Adoption Model for Analytics Maturity: An Overview

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Adoption Model for Analytics Maturity

A Recipe for Analytics Maturity
Enabling better health through information & technology.
We drive the health IT market in the direction it needs to go

- **EMRAM** MS: EMR Adoption Model
- **O-EMRAM** MS: Outpatient EMR Adoption Model
- **AMAM** MS: Analytics Maturity Adoption Model
- **CCMM** MS: Continuity of Care Maturity Model
- **DIAM** MS: Digital Imaging Adoption Model

**Improved Patient Care and Health IT Insights**
Basic Concept #1: Analytics Value Curve

More

Value & Difficulty

Less

Standard Reports
“What happened?”

Descriptive Analytics
“What exactly is the problem?”

Diagnostic Analytics
“What action is needed?”

Predictive Analytics
“Predictive Modeling/Forecasting
“What will happen next?”

Randomized Testing
“What happens if we try this?”

Prescriptive Analytics
“Can we make “X” happen?”

Alerts
“Prescription
“What action is needed?”

Query/Drill Down
“How many, how often, where?”

Ad Hoc Reports
“Optimization
“What’s the best that can happen?”

Randomized Testing
“What happens if we try this?”

Foresight

Hindsight
AMAM Model Overview

- Capability oriented approach (not technology oriented)
- Healthcare industry specific, internationally applicable
- Leverages an 8 stage maturity model, like EMR Adoption
  - Prescriptive
  - Each stage has specific compliance goals
  - Bullet point description of compliance requirements
  - Clearly defined requirements
  - Standard terminology
- Simple assessment outlines a clear path to analytics maturity
4 Key Focus Areas

- **Data Content growth**
  - Basic data to advanced data
  - Aligned with clinical, financial, and operational analytics activities

- **Analytics competency growth**
  - Start simple and work to master specific competencies
  - Enhance performance tracking / clinical decision support
  - Appropriate analytics maturation for individual parts of the organization

- **Infrastructure growth**
  - Flexible approaches to accommodate a wide variety of situations
  - Vendor neutral
  - Timely data, centrally accessible

- **Data Governance growth**
  - Quality data and resource management
  - Executive suite and strategic alignment
<table>
<thead>
<tr>
<th>Stage 7</th>
<th>Mass Customization of Care and Strong Strategic Alignment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Broad and deep data resources beyond traditional EMR</td>
</tr>
<tr>
<td></td>
<td>• Patient specific prescriptive care supporting personalized medicine</td>
</tr>
<tr>
<td></td>
<td>• Symbiotic coupling of strategy and supporting analytics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 6</th>
<th>Advance Clinical, Operational, and Financial Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Building on analytics insights</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 5</th>
<th>Build Descriptive Analytics Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Analytics foundation building</td>
</tr>
<tr>
<td></td>
<td>• Strong, reliable, consistent descriptive reporting capabilities</td>
</tr>
<tr>
<td></td>
<td>• Data governance for clinical, business, and operational insights</td>
</tr>
<tr>
<td></td>
<td>• Standardized analytics techniques, coordinated talent dev.</td>
</tr>
<tr>
<td></td>
<td>• Trustworthy pool of well rounded data</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 4</th>
<th>Extend Advanced Clinical, Operational, and Financial Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Leveraging predictive analytics effectively</td>
</tr>
<tr>
<td></td>
<td>• Collectively addressing the economics of care</td>
</tr>
<tr>
<td></td>
<td>• Driving improved outcomes and coupled financial performance</td>
</tr>
<tr>
<td></td>
<td>• Maximizing quality of care for patients and populations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 3</th>
<th>Build Descriptive Analytics Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Analytics foundation building</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 2</th>
<th>Extend Advanced Clinical, Operational, and Financial Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Data governance for clinical, business, and operational insights</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Build Descriptive Analytics Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Standardized analytics techniques, coordinated talent dev.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage 0</th>
<th>Build Descriptive Analytics Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Trustworthy pool of well rounded data</td>
</tr>
</tbody>
</table>

- Limited infrastructure and skills
- No coordinated efforts to manage data
- Focus on intuition and experience based decision making
AMAM Data Content

Stage 7 • 7x24 biometrics, behavioral health outcomes data
Stage 6 • Social determinants of health, patient reported outcomes data
Stage 5 • Bedside devices, monitoring, home care, and pharmacy data
Stage 4 • Data marts, expanded payment data, holistic view of patient
Stage 3 • Wide reaching clinical, financial, operational data with some external content
Stage 2 • Payment data, historical data
Stage 1 • EHR, revenue cycle, GL, supply chain, patient experience data
# AMAM Infrastructure

**Stage 7** • Updates from system of record in < 24 hours

**Stage 6** • Updates from system of record in < 1 week

**Stage 5** • Updates from system of record in < 2 weeks

**Stage 4** • Widely accessible analytics driven dashboards track KPI’s

**Stage 3** • Broadly accessed reporting solution, database schema in place

**Stage 2** • Centralized formal repository, enterprise-wide ad-hoc & reporting

**Stage 1** • Historical data, metadata, centralized operational data store
AMAM Data Governance

Stage 7 • Tightly aligned with org. strategic, financial, and clinical leadership
Stage 6 • Accountable for managing the economics of care (cost & quality)
Stage 5 • Supporting org. wide quality-based performance measurements
Stage 4 • Widely accessible analytics driven dashboards track KPI’s
Stage 3 • Standard terminologies, external data release policy & process
Stage 2 • Patient registry evolution, Master Data Management, data literacy
Stage 1 • Analytics strategy with executive support, regular meetings
Analytics Competency

Stage 7  • Prescriptive analytics, mass customization of care, wellness management
Stage 6  • Analytic motive addresses high volume diagnosis-based cohorts
Stage 5  • Pop health, sig. enabled at point of care, precision registries
Stage 4  • Focused on best practices, minimizing waste, & reducing variability
Stage 3  • Consistent, efficient rpt. production supporting ops. & management
Stage 2  • Analytics competency center, registry portfolio buildout
Stage 1  • Education, skills of analytics resources are profiled and inventoried
AMAM Methodology

• Compliance statements for each stage in each key focus category
  – Begin at Stage 0, highest Stage 7
  – Compliance measured using a Likert Scale

  - Not Enabled
  - Minimally Enabled
  - Somewhat Enabled
  - Mostly Enabled
  - Fully Enabled

#20 The data warehouse supports enterprise wide ad-hoc query capability
#28 An analytics competency center is used to standardize methodology

• Overall and stage level achievement presented as a percentage
  – Color and % conveys overall progress against requirements
  – Identifies areas of strength as well as opportunity

• Achieving a stage requires 70% or > stage compliance
  – On that stage and all previous stages
  – Your “Stage” standing is the highest stage achieved
  – Accommodates different approaches in priorities, resources types, and execution
AMAM Score

Example organization...

<table>
<thead>
<tr>
<th>Stage Achievement</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Compliance</td>
<td>56%</td>
</tr>
</tbody>
</table>

Highest Stage achieved
% compliance against entire AMAM

Stage 7  5%
Stage 6  23%
Stage 5  25%
Stage 4  85%
Stage 3  60%
Stage 2  94%
Stage 1  85%

% compliance by Stage
70% or > to achieve

Achieved
Achieved
**AMAM Assessment Findings**

Example organization…

<table>
<thead>
<tr>
<th>Focus Area Stage Achievement</th>
<th>Data Content</th>
<th>Infrastructure</th>
<th>Data Governance</th>
<th>Analytics Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>48%</td>
<td>71%</td>
<td>88%</td>
<td>39%</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stage</th>
<th>Data Content</th>
<th>Infrastructure</th>
<th>Data Governance</th>
<th>Analytics Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>0.0%</td>
<td>25.0%</td>
<td>25.0%</td>
<td>0.0%</td>
</tr>
<tr>
<td>6</td>
<td>21.2%</td>
<td>25.0%</td>
<td>50.0%</td>
<td>20.6%</td>
</tr>
<tr>
<td>5</td>
<td>16.4%</td>
<td>25.0%</td>
<td>75.0%</td>
<td>21.9%</td>
</tr>
<tr>
<td>4</td>
<td>77.4%</td>
<td>64.0%</td>
<td>94.1%</td>
<td>95.1%</td>
</tr>
<tr>
<td>3</td>
<td>45.1%</td>
<td>75.0%</td>
<td>86.6%</td>
<td>52.2%</td>
</tr>
<tr>
<td>2</td>
<td>100.0%</td>
<td>91.1%</td>
<td>100.0%</td>
<td>83.7%</td>
</tr>
<tr>
<td>1</td>
<td>72.8%</td>
<td>94.3%</td>
<td>100.0%</td>
<td>75.0%</td>
</tr>
</tbody>
</table>
AMAM Findings Report Offerings

- AMAM Purpose, description, methodology
- Glossary
- Contact information
- Baseline Report
  - Overall AMAM scoring matrix with Stage achieved
  - 7 page educational report
- Gap Assessment Report
  - Baseline content
  - 4 focus area scoring matrix by Stage
  - 4 focus area opportunities for achievement advancement

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## AMAM Assessment Findings
### Infrastructure Achievement

**Opportunities**

Opportunities identified by **green** highlighting are those that represent the next logical step on the analytics journey.

Opportunities highlighted in **red** represent areas to strengthen the analytics foundation.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Compliance Statement</th>
<th>Compliance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Primary data sources are updated less than 24 hours from when there are system of record change</td>
<td>Minimally Enabled</td>
</tr>
<tr>
<td>6</td>
<td>Primary data sources are updated less than 1 week from when there are system of record changes</td>
<td>Minimally Enabled</td>
</tr>
<tr>
<td>5</td>
<td>Primary data sources are updated less than 2 weeks from when there are system of record change</td>
<td>Minimally Enabled</td>
</tr>
<tr>
<td>4</td>
<td>Primary data sources are updated less than 3 weeks from when there are system of record changes</td>
<td>Somewhat Enabled</td>
</tr>
<tr>
<td>4</td>
<td>Widely accessible analytics driven dashboards are regularly monitored in order to track high volume and high risk clinical activities, patient cohorts, and critical organizational processes</td>
<td>Mostly Enabled</td>
</tr>
<tr>
<td>3</td>
<td>The data warehouse has a wide reaching database schema inclusive of clinical, financial, operational data</td>
<td>Mostly Enabled</td>
</tr>
<tr>
<td>3</td>
<td>There is a data warehouse driven reporting solution that allows organization staff from the front lines to the executive suite have a responsive electronic and dynamic method for accessing current and historical key performance indicators (KPIs)</td>
<td>Mostly Enabled</td>
</tr>
</tbody>
</table>
Model Identified Opportunities

**Data:** Expand data to include third party healthcare partners, diversity beyond clinical

**Infrastructure:** Timeliness of data, searchable metadata repository

**Governance:** Formalize data governance program and mandate

**Competency:** Expand use of patient registries

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Model Identified Opportunities

Data: Expand data to include third party data, HIE integration
Infrastructure: Dashboards in place to track high volume and high risk cohorts
Governance: Standardize data release policy & procedure across all areas
Competency: Descriptive analytics reporting focus; Leverage analytics against registries
Very large University based program in major city with significant analytics history, silo’ed efforts across organization undermine governance and data consolidation

### Baseline

<table>
<thead>
<tr>
<th>Stage</th>
<th>Achievement</th>
<th>Overall Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 7</td>
<td>12%</td>
<td>63%</td>
</tr>
<tr>
<td>Stage 6</td>
<td>52%</td>
<td>64%</td>
</tr>
<tr>
<td>Stage 5</td>
<td>69%</td>
<td>69%</td>
</tr>
<tr>
<td>Stage 4</td>
<td>69%</td>
<td>69%</td>
</tr>
<tr>
<td>Stage 3</td>
<td>87%</td>
<td>87%</td>
</tr>
<tr>
<td>Stage 2</td>
<td>73%</td>
<td>73%</td>
</tr>
<tr>
<td>Stage 1</td>
<td>73%</td>
<td>73%</td>
</tr>
</tbody>
</table>

### Assessment

Focus Area Stage Achievement

<table>
<thead>
<tr>
<th>Stage</th>
<th>Data Content</th>
<th>Infrastructure</th>
<th>Governance</th>
<th>Analytics Competency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 7</td>
<td>19%</td>
<td>0%</td>
<td>50%</td>
<td>0%</td>
</tr>
<tr>
<td>Stage 6</td>
<td>24%</td>
<td>100%</td>
<td>0%</td>
<td>75%</td>
</tr>
<tr>
<td>Stage 5</td>
<td>31%</td>
<td>100%</td>
<td>100%</td>
<td>69%</td>
</tr>
<tr>
<td>Stage 4</td>
<td>83%</td>
<td>86%</td>
<td>19%</td>
<td>90%</td>
</tr>
<tr>
<td>Stage 3</td>
<td>54%</td>
<td>100%</td>
<td>78%</td>
<td>69%</td>
</tr>
<tr>
<td>Stage 2</td>
<td>100%</td>
<td>92%</td>
<td>88%</td>
<td>66%</td>
</tr>
<tr>
<td>Stage 1</td>
<td>90%</td>
<td>82%</td>
<td>37%</td>
<td>50%</td>
</tr>
</tbody>
</table>

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**Model Identified Opportunities**

**Data:** Expand data to include clinical basics, revenue cycle, patient experience

**Infrastructure:** Centralize more than a year of data into a merged data

**Governance:** Formalize analytics strategy

**Competency:** Inventory skills and education

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AMAM Offerings

• Formal on-site analytics program review*
• On-site Analytics Education & Insights*
• Analytics Strategy Discussion*
  
  *Personalized for your organization

• Stage 6 Validation on-site
  • Recommendations for achievement advancement
  • Gap closure strategy discussion

• Stage 7 Validation on-site
  • Immediate notification of review results and achievement

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Adoption Model for Analytics Maturity

Key Features

• Healthcare specific
• Vendor neutral
• Capability oriented (not technology oriented)
• Prescriptive, clear, and informative
  – Simply stated compliance requirements
  – Industry standard terminology and detailed references

Benefits

• An Analytics Strategy initiator
• Identifies key opportunities
• Roadmap for progressing to an appropriate level
• Drives organizational strategic and tactical alignment

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Interested in Learning More?

Contact us: info@himssanalytics.org