

# 2018 Health Care IT Top Ten

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Beyond Meaningful Use and Operational Excellence

# Health Care IT Advisor

## Executive Director

Jim Adams  
adamsj@advisory.com

## Research Team

Jim Adams  
Ye Hoffman  
Ernie Hood  
Peter Kilbridge, MD  
Greg Kuhnen  
Naomi Levinthal  
Anantachai (Tony) Panjamapirom  
Sophie Ranen  
Andrew Rebhan  
Doug Thompson  
Allyson Vicars

## Practice Manager

Naomi Levinthal

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## Foreword

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Welcome to the 2018 Health Care IT Top Ten list from the Health Care IT Advisor research team. With this document, we identify the major IT-related issues facing health care leaders today, provide guidance on actions to take now to help address these issues, and briefly describe our 2018 research agenda.

Despite the political uncertainty in Washington, the GOP's health policy agenda has crystallized around the overarching goals of reducing federal health care spending and injecting more free-market principles into the health care economy through legislation or rulemaking. Providers should expect continued pressure on margins, more state-based reforms, and more responsibilities shifted to individuals—in addition to ongoing health care industry and organizational transformation and disruption, driven by the need for improvements in cost, quality, access, and patient / provider satisfaction.

Forward-thinking organizations continue to expand IT-related efforts beyond MU and operational excellence. IT-related initiatives focus not only on cost reduction and organizational strategy enablement, but also on digital business and clinical innovation to streamline customer journeys, improve clinical care, and create new, more affordable business models and product offerings.

For 2018, many IT-related priorities remain the same—for example, the continuing focus on telemedicine, analytics, application optimization, quality reporting, cybersecurity, consumerism, and population health.

But much is changing, also. To fulfill IT's expanding roles of strategy enablement and digital transformation, providers must also utilize exponential or disruptive technologies such as cloud computing, machine learning, and the Internet of Things (IoT) to reimagine key customer journeys and the associated internal processes required to digitize those journeys. In addition, we must fully leverage approaches such as Agile development utilizing Lean principles.

Prevalent themes across many of our 2018 Top Ten issues include the use of expanded data sources combined with advanced analytics approaches to generate new insights and potential actions—of course, accompanied by the need to appropriately address security concerns.

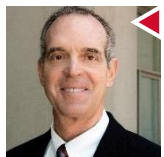
Our 2018 Health Care IT Top Ten issues, which were developed in conjunction with our members, are all important and are not in priority order. Certainly, no list of just ten issues could cover the breadth and depth of the IT-related challenges faced by today's CIOs and health care organizations. We look forward to working with you to help address these items—and those that are important but didn't make this list—throughout 2018.



Jim Adams  
Executive Director

# IT Leadership at the Advisory Board

## World-Class Thought Leadership and Support for IT Leaders



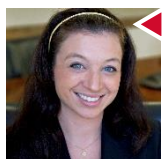
**Jim Adams**  
*Executive Director*

- Leads the Advisory Board's health care IT research
- More than 30 years of IT experience, including 20+ in health care
- Previously, Executive Director of IBM Center for Health Care Management, focused on global health care thought leadership
- Formerly held executive positions at Healthlink, Gartner, and two integrated health systems



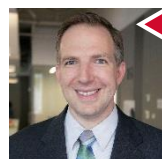
**Peter Kilbridge, MD**  
*Senior Research Director*

- Nationally-recognized expert in the use of IT to improve patient safety
- 25 years of experience as a physician executive and informatics researcher
- Most recently served as CMIO at NYU Medical Center
- Prior IT leadership roles at St. Louis Children's & Duke University Health System



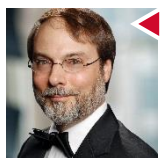
**Naomi Levinthal**  
*Practice Manager*

- Specializes in medical informatics, health IT policy, and telemedicine
- Previously, Certification Manager for the Certification Commission for Health Information Technology



**Greg Kuhnen**  
*Senior Research Director*

- Former CTO of Care Team Connect, Chief Architect for Optum HIE, formerly Axolotl, and several engineering leadership roles for Truven.
- 15+ years in designing, building, and deploying health care IT systems for leading provider organizations across the country.
- Areas of expertise include interoperability, HIEs, BI, Cloud Computing, and IT Infrastructure.



**Ernie Hood**  
*Senior Research Director*

- Former VP and CIO at Group Health Cooperative
- 20+ years of IT and health care experience
- Successful deployment of EHRs, Patient Portals, CRM, and BI tools
- Former HIMSS Washington Board Member and Chapter President



**Doug Thompson**  
*Senior Research Director*

- Internationally recognized expert in translating health care IT into operational and outcome improvements for hospitals and other providers
- Has consulted on EMR benefits realization with over 300 leading hospitals, including several Davies Award winners
- Has consulted with numerous vendor clients, including Microsoft, Cardinal Health, McKesson, and GE Health Care

# IT Leadership at the Advisory Board

## World-Class Thought Leadership and Support for IT Leaders



**Anantachai (Tony) Panjamapirom, PhD**  
*Senior Consultant*

- A subject matter expert in the EHR Incentive Programs (i.e., Meaningful Use)
- Expert in Medicare quality reporting programs (e.g., Inpatient Quality Reporting and Physician Quality Reporting System), and their alignment opportunity and strategy
- Research on IT implications in accountable care environment



**Allyson Vicars**  
*Consultant*

- Areas of focus include cybersecurity, telemedicine, consumerism, mobility and the IoT, and innovation
- Previously worked at Novant Health as an analyst supporting commercial managed care reimbursement contracting, strategic planning, and strategic pricing initiatives
- MBA in Healthcare Administration from The University of North Carolina, Charlotte, Belk College of Business



**Ye Hoffman**  
*Consultant*

- Specializes in medical informatics and IT project management
- Experience as an IT Project Manager and Business Data Analyst at the Fred Hutchinson Cancer Research Center
- Areas of expertise include Meaningful Use, project management, clinical trials



**Andrew Rebhan**  
*Senior Analyst*

- Areas of expertise include artificial intelligence, consumer medical IT, and other emerging technologies
- Previously worked as an analyst for IHS Markit and IBISWorld covering medical technology and indirect procurement research
- MBA from California State University, Long Beach



**Sophie Ranen**  
*Analyst*

- Supports research across health IT subject areas including population health management, information security, mobility and the IoT, and consumerism
- Prior experience evaluating health policy implications for Medicaid managed care at AmeriHealth Caritas

# Beyond Meaningful Use and Operational Excellence



## **Quality Reporting:** Regulatory Forces Drive the “Quality” of Electronic Data

Our research will focus on quality reporting regulatory updates, provider engagement in documentation and quality performance improvement, and successful practices of HCOs<sup>1</sup> that have operationalized strong data quality initiatives as part of their organizational strategy.



## **EHR Optimization and Value Realization:** The Long View

Our research will focus on case studies of how to organize, staff, and manage a successful EHR enhancement and optimization effort.



## **Analytics and Artificial Intelligence:** The Age of Intelligent Machines

Our research will focus on the rapidly advancing application of machine learning and incorporation of novel data sources to improve financial, clinical, and patient satisfaction outcomes.



## **Mobility and IoT<sup>2</sup>:** Capture Value from Increasingly Connected Patients and Providers

Our research will focus on measuring the benefits of mobile investments, the evolving relationship between enterprise platforms and best-of-breed mobile solutions, and strategies to secure both new mobile technologies and existing biomedical devices.



## **Population Health Management (PHM):** New Opportunities and Challenges

Our research will focus on new types of analytics in population health management.



## **Consumer-Focused Health Care:** Giving Consumers What They Really Want

Our research will focus on analyses of how to deliver several IT-enabled capabilities, including cost accounting, simplified billing and payment, and more.



## **Telemedicine:** An Evolving Landscape

Our research will focus on telemedicine support for new, integrated models of care delivery.



## **Digital Health Systems:** Foundation for Transformation and Innovation

Our research will continue to explore the foundational role that digital health systems (DHSs) play in health care transformation, digital disruption, and innovation. We will also continue to refine our DHS maturity model and give examples of successful practices for key dimensions of that model.



## **Precise, Personalized Medicine:** A New Precision in Clinical Decision Making

Our research will focus on use of person-generated health data (PGHD), social determinants of health (SDH), and genomics for patient care.



## **Information Security:** Build Toward a More Advanced, Adaptive Security Posture

Our research will focus on moving toward an advanced security posture. We will provide reports, tools, and case studies that address common challenges related to third-party risk management, medical devices, the IoT, and other critical security capabilities.

1) HCO = Health care organization.  
2) IoT = Internet of things.

Source: Health Care IT Advisor research and analysis.

# Quality Reporting: Regulatory Forces Drive the “Quality” of Electronic Data

CMS<sup>1</sup> intends to conduct validation for electronic clinical quality measure (eCQM) data reported by HCOs across multiple quality reporting programs. The goal of validation is to ensure data accuracy as CMS plans to tie eCQM performance to Medicare reimbursements per their shift toward value-based payment structures.

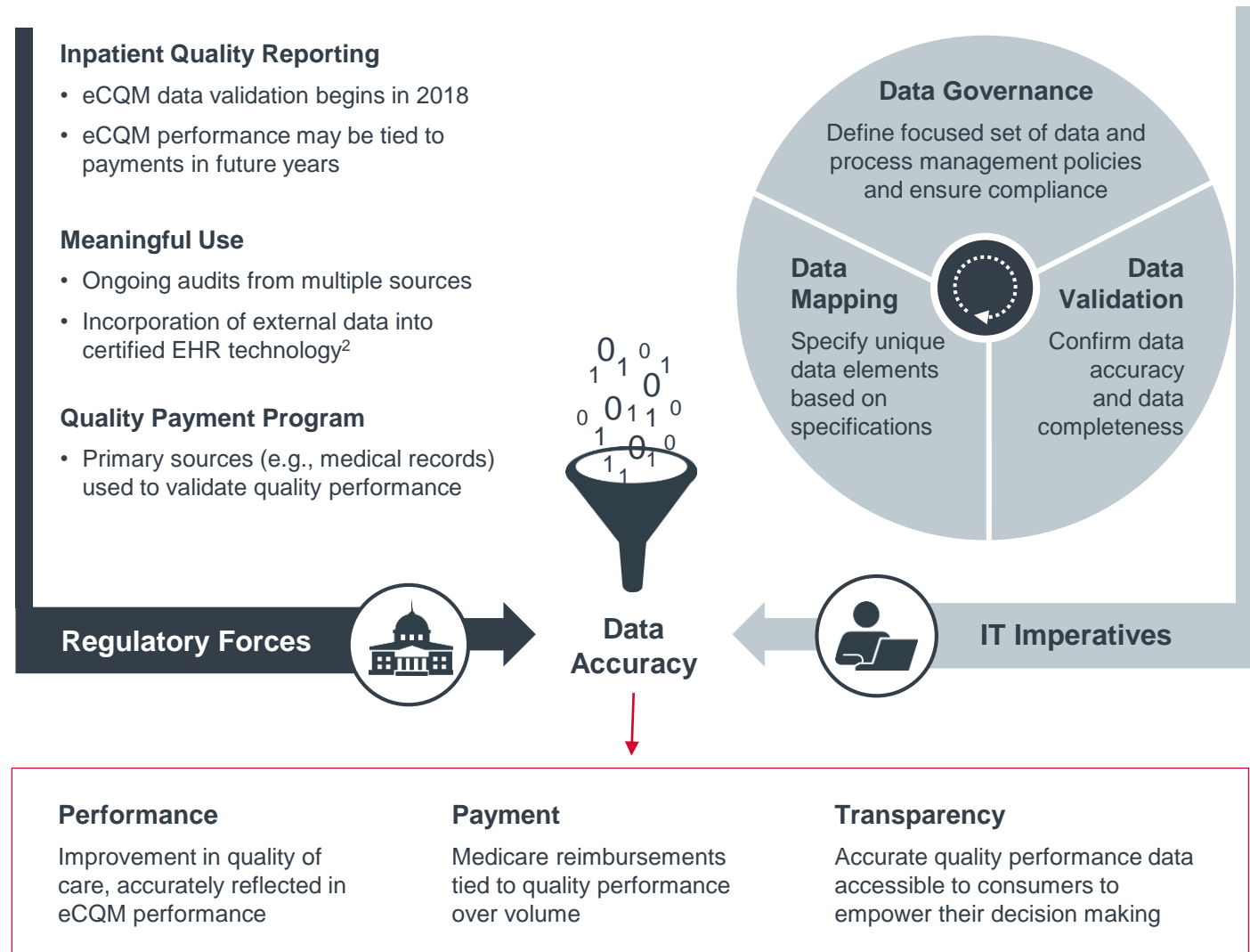
To ensure compliance and optimize performance in CMS quality reporting programs, HCOs should “double down” on their ongoing efforts to improve the “quality” of their quality data.

**Action Items:**

- Instill the importance of quality data among relevant stakeholders.
- Leverage IT and informatics skillsets to map and validate quality data.
- Allocate sufficient resources to support ongoing quality data improvement efforts.

In 2018, our research will focus on quality reporting regulatory updates, provider engagement in documentation and quality performance improvement, and successful practices of HCOs that have operationalized strong data quality initiatives as part of their organizational strategy.

## Data Accuracy Critical to Compliance and Performance Improvement



1) CMS = Centers for Medicare & Medicaid Services.  
 2) Stage 3 requires bidirectional immunization data exchange, patient-generated data, and request/accept summary of care record.

Sources: Health Care IT Advisor research and analysis



# EHR Optimization and Value Realization: The Long View

EHR “go live” is just the beginning of an extended period requiring changes in the EHR’s configuration and use to maximize benefits and align them with organizational priorities. These changes occur in two distinct phases which we refer to as “enhancement” and “optimization.”

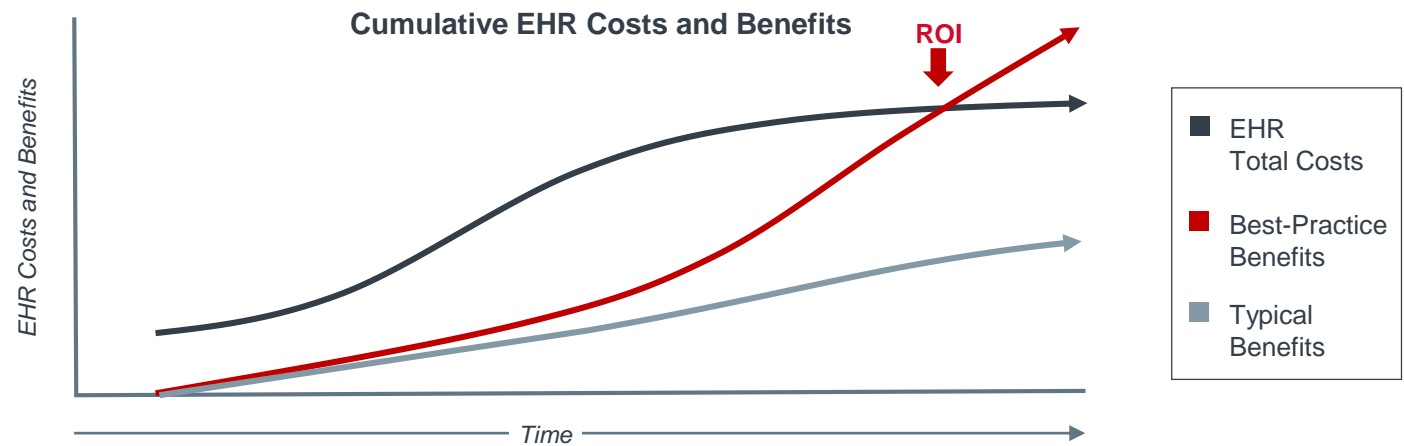
Real EHR optimization is about driving strategic value to a health care organization and its patients. But too many HCOs find themselves stuck in the enhancement phase of technical and process fixes, and never realize this value.

### Action Items:

- Assess where you are in your EHR enhancement efforts and determine whether you are making appropriate progress toward true optimization.
- If your organization is stuck in an enhancement cycle, determine and address its root causes.
- Reach agreement with executives on strategic goals of EHR use and focus optimization efforts (governance, reporting, staffing, organization) on those goals.

Our 2018 research will focus on case studies of how to organize, staff, and manage a successful EHR enhancement and optimization effort.

## EHR Benefits Require Long-Term Focus on Outcomes



**Based on actual results**, hospitals using a benefits-driven implementation and optimization approach can achieve ROI<sup>1</sup> **earlier than budgeted**, while hospitals that just focus on the initial technology implementation **may never achieve** substantial EHR benefits.

## Six Steps to Successful EHR Enhancement and Optimization

1. Begin with the End in Mind
2. Organize Two Phases of Work
3. Staff Appropriately
4. Move Rapidly Through Enhancement
5. Govern Accountably
6. Structure Innovation

1) ROI = Return on investment.

Source: Health Care IT Advisor research and analysis.



# Analytics and Artificial Intelligence: The Age of Intelligent Machines

Analytics is essential to managing a modern, high-performance health system. Innovations in data management, predictive modeling, and embedded decision support are enabling health systems to operate more efficiently and predictably, and deliver better quality care at a lower cost.

New data sources, including patient-generated data, socioeconomic factors, environmental sensors, and genomics can be combined with machine learning to deliver deep, actionable insights to decision makers.

**Action Items:**

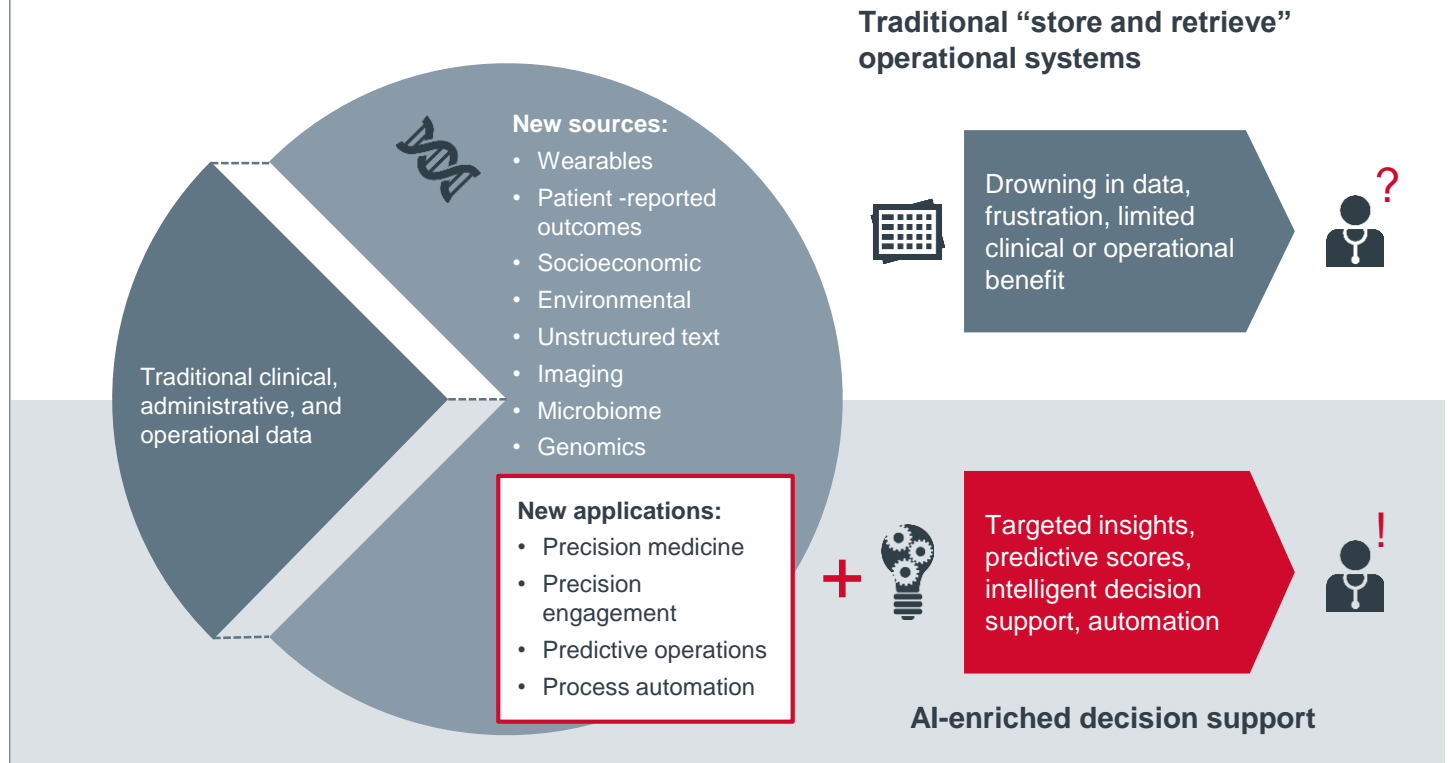
- Build a strong traditional analytics foundation for your advanced program.
- Evaluate new data architectures, including data lakes, to accelerate delivery cycles and flexibility.
- Incorporate advanced techniques, including machine learning, NLP,<sup>1</sup> and decision automation to improve performance on key strategic outcomes.

Our 2018 research will focus on the rapidly advancing application of machine learning and incorporation of novel data sources to improve financial, clinical, and patient satisfaction outcomes.

## Distill the Flood of New Data into Actionable Insights

Data is accumulating faster than decision makers can consume it. A new generation of machine-learning-inspired predictive models, contextual decision support, and process automation can assist users to make better decisions, whether in clinical or operational processes.

Advanced analytical techniques depend on a mature foundational business intelligence program, including a flexible data architecture, consistent data governance, and a culture of data-driven decision making.



## Advisory Board’s Business Intelligence Maturity Model



1) NLP = Natural language processing.

Source: Health Care IT Advisor research and analysis.

# Mobility and IoT: Capture Value from Increasingly Connected Patients and Providers

Mobility is now a vital part of a health care organization's digital strategy. Smartphones and consumer experiences have raised expectations with both consumers and health care professionals.

Mobile-enabled initiatives have the potential to improve patient and staff satisfaction, improve workflow efficiency, and even radically transform care processes. Leaders face some difficult choices. Where to focus? How should mobile initiatives be prioritized and measured? What new strategies are required to secure mobile technologies?

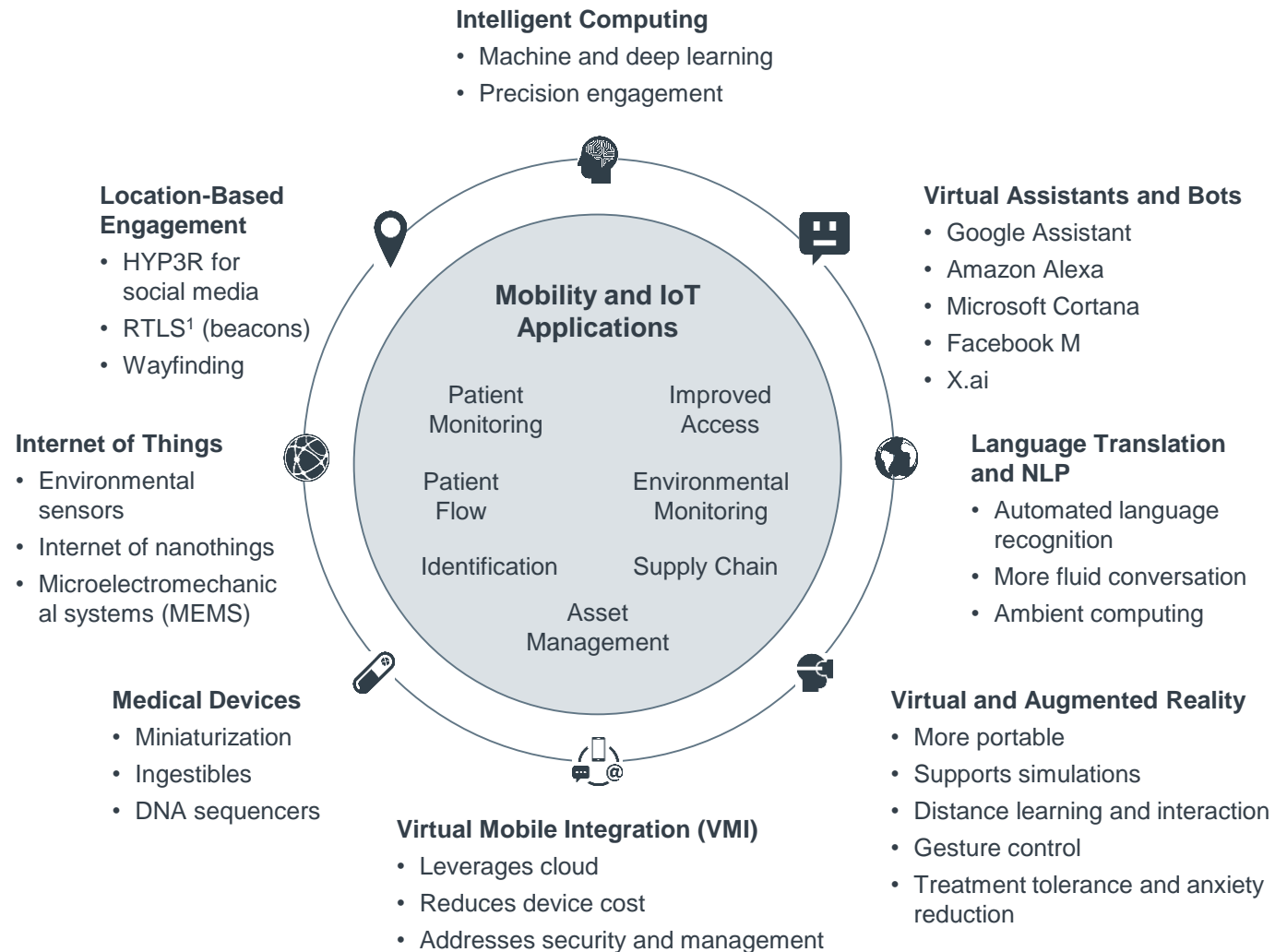
**Action Items:**

- Incorporate mobility as a key component of strategic planning.
- Establish metrics that link mobile innovation to organizational goals.
- Use mobility to innovate and advance the organizational mission.

Our 2018 research will focus on measuring the benefits of mobile investments, the evolving relationship between enterprise platforms and best-of-breed mobile solutions, and strategies to secure both new mobile technologies and existing biomedical devices.

## An Ever-Growing and Complicated Volume of Connectivity to Manage

Prepare to take advantage of the near-continuous and seamless communication and data collection to support broader organizational strategies in consumerism, population health management, cost management, and information security.



1) RTLS = Real-time location systems..

Source: Health Care IT Advisor research and analysis.

# Population Health Management (PHM): New Opportunities and Challenges

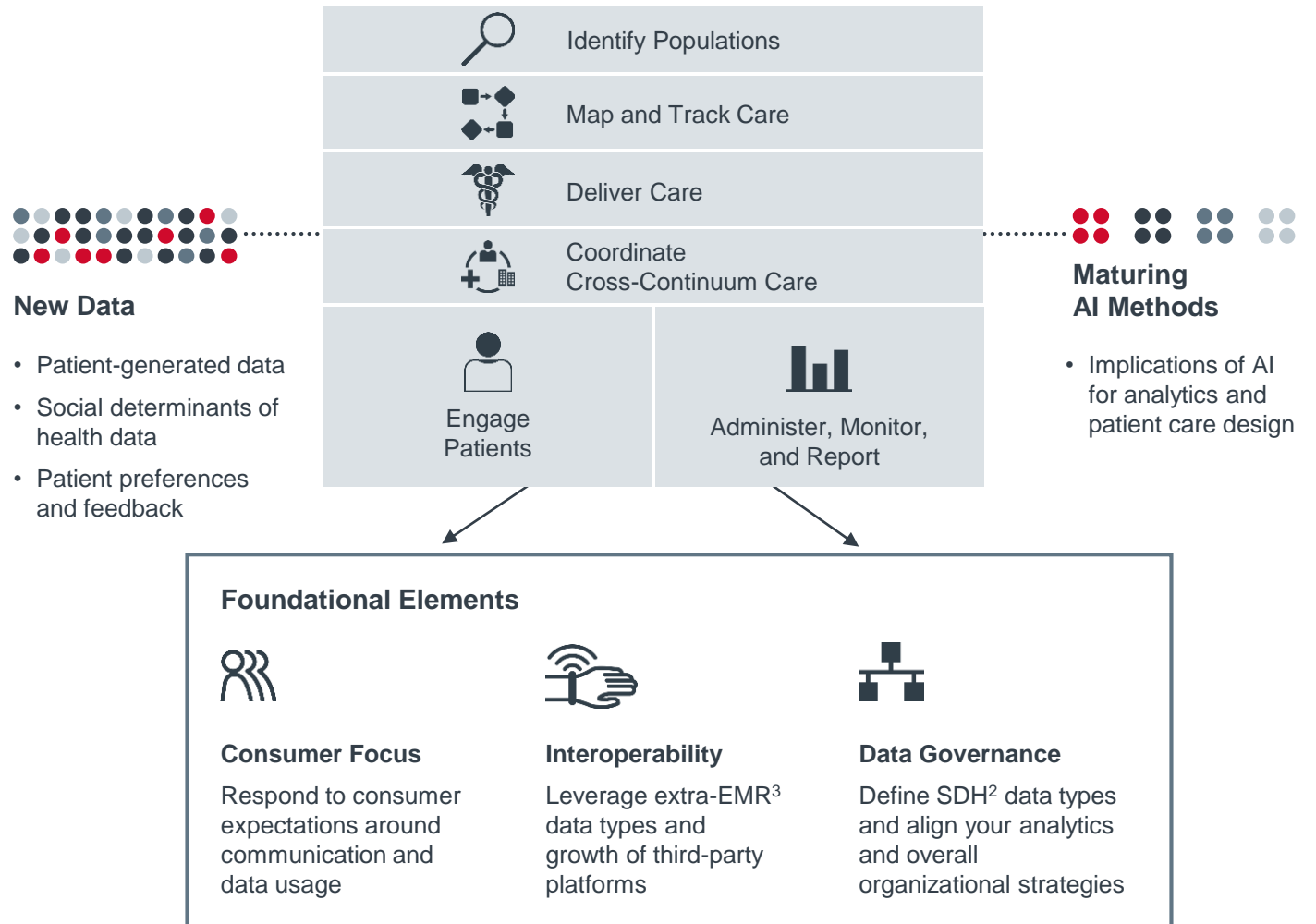
A proliferation of data types and volumes combined with new analytic techniques will require risk-bearing provider organizations to view population management processes through a new lens. Risk segmentation processes will move beyond standard algorithms to incorporate new data sources, yielding more accurate cohort assignment. Care delivery and high- risk care management will be bolstered by interoperable, non-EMR-based clinical decision support engines powered by AI technologies. Chronic disease management will require access to integrated registry, remote monitoring, and patient-generated data management applications.

**Action Items:**

- Prepare your interoperability and data governance strategies to accommodate additional extra-EMR data types and interoperability with third-party software platforms and apps.
- Review your analytics strategy and data architecture in parallel with your organizational strategy.
- Determine where and how you will employ AI-based processes in the near future.

Our 2018 research will focus on new types of analytics in population health management.

## Leverage New Data Sources and AI<sup>1</sup> to Enhance Basic PHM Processes



1) AI = Artificial intelligence.  
 2) SDH = Social determinants of health.  
 3) EMR = Electronic medical record.

Source: Health Care IT Advisor research and analysis.

# Consumer-Focused Health Care: Giving Consumers What They Really Want

Like **Amazon.com**, health care providers can increase customer loyalty by making their services accessible, reliable, and affordable. This makes it more attractive to stay with a provider, and harder to leave.

On this slide we highlight 16 IT-enabled capabilities. There is something here to help every health care provider increase customer service and loyalty, but first, providers must understand the unique needs and wants of their local consumers. IT can help with this as well, as illustrated here.

## Action Items:

- Work with others on the executive team to understand the needs and wants of your local consumers.
- Develop a detailed strategy to meet local consumer needs.
- Become familiar with the key IT-enabled capabilities listed on this slide, and map them to your local consumer strategy.
- Pick a few IT-enabled capabilities to pilot in your organization.

Our 2018 research will focus on analyses of how to deliver several IT-enabled capabilities, including cost accounting, simplified billing and payment, and more.

## First, Understand What Local Consumers Want and Need

### Sample IT Tools to Help Identify Consumer Needs



Email Campaigns



Social Media Monitoring



Online Surveys



CRM<sup>1</sup> Systems



Consumer Analytics



## Then, Pilot IT-Enabled Capabilities to Meet Consumer Wants and Needs

1

### ACCESSIBILITY

#### Make It Easy to Buy

1. Externally-embedded provider search
2. Automated out-of-pocket cost estimation
3. Integrated digital scheduling
4. Virtual care
5. Hospital way-finding
6. IT-enabled care navigation

2

### RELIABILITY

#### Deliver Consistent Quality, Experience

7. Standardized electronic ordering
8. **Standardized electronic care pathways**
9. Drug decision support
10. Workflow automation
11. Consumer-driven quality reporting

3

### AFFORDABILITY

#### Give the Best Value

12. Transparent costs and pricing
13. **Simplified billing and payment**

4

### LOYALTY

#### Make It Attractive to Stay, Not Go

14. **Real-time patient feedback**
15. Integrated patient portals and apps
16. Rewards programs

1) CRM = Customer relationship management..

Source: Health Care IT Advisor research and analysis.

# Telemedicine: An Evolving Landscape

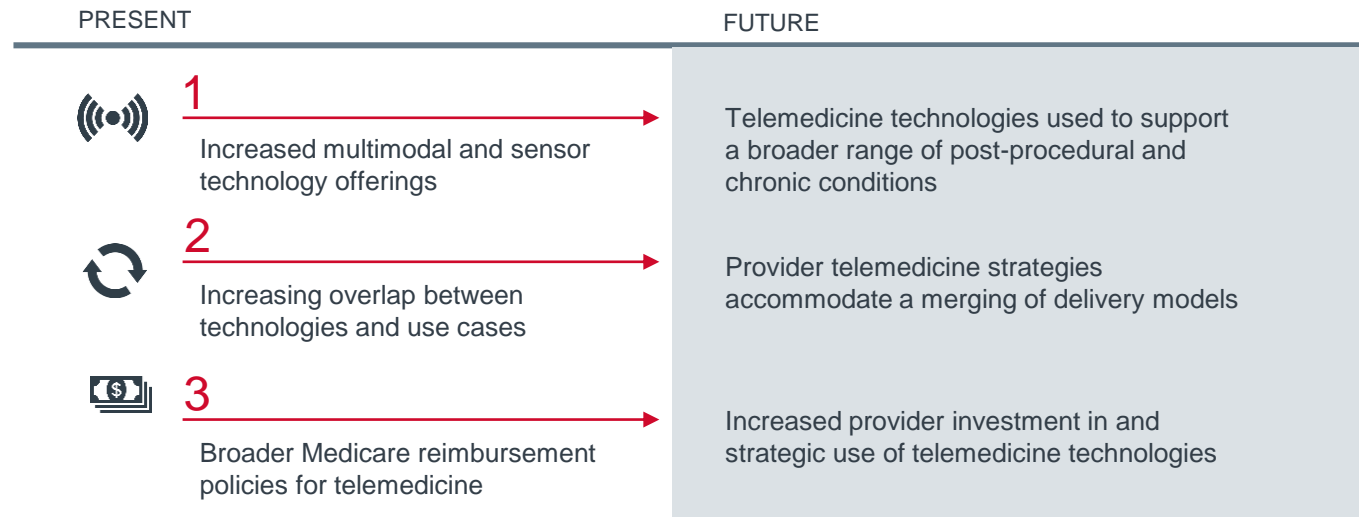
Provider organizations will continue to develop telemedicine capabilities to enhance access to care and patient loyalty, and build the infrastructure for more efficient remote care delivery. Vendors will incorporate multimodal monitoring and sensor technologies into their offerings to expand the range and severity of conditions they can manage effectively. Provider organizations must advance their telemedicine strategies to merge previously separate delivery models—high-risk care management; remote patient monitoring; direct-to-patient visits for acute conditions—as technologies and use cases will increasingly overlap. Finally, organizations bearing downside risk should anticipate broader Medicare reimbursement policies for telemedicine.

**Action Items:**

- Review the roles of telemedicine vendors versus in-enterprise resources in your telemedicine program.
- Prepare to support integrated customer service, care delivery, and care management programs.

Our 2018 research will focus on telemedicine support for new, integrated models of care delivery.

## Capture Value from Telemedicine Advancements



**Telemedicine Considerations**

 Vendors vs. Internal Resources	 Customer Service Capabilities	 Telehealth Platforms
 Referrals Management	 Care Delivery and Care Management Integration	 Real Time vs. Asynchronous

Source: Health Care IT Advisor research and analysis.

# Digital Health Systems: Foundation for Transformation and Innovation

Three major changes are occurring concurrently in health care:

- The health care industry is undergoing transformation.
- The role of IT is expanding.
- New tools have been added to the “IT tool belt.”

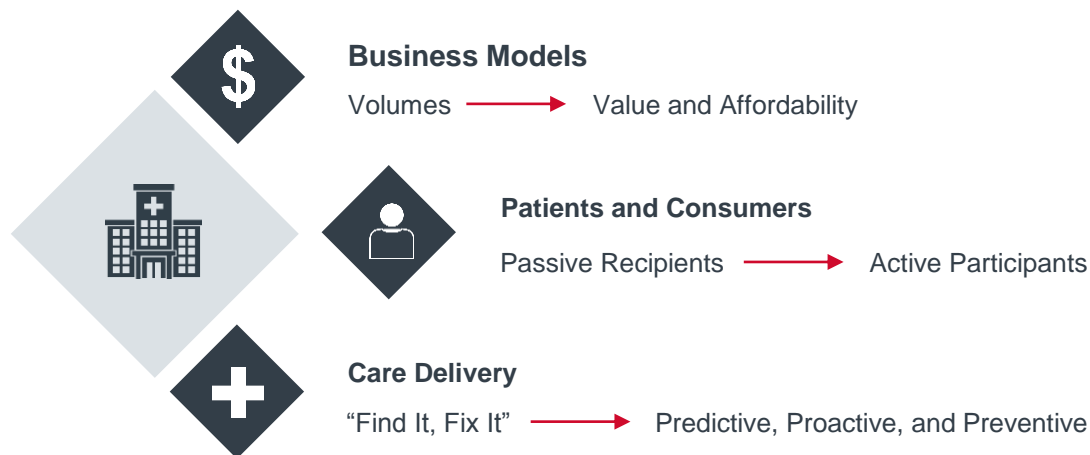
To help with transformation and innovation, digital health systems (DHSs) utilize foundational and enabling IT-related capabilities, including new “tools,” to redefine business models, rethink processes, and address customer needs.

### Action Items:

- Develop a common vision across the organization for the future of health care and IT.
- Form a full CEO-CIO partnership.
- Help change the organizational mindset as technology moves from the back room to the boardroom.
- Build an infrastructure that can support technology enablement and innovation.

In 2018, our research will continue to explore the foundational role that DHSs play in health care transformation, digital disruption, and innovation. We will also continue to refine our DHS maturity model and give examples of successful practices for key dimensions of that model.

## Health Care Is Undergoing Transformation and Being Disrupted



## Excerpt from Digital Health System Maturity Model

Sample Dimensions	IT Efficiencies	IT-Enabled Strategies	Digital Transformation
Focus of and Value from IT-Related Investments	<b>Automation</b> for localized ROI	<b>Business / IT alignment</b> , strategy enablement, operational excellence and improvement	<b>Digitization, sustaining, or disruptive innovations that scale</b> and change the basis for competition
CIO Skills	Infrastructure technologies, project management, applications	Business/clinical acumen, digitization (fundamental rethink), all things data	Practical IT-powered innovation
Infrastructure and Operations	<b>Localized</b> (by facility or department), reliability, stability	Reduce “keep the lights on” expenses, <b>centralization, standardization</b> , reliability, <b>scalability</b>	<b>Two-speed IT, agile</b> , virtualization, cloud, analytics platform, mobility platform, interoperability, innovation services

Source: Health Care IT Advisor research and analysis.



# Precise, Personalized Medicine: A New Precision in Clinical Decision Making

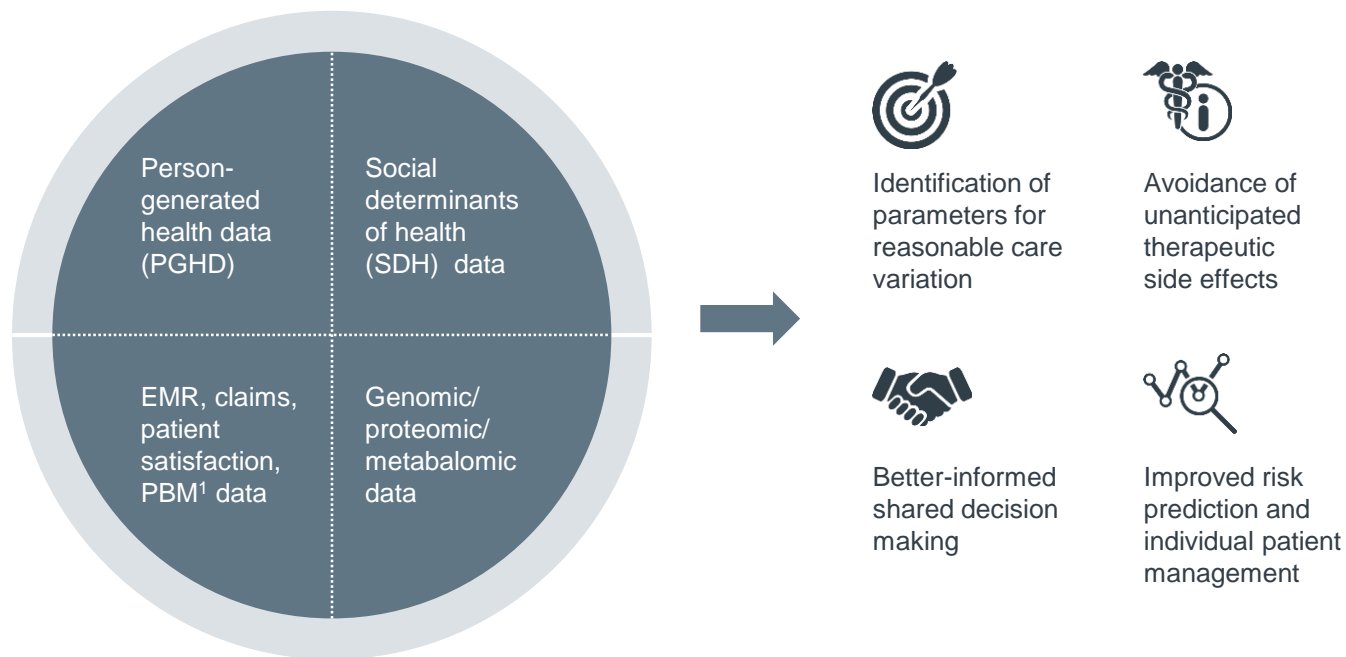
New AI-driven analytic techniques and increasing volumes of data will power a new kind of precise clinical decision making. Patients will expect providers to accept person-generated health data (PGHD) from wearables, mHealth apps, and portals. Providers will have to become facile with use of social determinants of health (SDH) data for improved risk prediction and patient care. The increasing availability of pharmacogenomics data will change the standard of care for a wide range of conditions. Providers must move beyond care standardization to allow reasonable variation based on better patient-specific data.

### Action Items:

- Develop a strategy for deciding what PGHD to accept, and how to manage these data and associated patient expectations.
- Learn how to use SDH data.
- Invest in data science and investigate new forms of AI-driven analytics.
- Improve organizational change management capabilities in preparation for fundamental shifts in basic clinical processes.

Our 2018 research will focus on use of PGHD, SDH, and genomics for patient care.

## New Data Streams and Analytic Techniques Enable Improved Decision Making



### Key Considerations

- Pharmacogenomic Decision Support
- PGHD Management
- Data Science Investments
- New Forms of AI-Driven Analytics
- Imaging Diagnostic Decision Support
- Change Management Strategy

1) PBM = Pharmacy benefit management.

Source: Health Care IT Advisor research and analysis.



# Information Security: Build Toward a More Advanced, Adaptive Security Posture

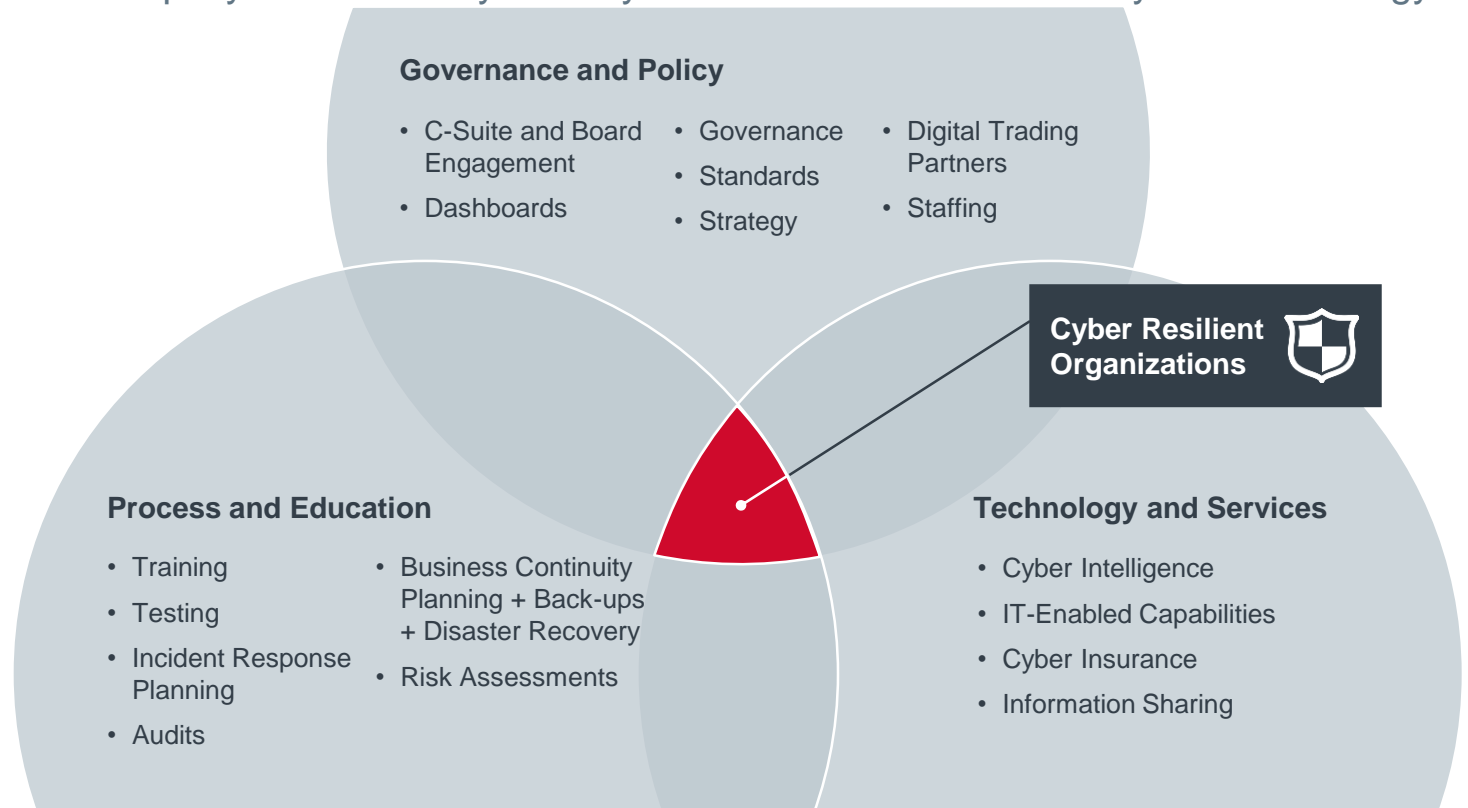
As C-suite and board engagement in cybersecurity continues to grow, many HCOs focus on advancing their security program beyond the basics laid in recent years to prepare for the new security challenges of a digital health system. A holistic approach with emphasis on the three layers of the cybersecurity ecosystem—governance and policy, process and education, and technology and services—will guide HCOs towards increasingly advanced, adaptive security postures. Key challenges in 2018 and beyond include third-party risk management, medical device security, and security implications of the IoT.

**Action Items:**

- Grow security sophistication over time via a roadmap that matches the HCO’s strategy and culture.
- Develop a thorough third-party risk management process for vendors, M&A<sup>1</sup> activities, and partnerships.
- Protect the HCO’s fleet of medical devices and address threats from the proliferating IoT ecosystem.

Our 2018 research will focus on moving toward an advanced security posture. We will provide reports, tools, and case studies that address common challenges related to third-party risk management, medical devices, the IoT, and other critical security capabilities.

## Develop Cyber Resiliency Via Layers of Effort That Extend Beyond Technology



**Key Information Security Challenges for 2018**

Develop Robust Third-Party Risk Management	Secure Medical Devices and the Internet of Things	Mature Security Processes, Policies, and Capabilities	Foster Continued C-Suite and Board Commitment

1) M&A = Mergers and acquisitions.

Source: Health Care IT Advisor research and analysis.



2445 M Street NW, Washington DC 20037  
P 202.266.5600 | F 202.266.5700 | [advisory.com](http://advisory.com)