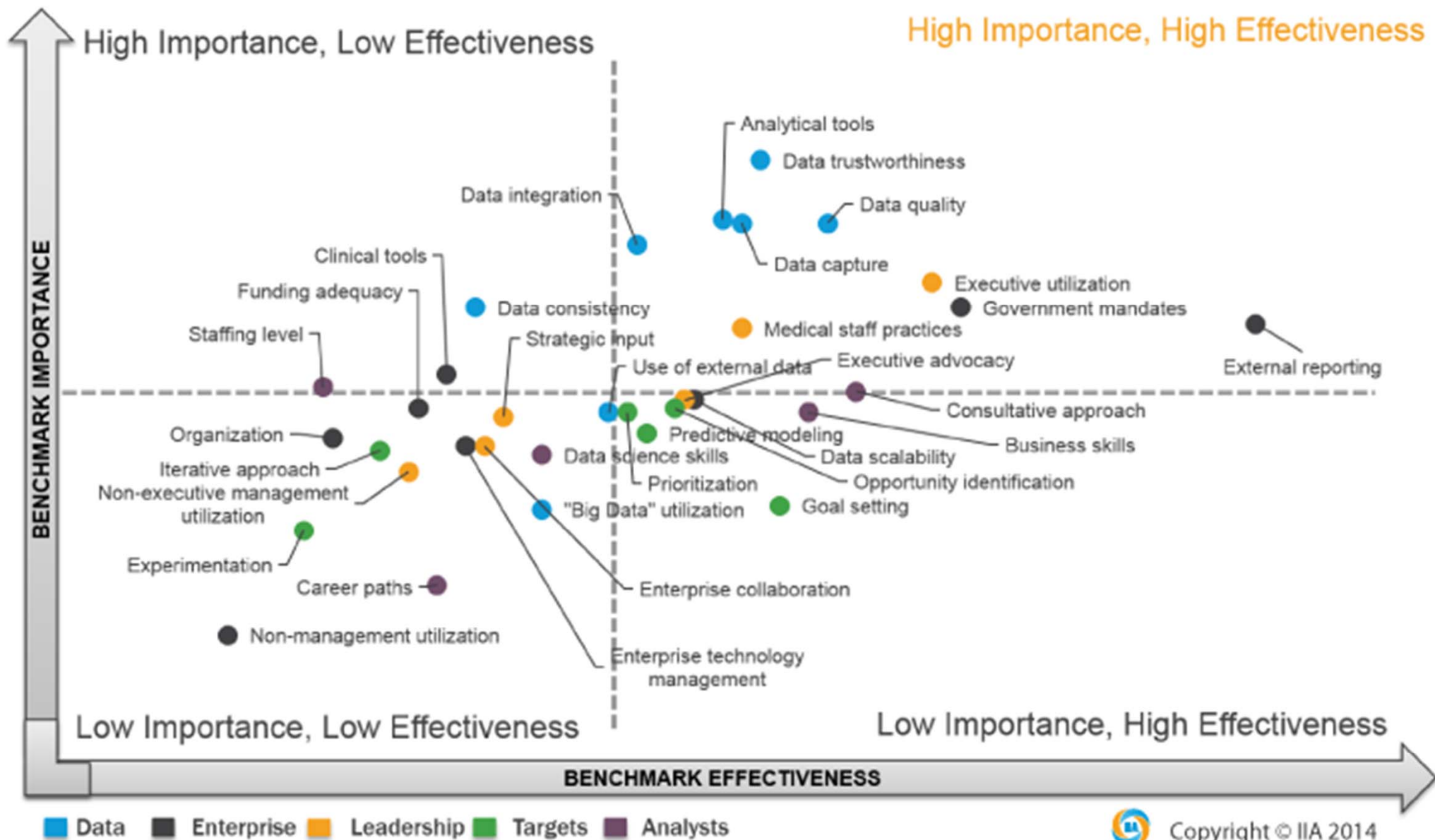


Effectiveness shown as a percentage of importance

# DPAA Benchmark Priority Matrix



# OVERALL BENCHMARK PRIORITY MATRIX







## Frequently asked Questions

HIMSS Analytics DELTA Powered™ Analytics Assessment

**Questions**  
James Gaston – [James.Gaston@HIMSSAnalytics.org](mailto:James.Gaston@HIMSSAnalytics.org)

[www.HIMSSAnalytics.org/DELTA](http://www.HIMSSAnalytics.org/DELTA)

## HIMSS Analytics' DELTA Powered™ Suite

The DELTA Powered Suite includes an Analytical Maturity Assessment, Maturity Roadmap, and HIMSS Analytics Certification to help healthcare organizations understand where they are analytically, develop and drive a strategy, and get recognition.

### Analytics Assessment

The DELTA Powered Analytics Assessment, developed in collaboration with the International Institute for Analytics (IIA), provides an industry agnostic measurement of an organization's analytical maturity across the five foundational areas of the DELTA model<sup>1</sup>: Data, Enterprise approach, Leadership, strategic Targets, and Analytical capabilities.

Participants rank the importance and effectiveness to which their organization engages in 33 core competencies. The results are segmented by user type (analytical user, provider and enabler), allowing maturity to be assessed by individual area. This method also identifies significant perception gaps and provides insight into specific growth opportunities. The survey takes approximately 15-20 minutes to complete per respondent, and the results become more informative as the number of respondents and the areas they represent increase.

### DELTA Powered™ Analytics Maturity



### Maturity Roadmap

The DELTA Powered Maturity Roadmap provides a basic maturation roadmap for healthcare organizations interested in elevating their capabilities in the five DELTA foundational areas. By linking their DELTA Powered Analytics Assessment survey results with the DELTA Powered Maturity Roadmap, healthcare organizations can plot a course towards analytical optimization. The maturity roadmap provides specific capabilities and competencies for the DELTA model's five core competency areas and maturity levels from "Level 1 Beginner" through "Level 5 Leader".

# Continuity of Care<sup>SM</sup>

Maturity Model

Certification and Recognition

# Continuity of Care Model Purpose

To provide thought leadership and guidance for the industry along its journey in breaking down silos across care providers to achieve:

- A dynamic interconnected community wide patient record supporting:
  - Coordinated patient care
  - Patient engagement
  - Advanced analytics

To complete the picture painted by existing EMRAMs that demonstrate the effective deployment and use of information technology

# Continuity of Care Model Methodology

Collaboration across HIMSS Analytics' global team

Follows existing HIMSS Analytics EMRAM<sup>SM</sup> methodology

- Consists of 8 stages (0 – 7)
- Set of required capabilities at each stage

Model includes provider and vendor feedback

- Pan-European and US review participants
- Pan-European workgroup included reviewers from NL, ES and Nordic countries comprising representatives from regional and national health authorities, strategic planning organizations, CIOs of groups or regions, industry and HIMSS consultants
- 3 rounds of external reviews combined with internal feedback resulted in development of questionnaire and algorithm
- Overall very positive reactions / feedback!

# Continuity of Care Model Categories

- Organizational strategy
- IT system capabilities
- Standards and interoperability frameworks (without designating specific standards!)
- Health information exchange
- Patient care coordination
- Patient/consumer engagement and empowerment
- Advanced analytics:
  - At the point of patient care
  - Population management
  - Evidence-based clinical practice advancement and other research efforts
  - Business / financial / operations management

# Continuity of Care Model Design

## Globally applicability

- Scoring adapted for localization, regional health authorities

## Primary Target Audience:

- Integrated Delivery Networks (IDN)
- Ministries of Health



# **HIMSS** Analytics<sup>®</sup> Continuity of Care Maturity Model

<b>STAGE 7</b>	Knowledge Driven Engagement for a Dynamic, Multi-vendor, Multi-organizational Interconnected Healthcare Delivery Model
<b>STAGE 6</b>	Closed Loop Care Coordination Across Care Team Members
<b>STAGE 5</b>	Community Wide Patient Record using Applied Information with Patient Engagement Focus
<b>STAGE 4</b>	Care Coordination based on Actionable Data using a Semantic Interoperable Patient Record
<b>STAGE 3</b>	Normalized Patient Record using Structural Interoperability
<b>STAGE 2</b>	Patient Centered Clinical Data using Basic System-to-System Exchange
<b>STAGE 1</b>	Basic Peer-to-Peer Data Exchange
<b>STAGE 0</b>	Limited to No E-communication

# Continuity of Care

## Stage 1

Basic peer-to-peer data exchange

- Primarily ***peer to peer exchange***, including basic push, pull, secure messaging and view only portals
- Limited care coordination data exchange
- Patient engagement limited to electronic communications such as secure messaging
- ***Clinical and financial analytics functions restricted to silo source systems within the organization***
- DELTA Level 2
- HIMSS Interoperability Definition “Foundational”

# Continuity of Care

## Stage 4

Care Coordination based on Actionable Data using Semantic Interoperable Patient Record

- ***Bi-directional dynamic exchange*** with ***semantic translation*** into ***actionable standardized data*** (i.e. Semantic Interoperability)
- Dynamic, event-based, system-driven interactions (e.g. order sets, notifications, alerts, reminders) across the participating care team
- Patient enabled to ***incorporate patient sourced data*** and to refill prescriptions online
- ***Analytics start driving provider actions*** for both, clinical and financial benefit realization (predictive alerts)

# Continuity of Care

## Stage 7

Knowledge Driven Engagement for a Dynamic, Multi-vendor, Multi-organizational Interconnected Healthcare Delivery Model

- ***Fully flexible dynamic interconnected multi-vendor/organization community patient record across the patient care and health continuum***
- Completely coordinated care including health maintenance, prevention and wellness information
- ***Patient control of PHR information*** for assurance of completeness and accuracy
- ***Dynamic analytics capabilities at the point of care and for business/financial operations, population health management, bio surveillance and advancement of evidence based clinical practice***

# Conclusion

Maturity models give healthcare organizations a framework to

- Understand their current capabilities, standing
- Imagine what is possible
- Roadmap for improvement

HIMSS Analytics offers free access to a coordinated and complimentary set of maturity models for the betterment of healthcare

- EMRAM<sup>SM</sup>
- DELTA Powered<sup>TM</sup>
- TRMAM<sup>SM</sup> - Total revenue Management Adoption Model
- Continuity of Care<sup>SM</sup>



## Comments?

**James E. Gaston**

Sr. Director Clinical & Business Intelligence  
HIMSS Analytics

[James.Gaston@HIMSSAnalytics.org](mailto:James.Gaston@HIMSSAnalytics.org)

312-533-0585

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