



## **An Organizational Risk Approach to Current and Emerging Healthcare Threats and Opportunities**

Safeguarding Health Information: Building Assurance through HIPAA Security  
OCR NIST Conference October 16-17, 2019

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# Objectives

- Who is Henry Ford Health System?
- What is our Organizational Risk Approach to privacy and security?
- Which current and emerging health care threats and opportunities are we prioritizing?



# Henry Ford Health System



- Founded in 1915 by auto pioneer Henry Ford, Henry Ford Health System is comprised of hospitals, medical centers and one of the nation's largest group practices, the Henry Ford Medical Group



- Health Alliance Plan (HAP), a wholly-owned nonprofit subsidiary, provides health insurance coverage to individuals, companies and organizations



# Hospitals



## Henry Ford Hospital

- ❖ 877-bed flagship hospital
- ❖ Level I trauma center

## Henry Ford Allegiance Health

- ❖ 475-bed acute care hospital
- ❖ Level II trauma center



## Henry Ford Wyandotte Hospital

- ❖ 401 bed acute care hospital
- ❖ Level II trauma center



# Hospitals



## Henry Ford Macomb Hospital

- ❖ 361-bed acute care hospital
- ❖ Level II trauma center



## Henry Ford West Bloomfield Hospital

- ❖ 191-bed acute care hospital
- ❖ Level III trauma center

## Kingswood Hospital

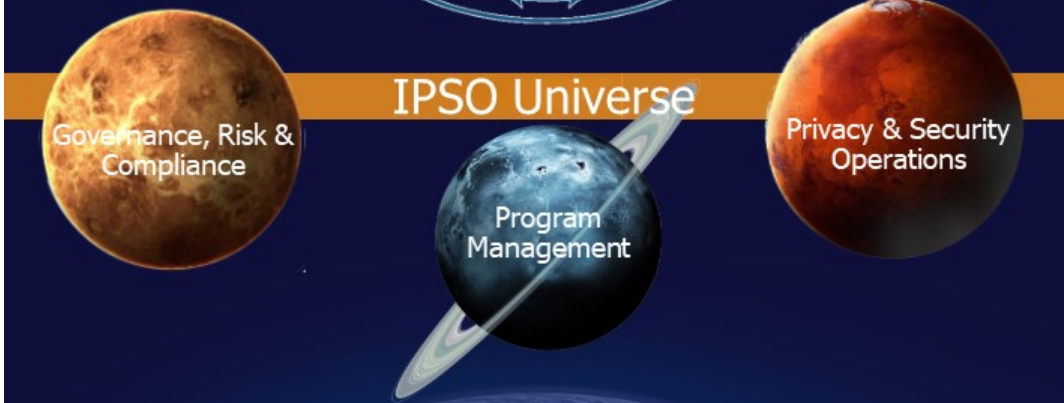
- ❖ 100-bed inpatient psychiatric hospital
- ❖ 24 hour intake



# By the Numbers



- Human Resources
  - 32,000 team members; 10,000 in City of Detroit
  - 1,900 employed physicians
  - 6,200 nurses, including 550 from Canada
  - 4,600 allied health professionals
- Financial
  - \$5.8 billion annual revenue
  - \$86.8 million net income
  - \$456 million uncompensated care
- Healthcare Services
  - 115,000 inpatient admissions
  - 3.7 million outpatient visits
  - 76,00 surgical procedures
- Health Alliance Plan
  - 570,000 HAP members
  - 27,000 participating providers in Michigan



# IPSO Functions



## Governance, Risk & Compliance

- Gap, compliance, security and risk assessments
- Maturity assessments
- 3<sup>rd</sup> party risk
- Control library effectivity monitoring
- Security & privacy consulting
- Exception & risk management
- Mapping laws, rules, regs to policies, procedures, requirements, controls and assets
- Governmental and industry entity relationship management (Homeland Security, OCR, CMS...)

## Privacy & Security Operations

- Vulnerability Management
- Configuration management
- Privacy case management
- RPA, consent, notifications & disclosures
- Forensics
- Control execution
- Cyber & Information security
- Incident response
- Identity and access management
- Red team + Blue team

## Program Management

- Training
- KRI, SLA, health & compliance metrics
- Voice of the customer
- Stakeholder management
- Roadmap development, execution & management
- Threat intelligence & hunting
- Architecture / secure design authority
- New capabilities: Medical device security, application security
- Automation roadmap & execution



# Pace of Change?

Easter morning 1900: 5<sup>th</sup> Ave, New York City. Spot the automobile.



Source: US National Archives.

Easter morning 1913: 5<sup>th</sup> Ave, New York City. Spot the horse.



Source: George Grantham Bain Collection.

# Health Care Innovations



- Henry Ford Innovation Institute
- International Programs
- Virtual Care

# Henry Ford Innovation Institute



- Operating philosophy: Use innovation to improve healthcare and the patient experience.
  - Organized as an independent scientific research and educational entity
  - All inventions are welcome
  - Inventions assessed on potential impact on healthcare, economic potential and aligned costs to deploy, and related intellectual property attributes



## Henry Ford Allegiance Health has new tool for robot-assisted spinal surgery

Posted Jan 23, 2018



Henry Ford Allegiance Health neurosurgeons Dr. Azam Basheer, left, and Dr. Amritraj Loganathan, pose with the ExcelciusGPS robot. (Henry Ford Allegiance Health)

# International Programs



## – Medical Tourism

- International visitors

## – Licensing to New & Existing Hospitals

- License “know how” and technology to start ups and existing hospitals

## – Medical Partnerships

- Telemedicine, “colleague to colleague” access, remote specialty expertise and second opinions, “virtual” specialty clinics

## – Innovation Program Development

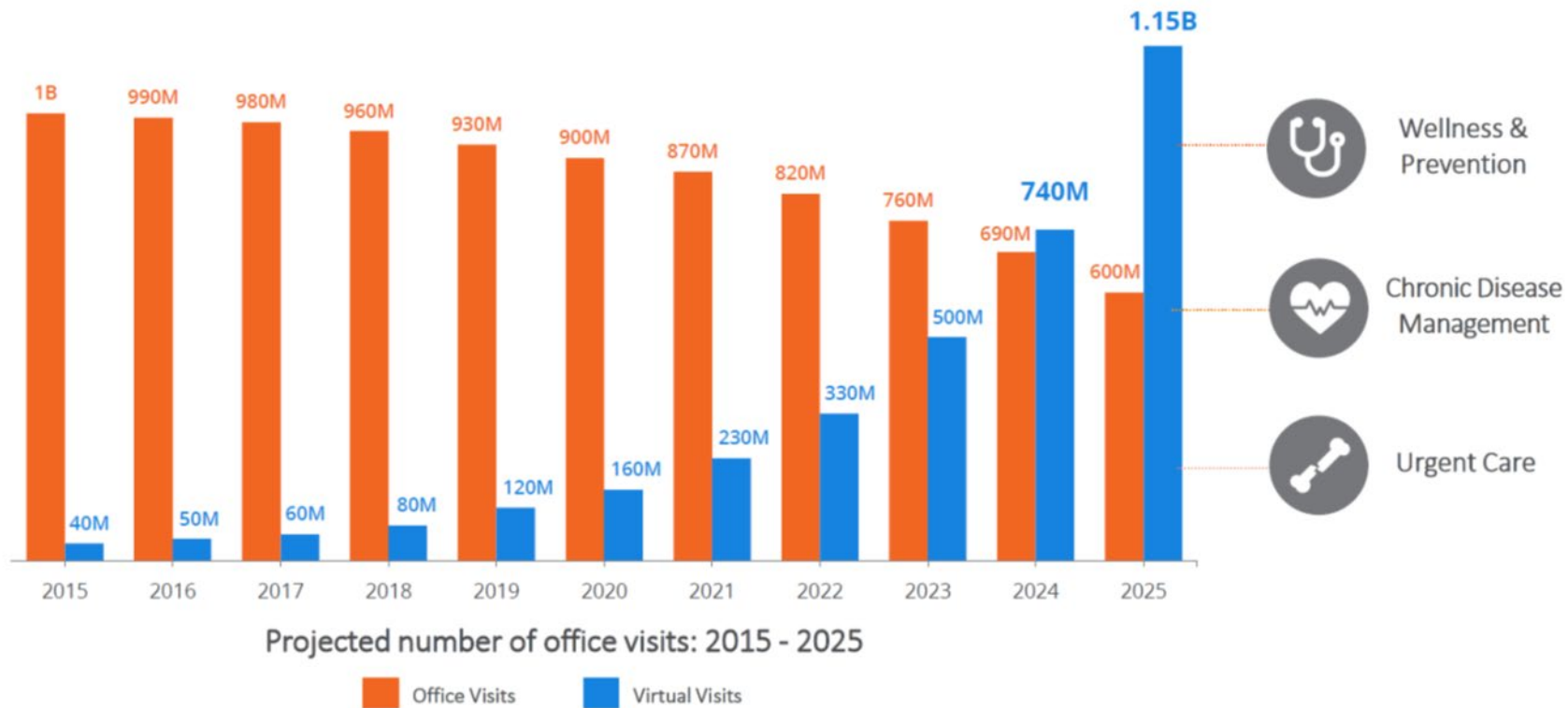
- Technology commercialization, validation of new technologies and adaptation for western markets

# Virtual Care Projections



## THE FUTURE OF HEALTHCARE IS VIRTUAL

*"Tomorrow's office visit will increasingly take place everywhere but the office"*

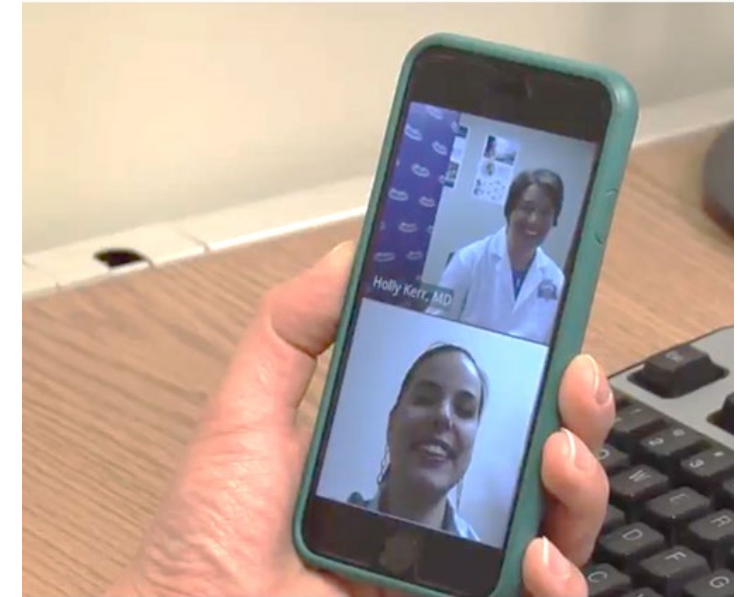


Private and Confidential. © 2018 MDLIVE Inc.

Source: Fortune, Ray Dorsey / Eric Topol - <http://fortune.com/2017/05/02/brainstorm-health-2017>

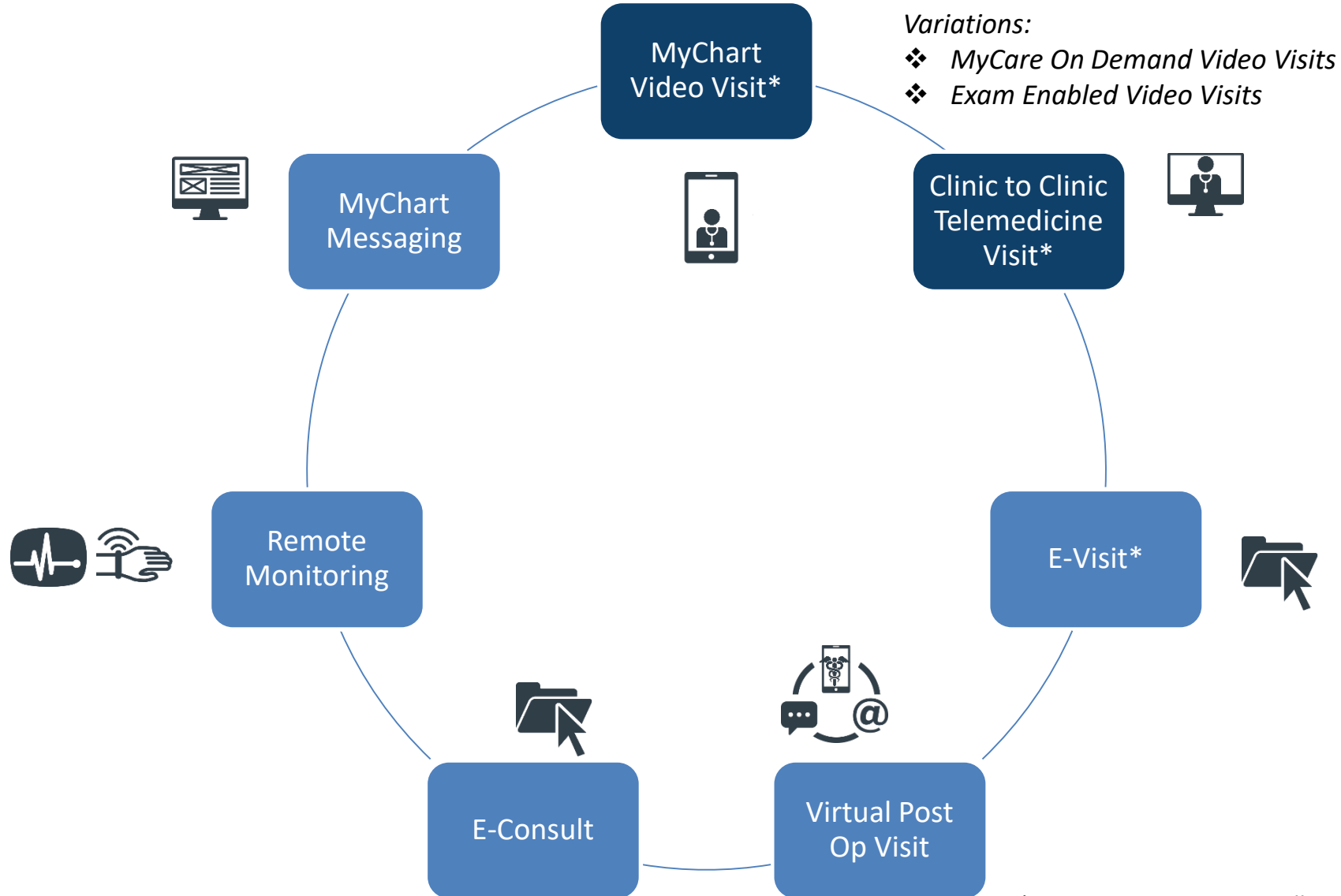
# Virtual Care – Disruptive Innovation

- **68%** of Americans own a smartphone
  - **90%** of the world's population own smartphone by 2020
- **77%** of consumers start their search for health care services online
  - **64%** of patients are willing to see a doctor via video
- Virtual healthcare market is expected to reach
  - visits of more than **105 million** by **2022**
  - revenues of more than **\$3.5 billion** by **2022**



# Virtual Visit Capabilities

- Synchronous
- Asynchronous



*\*Some insurance payers will reimburse for these services*



# HFHS Virtual Care *by the numbers*

**7,532+**



Virtual patient encounters in 2018

- **9,102+** in 2019 YTD
  - 5,043 Video
  - 4,059 Store and forward

**39+**



Specialty services and growing

**575+**



HFHS available specialists

**104,550** (134+ Days)

Patient Miles Saved in 2018



**2,890** (12+ Clinic Days)

Provider Miles Saved in 2018

Remote Patient Monitoring  
(eHome Care)



**1,787+** New Installs in 2018

- +668 New Installs in 2019 YTD
- +29,181 Encounter in 2019 YTD

**23,067+** Tele-Radiology Readings in 2018

- +13,019 in 2019 YTD

# Organizational Risk Approach



- Organizational Risk – led by SVP & General Counsel
- System-wide leadership of and accountability for five divisions:
  - Office of General Counsel (Legal)
  - Information Privacy & Security Office (IPSO)
  - Business Integrity (Compliance)
  - Risk Finance & Insurance Services (Risk)
  - Corporate Governance (Governance)

# Organizational Risk Approach



# Organizational Risk Approach



- Regularly partner with:
  - Information Technology
  - Health Information Management
  - Clinical Divisions
  - Virtual Care
  - Supply Chain Management



# HFHS Technology Vision



*While technology will play a role in the success of all strategic themes, the primary focus of our technology efforts will be in creating a differentiated experience, every time. Key technology focus areas will include:*



Continuing the evolution of our Customer Relationship Management capabilities and Web Presence to **attract customers to our businesses** – advanced SEO, digital marketing, market analytics, predictive modeling, ...



Deploying 'self serve' capabilities (self triage, self scheduling, pricing visibility, pre-service forms, payment, etc.) that **allow customers to interact with us on their terms** - however they want, whenever they want, from wherever they want. Become the Netflix (vs Blockbuster) of healthcare – mobile, web, next generation contact center, IoT, ...



**Extending our clinical expertise** beyond our physical footprint **by bringing care to the patient** rather than bringing the patient to the care – telemedicine, virtual visits, remote monitoring, ...



**Making it easier** for doctors, nurses, and other caregivers to do their work efficiently thereby **reducing clinician burnout** – EMR simplification, voice-driven documentation, secure messaging, .....



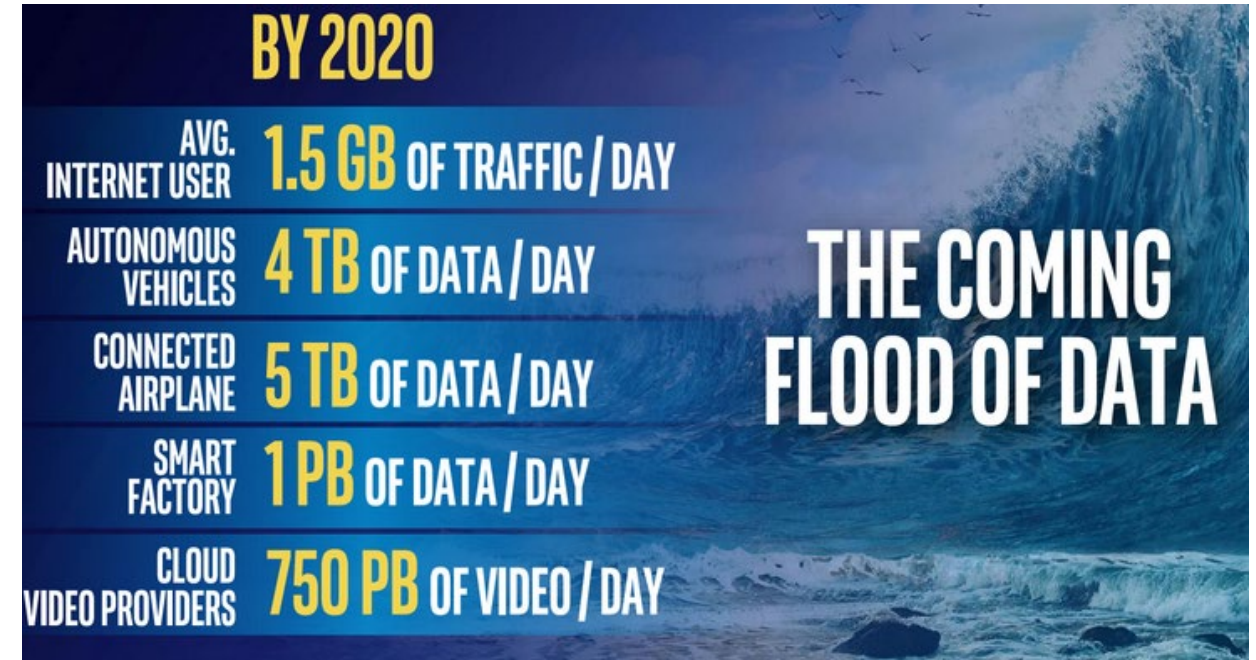
Automating operations and hardwiring best practices wherever possible to **improve customer service, reduce cost, and decrease dependency on labor** – robotic process automation, AI, IoT, analytics, ...



**Using data, analytics, and predictive modeling in all parts of the organization to guide decision-making** in the best interests of our customers

# Data Explosion and Analytics

- More data has been created in the last two years than in entire previous history of mankind
- By the year 2020, about 1.7 megabytes of new information will be created every second for every human on the planet
- Currently, less than 0.5% of data is ever analyzed and used

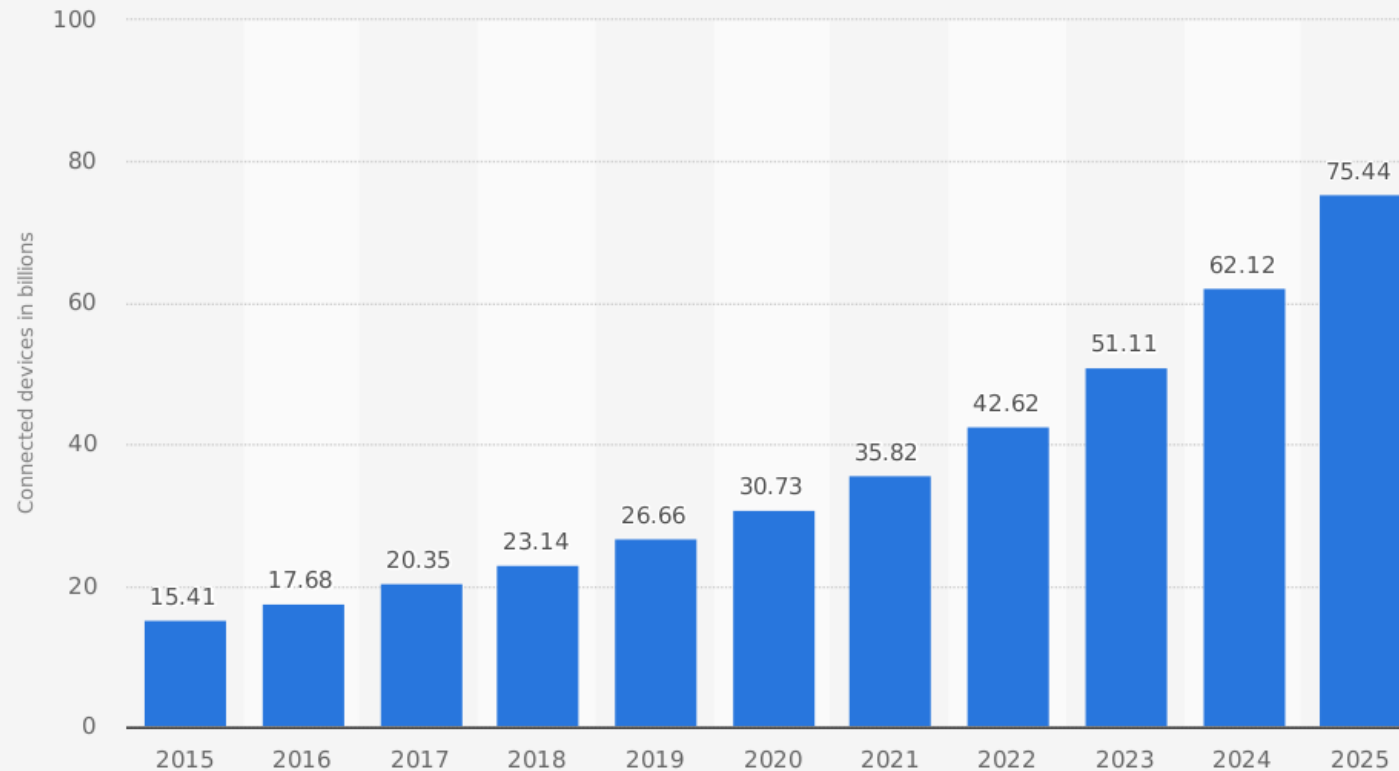


# Analytics Maturity Model – A Never Ending Journey



Improving Health and Reducing Total Cost of Care	<b>Level 8</b>	<b>Per Unit of Health Payment &amp; Prescriptive Analytics</b>	Contracting for & managing health. Tailoring patient care based on population outcomes.
	<b>Level 7</b>	<b>Per Capita Payment &amp; Predictive Analytics</b>	Diagnosis-based financial reimbursement & managing risk proactively
Reducing Variation and Waste	<b>Level 6</b>	<b>Per Case Payment &amp; The Triple Aim</b>	Procedure-based financial risk and applying “closed loop” analytics at the point of care
	<b>Level 5</b>	<b>Clinical Effectiveness &amp; Accountable Care</b>	Measuring & managing evidence based care
Improving Efficiency	<b>Level 4</b>	<b>Automated External Reporting</b>	Efficient, consistent production & agility
	<b>Level 3</b>	<b>Automated Internal Reporting</b>	Efficient, consistent production
	<b>Level 2</b>	<b>Standardized Vocabulary &amp; Patient Registries</b>	Relating and organizing the core data
	<b>Level 1</b>	<b>Integrated, Enterprise Data Warehouse</b>	Foundation of data and technology
	<b>Level 0</b>	<b>Fragmented Point Solutions</b>	Inefficient, inconsistent versions of the truth

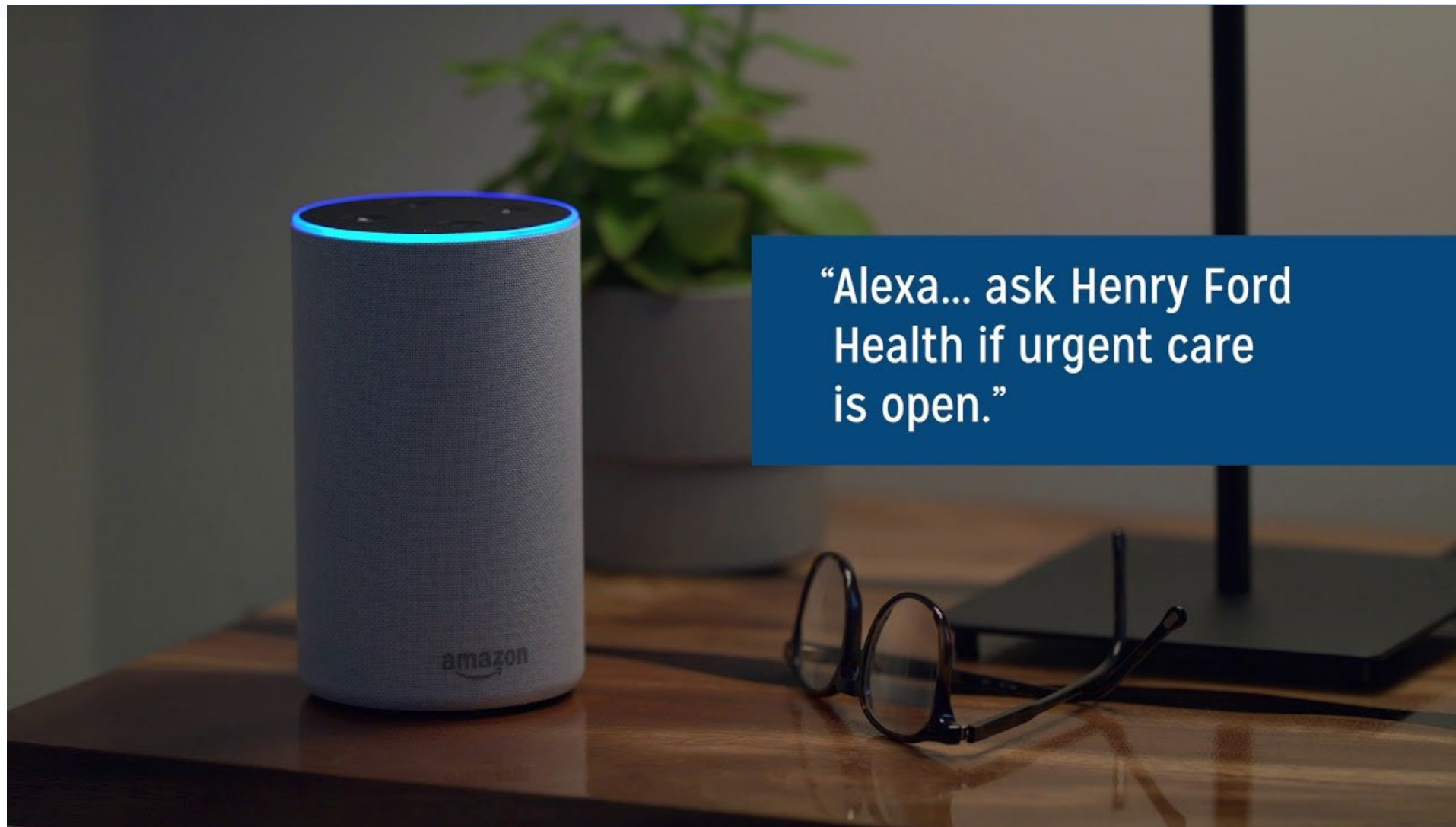
**Internet of Things (IoT) connected devices installed base worldwide from 2015 to 2025 (in billions)**



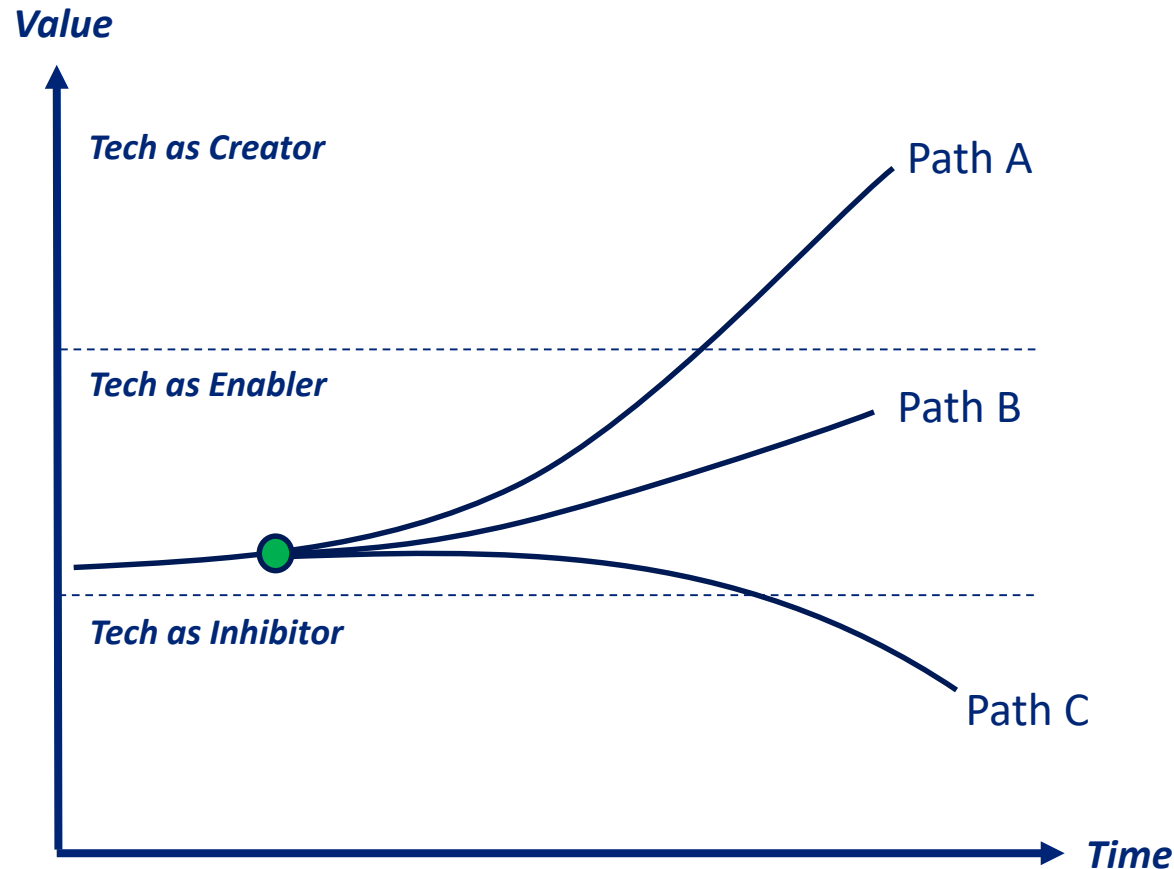
Source  
IHS  
© Statista 2018

Additional Information:  
Worldwide; IHS; 2015 to 2016





# Technology Strategy → Value Over Time



- What do we need to do to realize Path A?
- What do we need to do to avoid Path C?
- How can we do both within the context of:
  - Our organizational strategy?
  - Realistic expectations re maturity and value of technologies?
  - Our execution parameters (cost, talent, people, culture, etc.)?

## Risks

- Patient safety
- Business operations interruption
- Reputational damage
- Revenue loss
- Non-compliance fees
- Business recovery expenses
- Litigation
- Loss of competitive advantage
- National security

## Risk Drivers

- Data integrity attacks
- Medical device security
- Ransomware
- Enemy hacking programs
- Human error

# Key Concepts

- Two Way Street
- Interesting / Valuable
- Pace of Change
- Simplicity as a Goal



SIMPLICITY  
IS THE ULTIMATE  
SOPHISTICATON.  
- LEONARDO DA VINCI



**“We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten. Don't let yourself be lulled into inaction.”**

- Bill Gates, 1996



# HFHS Formally Chartered Governance & Collaboration



- Board of Directors
- Audit and Compliance subcommittee of the Board
- Executive Council
- System Planning and Performance Council
- Cybersecurity Steering Committee
- Digital Steering Committee
- Compliance Committee

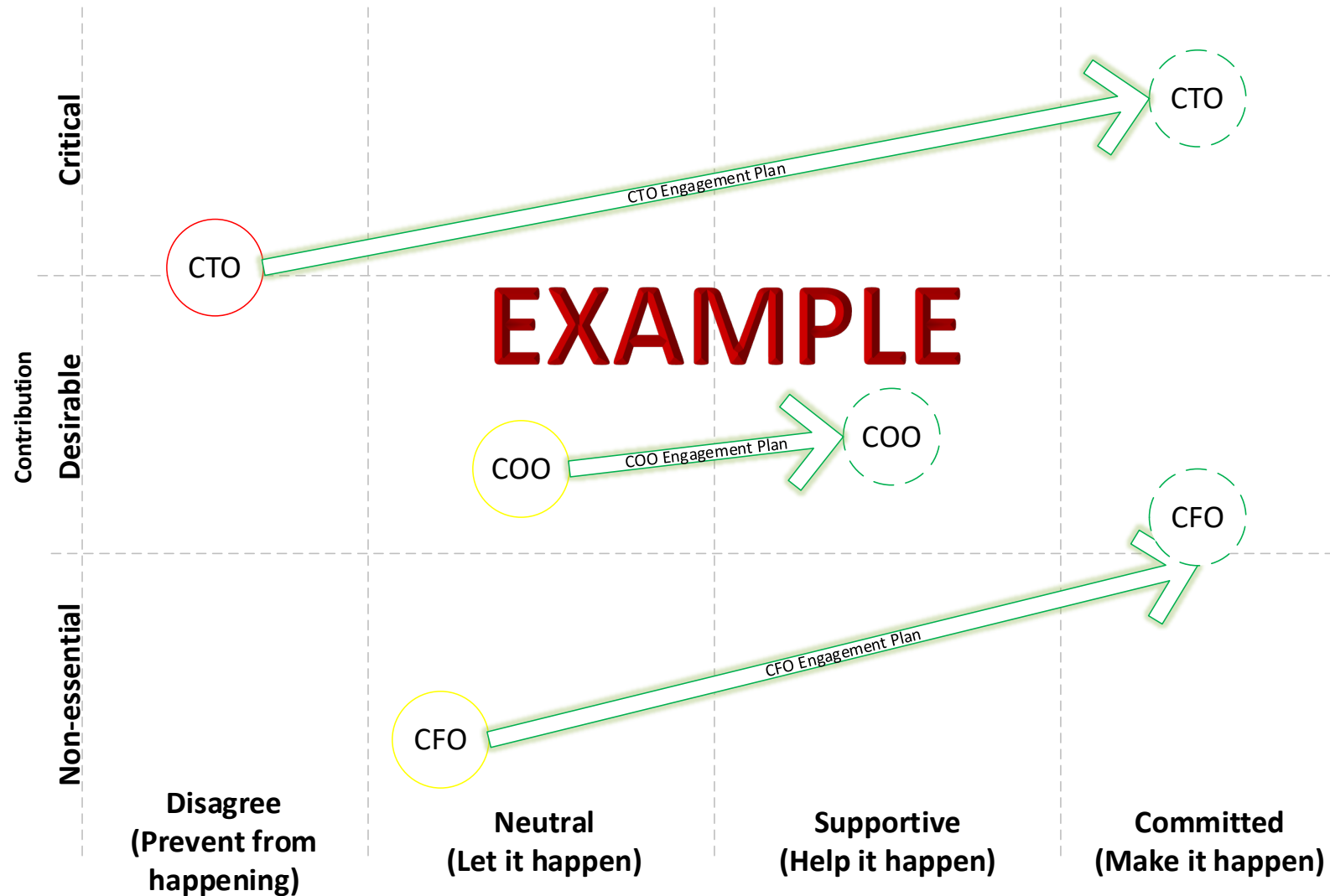
# HFHS Collaboration Processes

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- Emergency Preparedness Committee
- Social Media Advisory Team
- Voice of the Customer Community
- Weekly legal and privacy collaboration meetings
- Third party risk assessments
- Privacy and security risk management transformative approach

# Intentional Stakeholder Management

Stakeholder Assessment – Commitment and Contribution Map – Cybersecurity Program  
Commitment



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