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Disruptive Forces in Healthcare  
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# Beyond the EHR: Mobility, Patient Engagement, and Analytics

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## What we will cover:

- Today's healthcare landscape – what is changing and why we need to change too
- Leveraging Health IT beyond the EHR
- Reimagining Healthcare with Mobile
- The Power of Patient Engagement
- Emerging Consumerism and eCommerce
- Analytics and Pop Health:
  - Data into insights to drive business and care outcomes
  - Knowledge-driven and data-driven methods
  - Cognitive computing – role of Watson



# Healthcare transformation is happening, driven by fundamental shifts in expectations and critical drivers

**Expectations** for better quality, value and outcomes

**Escalating incidence** and cost of chronic disease

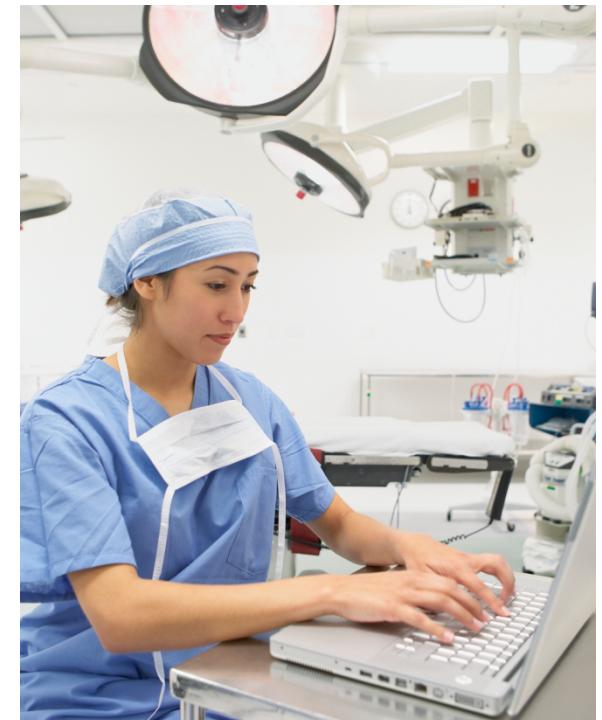
**Changing** demographics and lifestyles

**Globalization** of health care

**Critical** resource shortages

**Increased** competition and new entrants

**Advances** in technologies and treatments



This transformation is an evolution ....to a new model for healthcare

Old Healthcare

Fee for service  
Volume  
Delivery  
Employer-centric  
Prices unknown  
One way dialogue  
Transactional  
Data poor & disconnected  
Reactive  
Standards



New Healthcare

Pay for performance  
Value  
Quality Outcome  
Consumer-centric  
Cost transparency  
Engaged & mobile  
Brand loyal  
Integrated rich “big” data  
Predictive & prescriptive  
Personalized & optimized



# Healthcare is moving to a system focused on value, coordinated around the individual and integrated into our communities

Focus is on **value**, **coordinated** around the individual and integrated into communities

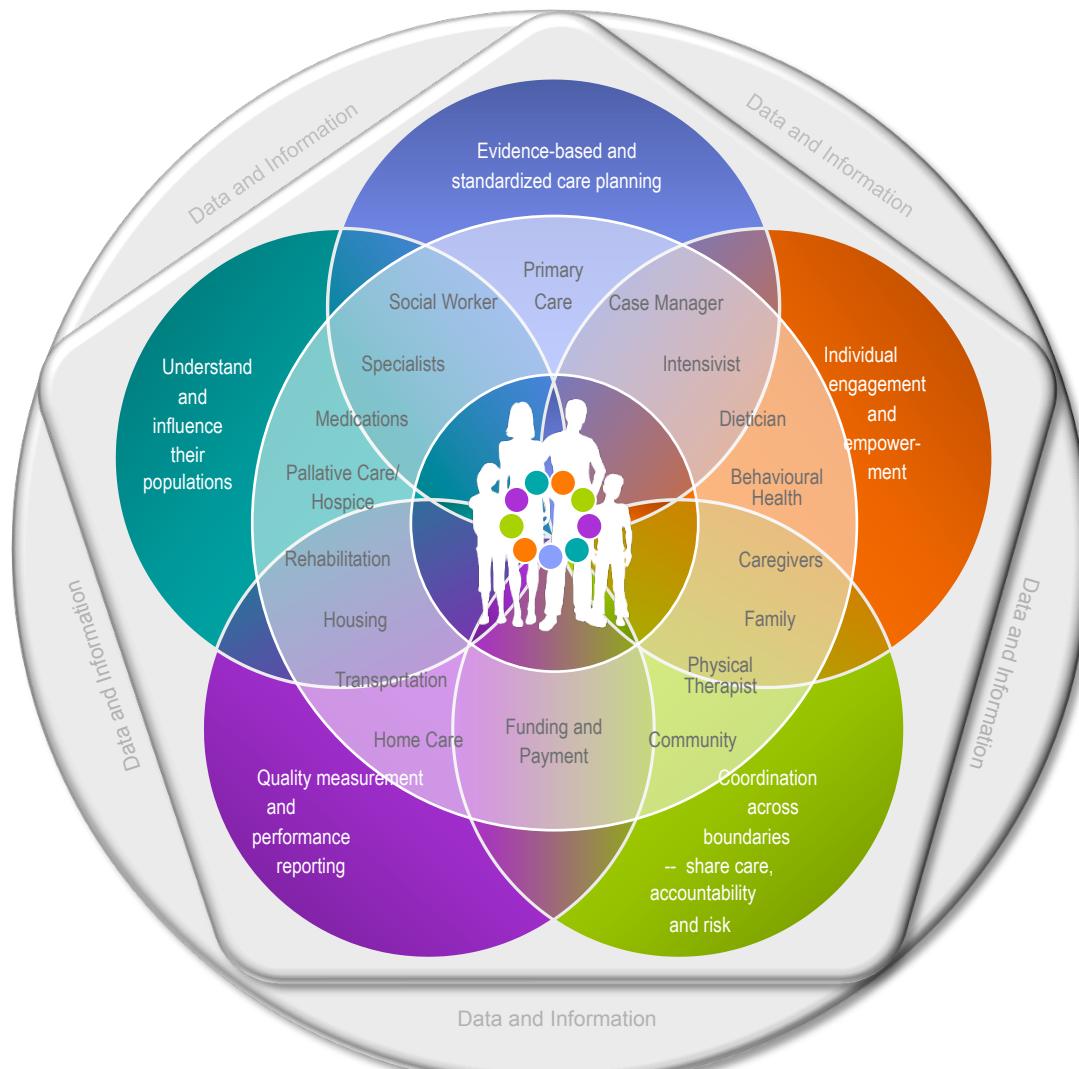
Emphasis is on **proactive care** to meet health needs

Payment will be based on **value** and **outcomes**

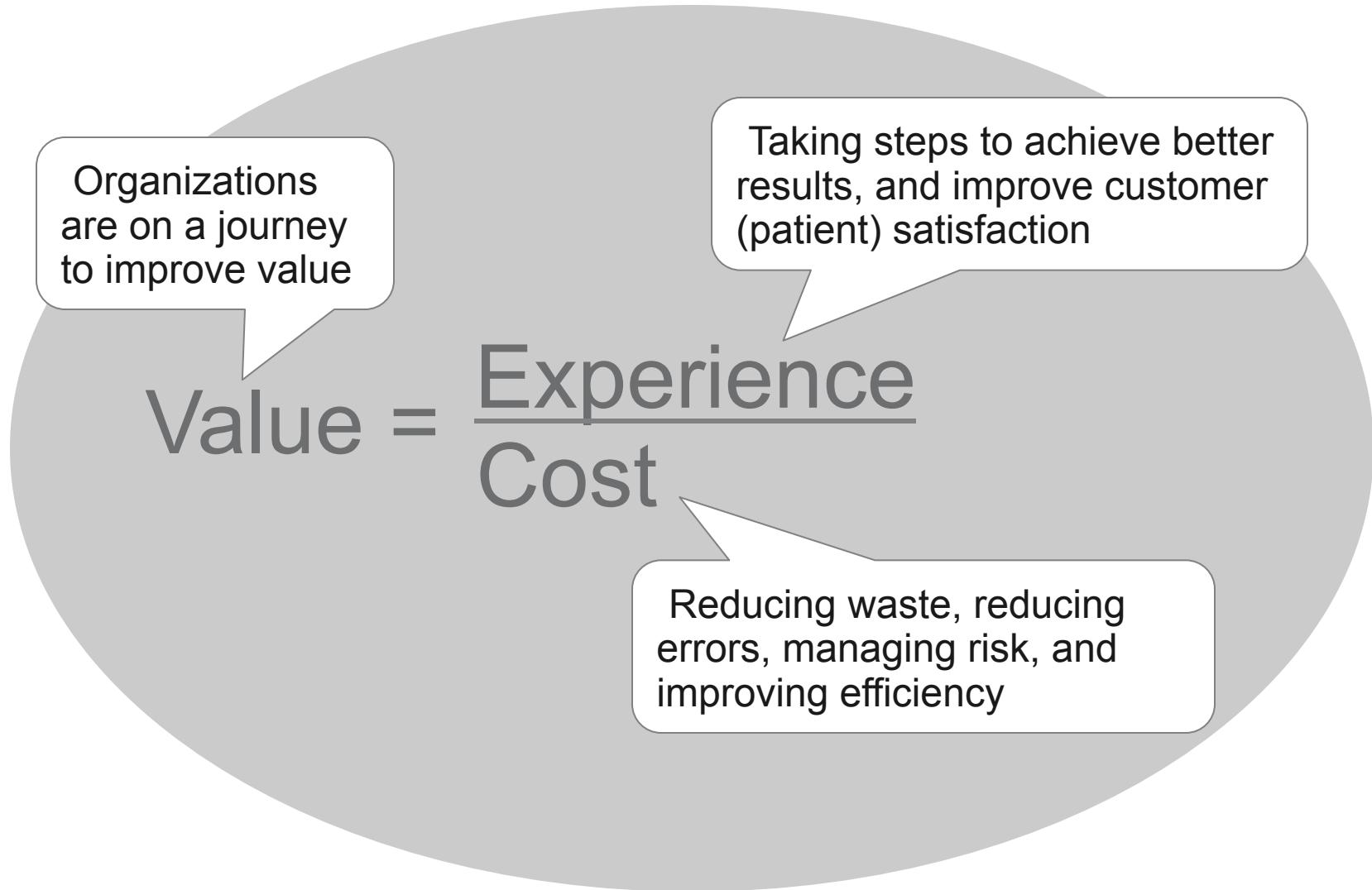
Care is **standardized** according to **evidence-based** guidelines

We measure **quality** and make rapid changes to improve it

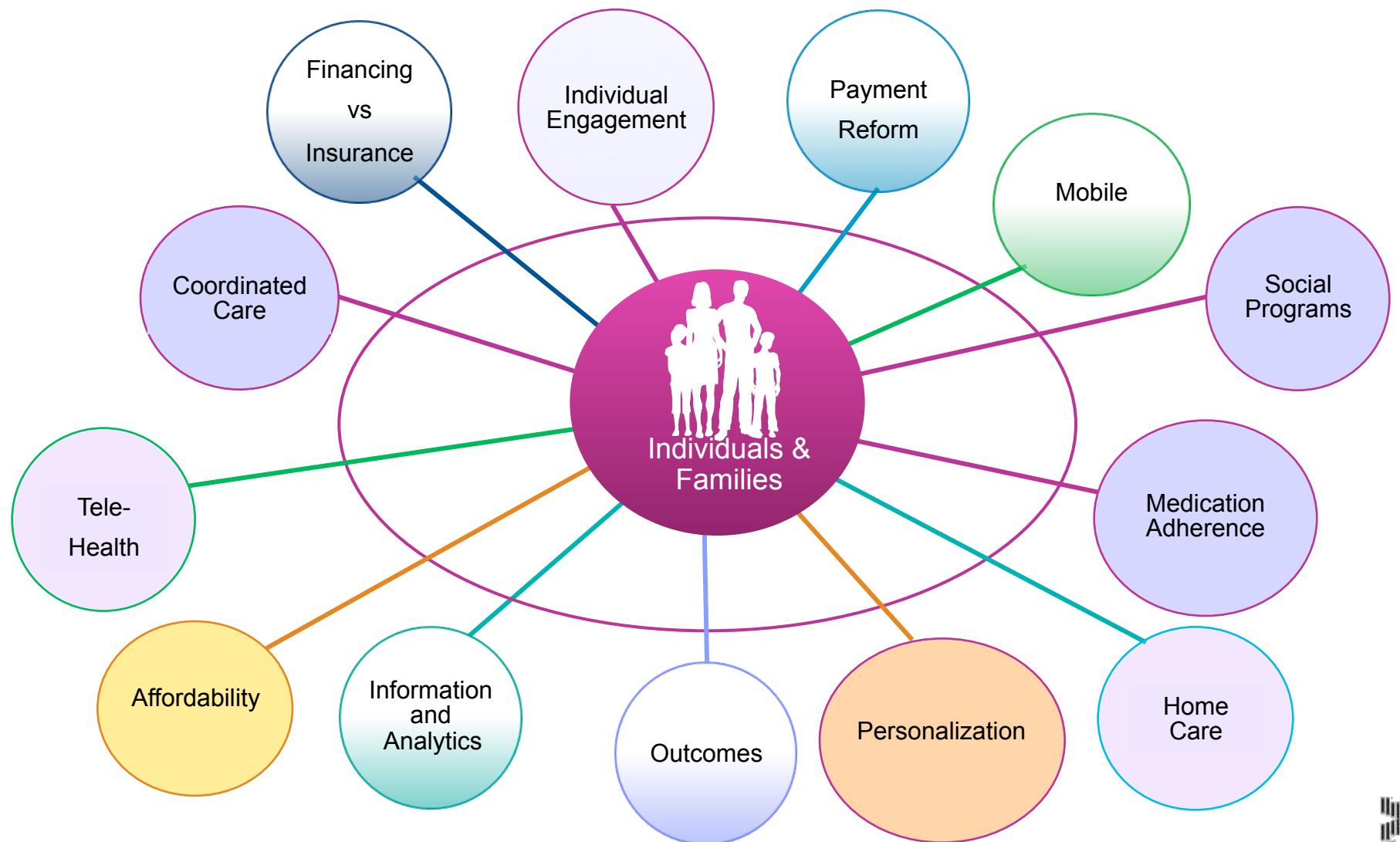
**Knowledge** is translated into practice quickly



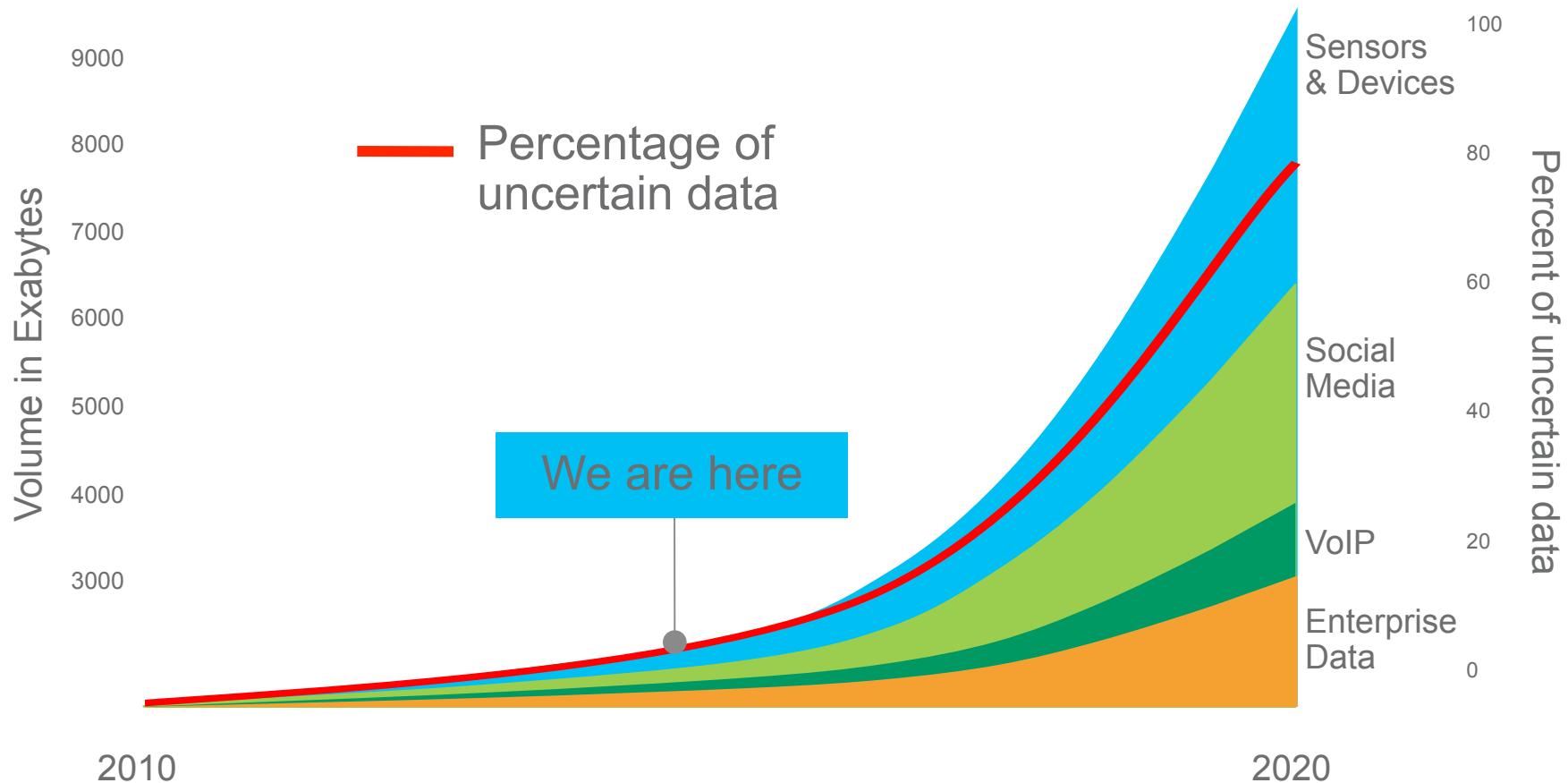
The new model is Value Based Care - centered around the patient



Much new data and revised systems of engagement - *delivered via mobile, the web and the cloud* - ensure acceleration of change



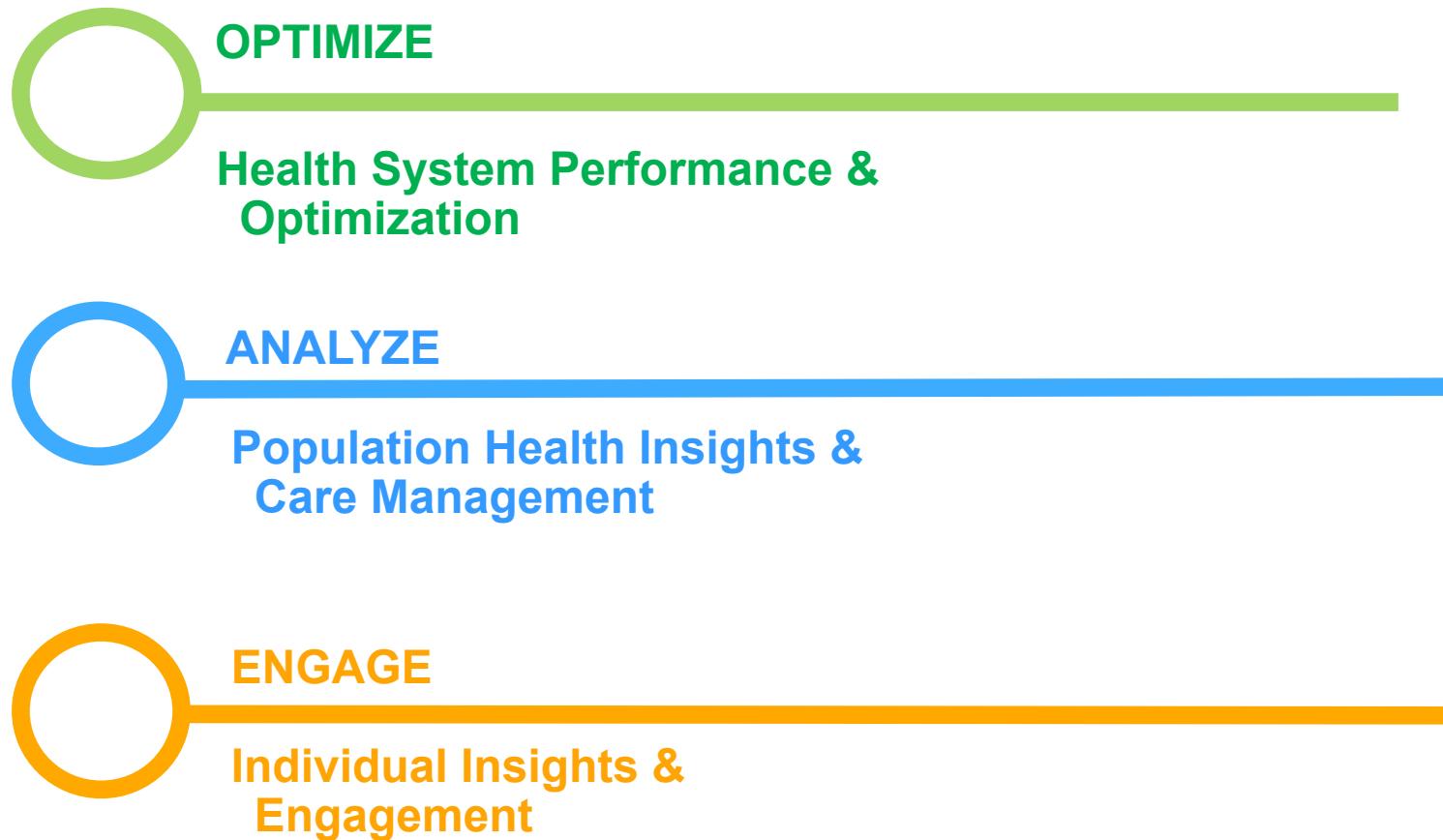
And made more urgent by an escalating volume of healthcare data



Source: IBM Global Technology Outlook - 2012



# Healthcare Solution Focus for IT



# Transforming Health and Healthcare

*Leveraging health IT beyond the EHR*

## Tapping into & Shaping the Expanding Consumer Marketplace

- Customer centricity
- Personalization
- Consumer engagement
- CRM
- Choice
- I-Experience
- E-commerce
- Cost transparency
- Customer loyalty
- Branding
- Loyalty

## Building the Care Team of the Future

- Care planning support
- Efficiency & logistics
- Demand management
- Quality improvement
- Team coordination
- Secure (& remote) communications
- Reducing HAIs
- Fewer readmissions
- Cost reduction
- Workflow design
- Monitoring
- Optimized processes
- Decision support
- Employee satisfaction
- Customer satisfaction

## Managing Populations for Continuous Improvement

- Outcome measurement
- Quality measurement
- ROI
- Cohort analysis
- Patient similarity analysis
- Risk assessment
- Cost prediction
- Chronic disease management
- Proactive intervention
- Case management
- Wellness / fitness
- Education
- Incentives
- Gamification

## Optimizing & Securing the Healthcare Value Chain

- ERP solutions
- Clinical & financial data integration
- Supply chain optimization
- Complying with new drug safety / security requirements
- Workforce planning & optimization

Requires: Integrated Data, Powerful Analytics, Cloud Computing, Security Systems and **Mobility**

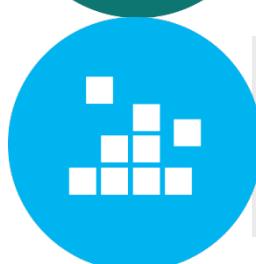
## Mobile is being exploited to:



Facilitate anytime anywhere access to data and extend services beyond traditional settings



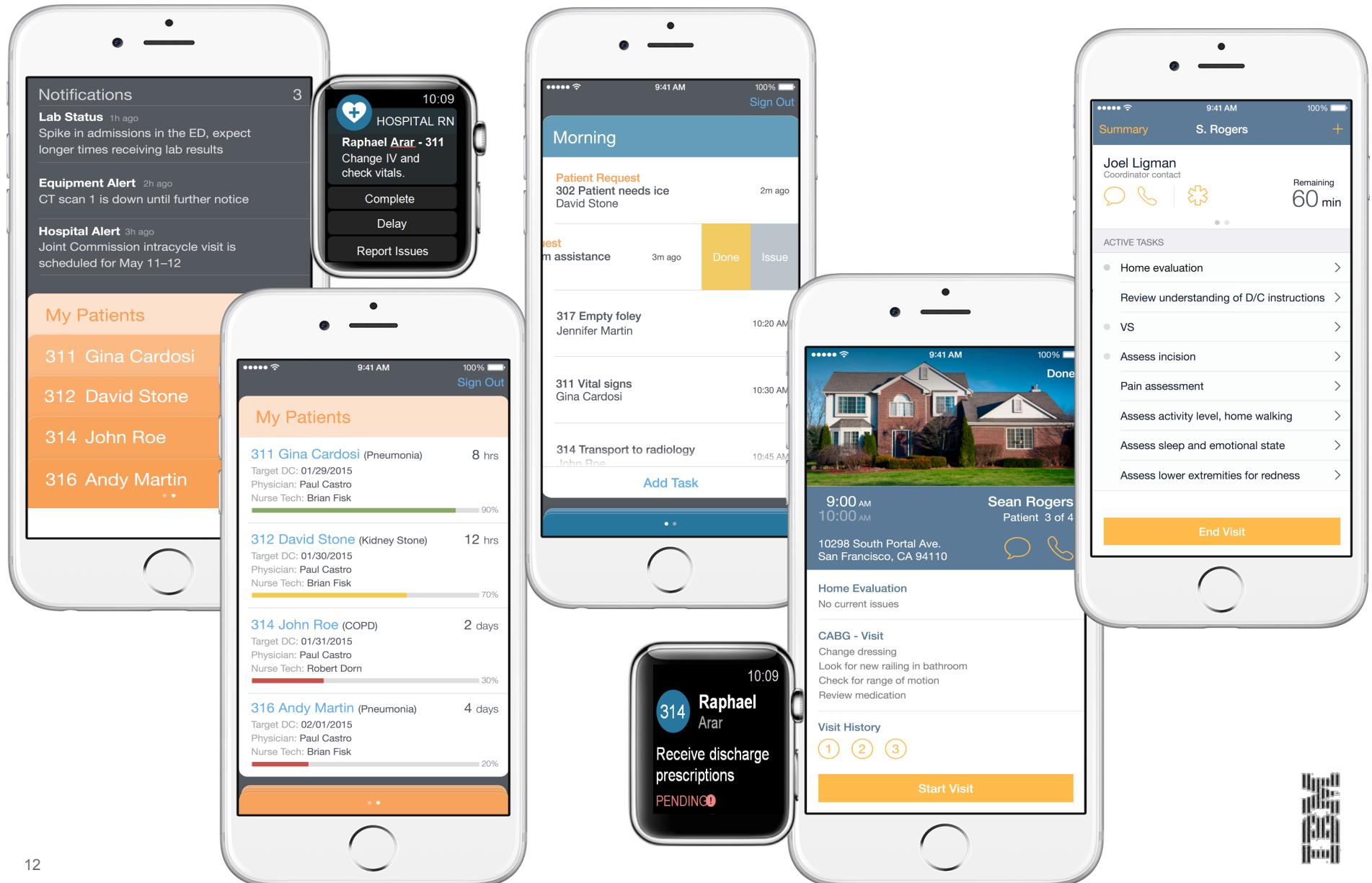
Develop new engagement techniques and health strategies with patients and consumers



Gain insights to provide more personalized, proactive interventions; bring analytics to the point of care



# Reimagining Healthcare



# Healthcare must become as relevant as their own social networks

## “Know me”

Capture and incorporate preferences

- **What's my history?**
- **What are my preferences?**
- **How will I respond?**
- **What will motivate me?**
- **Respect my privacy**

## “Engage me”

Personalize offerings and services

- **Engage in the preferred dialog**
- **Be relevant (“right information”)**
- **Be consistent across touch points**
- **Show sincerity -- “you care”**



## “Empower me”

Innovate to deliver quality, convenience and total experience

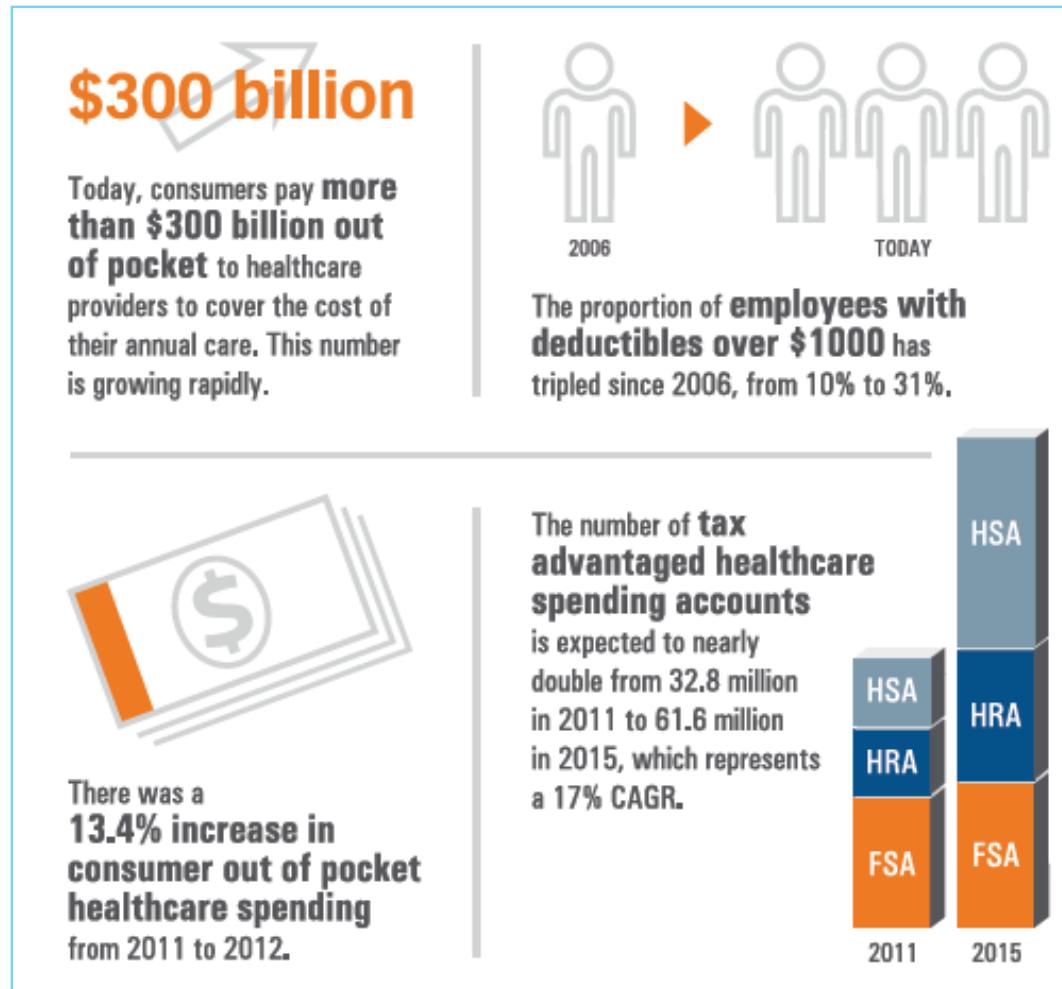
- **Give me the information I need**
- **Connect me with relevant communities**
- **Simplify control and access**
- **Enable action and convenience**



# New business models for delivering care are emerging, providing people with more “choice”



# So what is driving “consumerism” in healthcare?

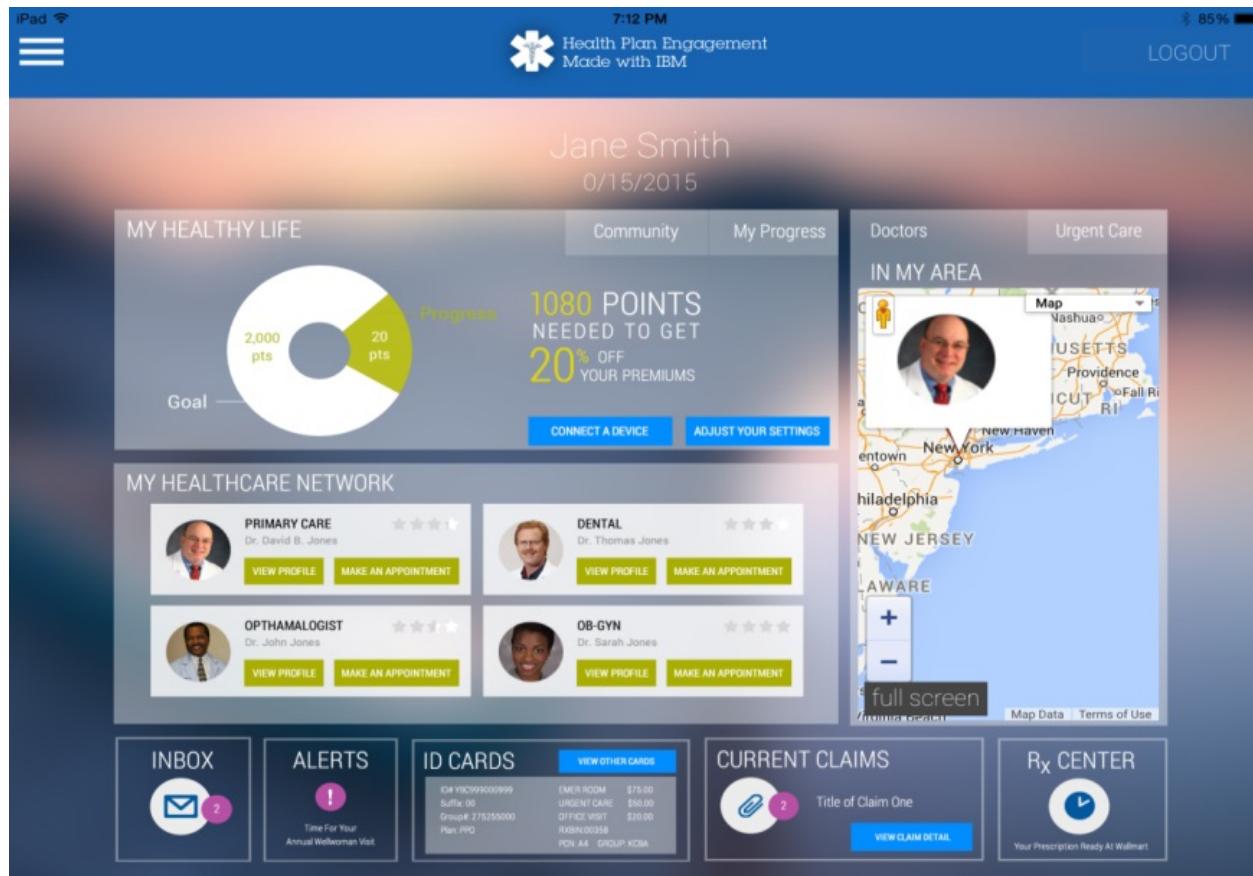


- Cost shifting – “out of pocket” costs are increasing for individual healthcare consumers
- There is an increase in the use of High Deductible plans and Health Savings Accounts (HSAs), leading to more consumer price sensitivity

Source: Healthcare Payer News, May 2014



# Health Plan Engagement App Demo



<https://www.youtube.com/watch?v=brtucoXRbTA>



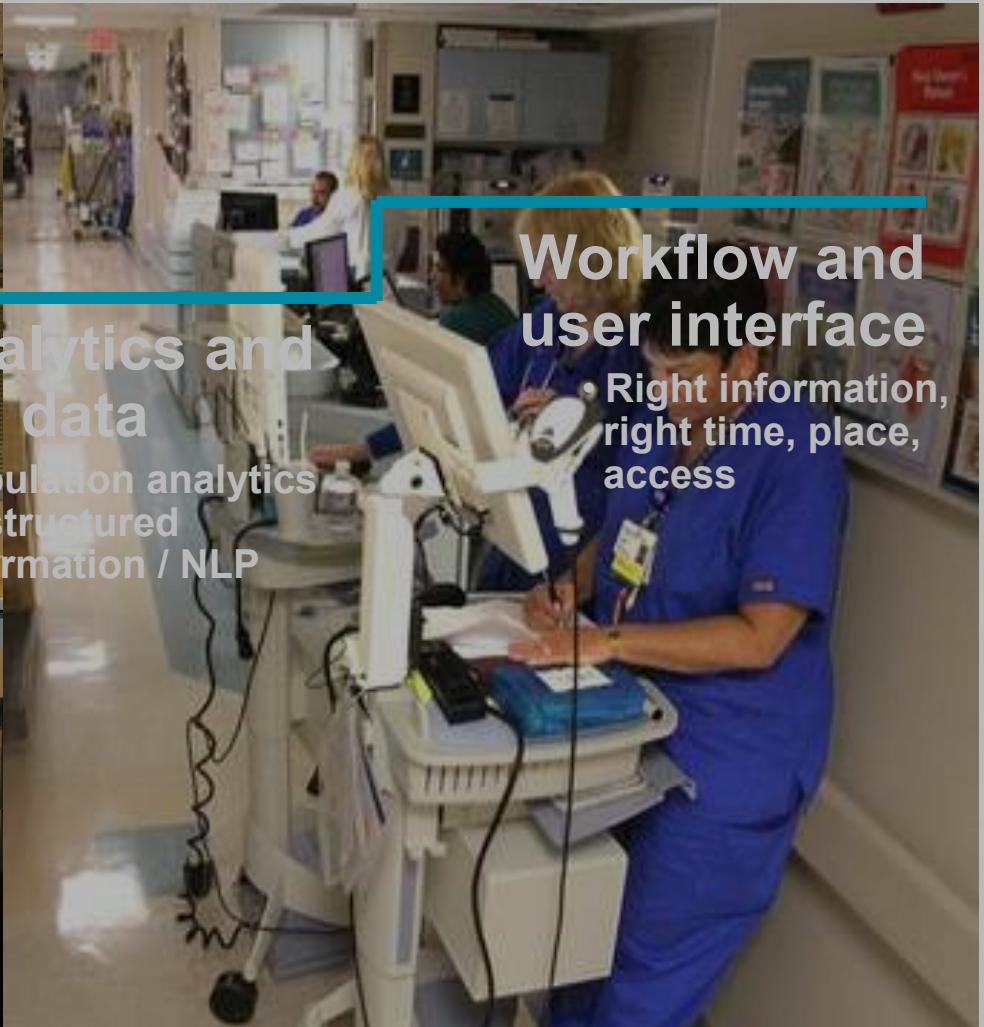


## End-to-End integration

- Data access
- Integrated patient data

## Analytics and big data

- Population analytics
- Unstructured Information / NLP



## Workflow and user interface

- Right information, right time, place, access



# The Healthcare Analytics Journey

## Basic Reporting

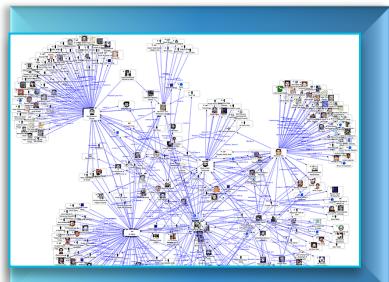


- What happened?
- When and where?
- How much?

## Retrospective Reporting

- High latency reporting
- Spreadsheets
- Limited view reports
- Departmental data marts

## Foundational Analytics



- Who is at risk?
- What is happening?
- How can we improve?
- What is the Right Data?
- What actions to take?

## Enterprise – Wide Data Insights

- Data Governance
- Centralize Data
- Structured and Unstructured
- Data Sharing
- Cost of Care Intelligence

## Predictive & Prescriptive



- What will happen?
- How can we pre-empt?
- What is the likely outcome? Who would be best at managing this patient?
- What is the expected response to potential medications?

## Proactive Interventions and Improved Outcomes

- Population Health Analytics
- Evidence-based medicine
- Streaming Analytics
- Similarity Analytics

## Cognitive



- What is the optimal treatment based on the latest literature for my patient's clinical profile?
- Why is this the best protocol?

## Dynamic Learning for Optimal Care Guidance

- Natural language understanding
- Guided consumer experience
- Watson Applications
- Clinical Content Analysis
- Personalized Healthcare

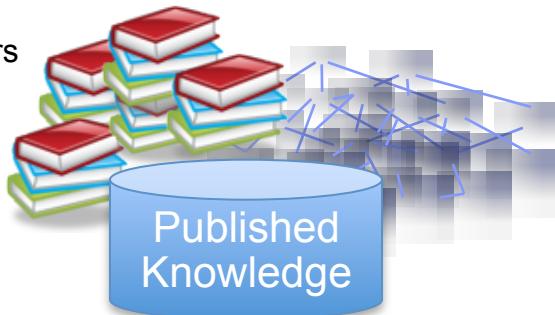


# Analytics strategy must span both knowledge & data-driven methods

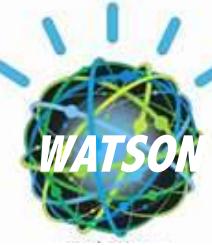
From population averages ...

## **Knowledge-Driven Methods**

Scientific papers  
Books  
Guidelines



***Identification of evidence-based best practice***

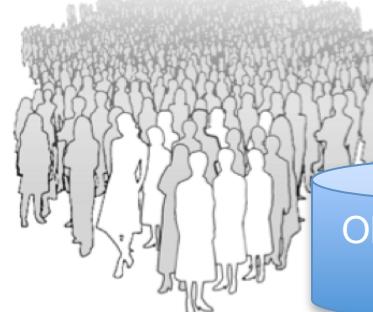


Closing the translational knowledge gap

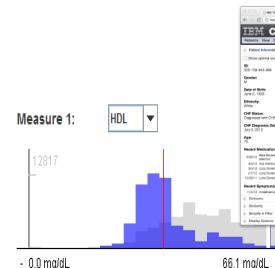
To insights for individual patients

## **Data-Driven Methods**

Longitudinal health records  
Claims data  
Patient reported data



***Patient Care and Insights***

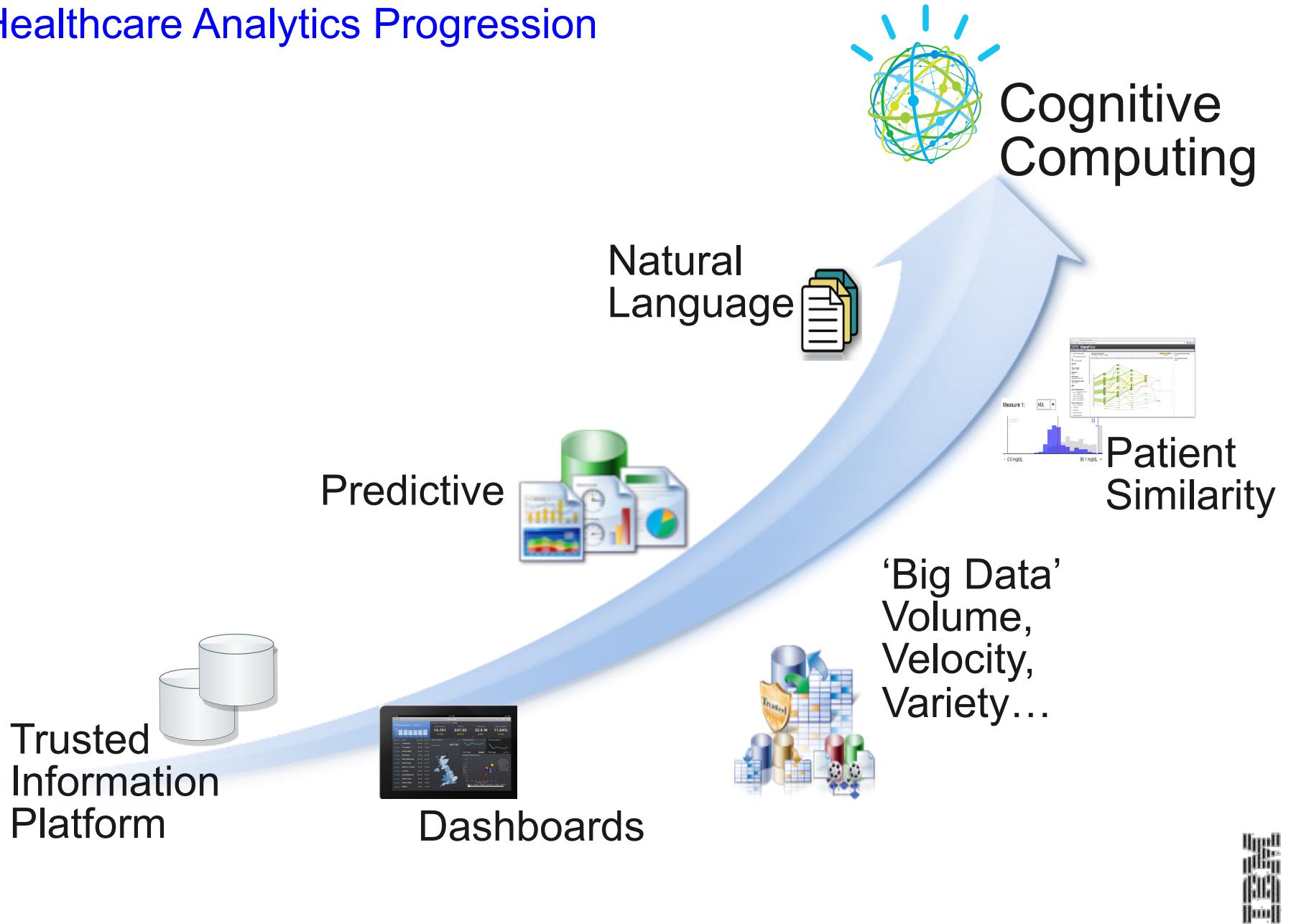


**Patient Similarity Analytics**

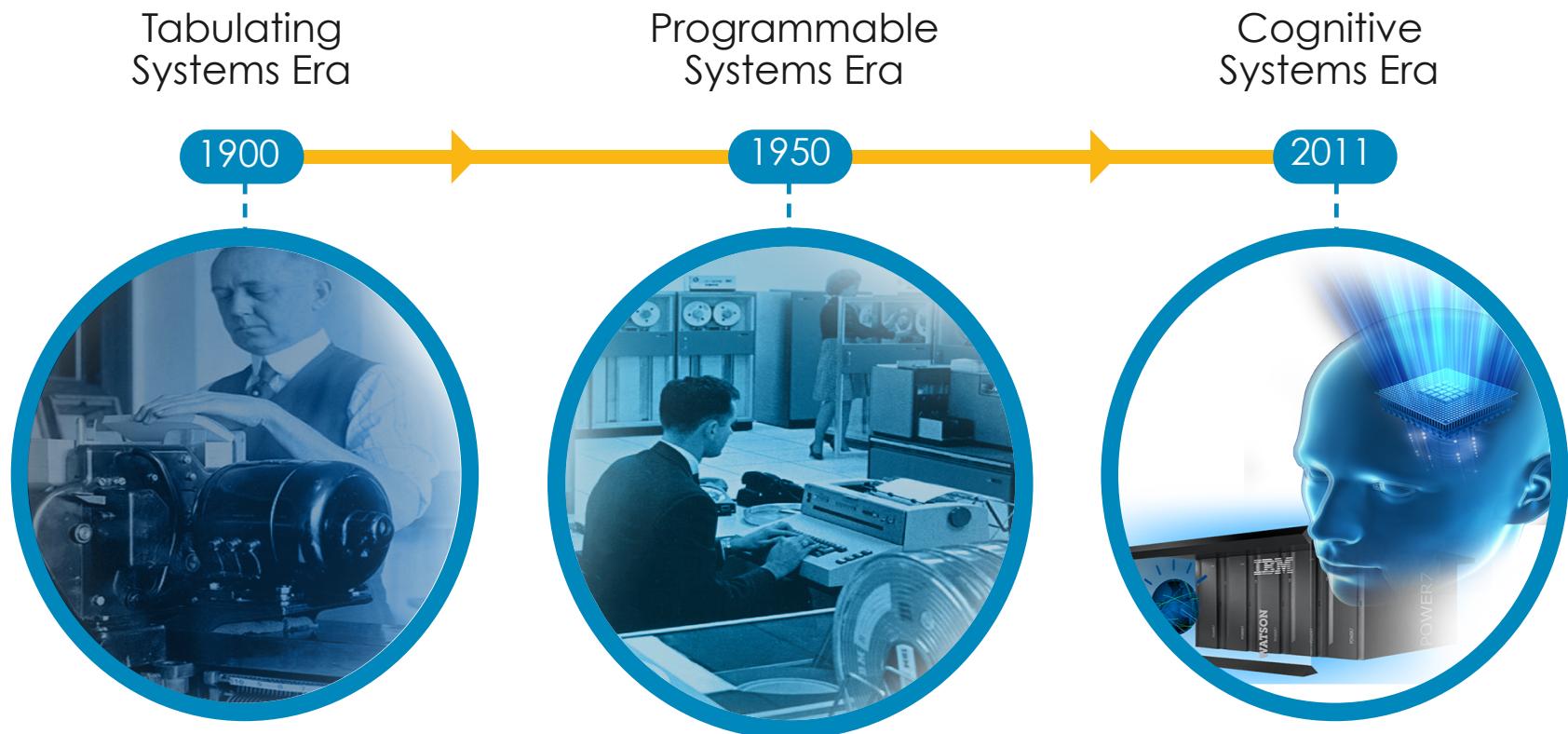
Enabling Personalized Insights from institutional data



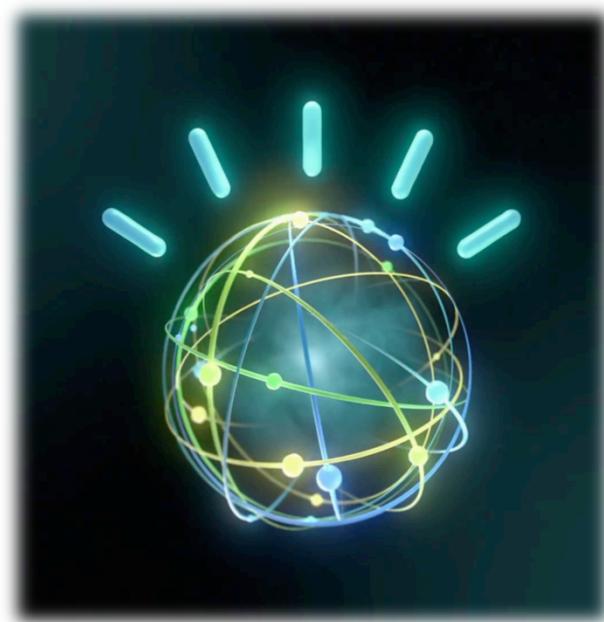
# Healthcare Analytics Progression



# Watson is ushering in a new era of computing



# Cognitive Systems Era



Interact Naturally



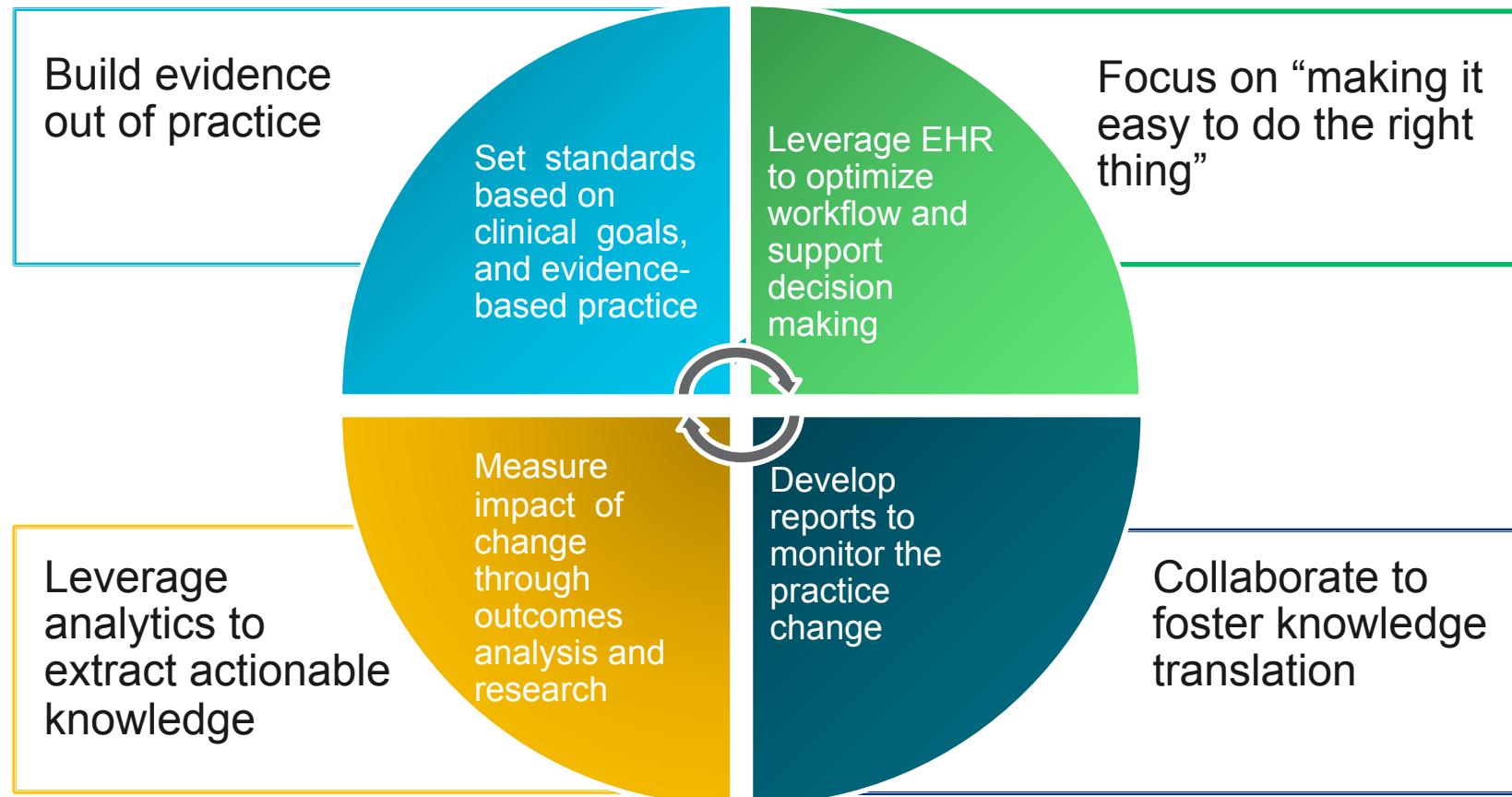
Learn and Reason



Discover and Decide



# The Learning Healthcare System





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Thanks!

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