

DIGITAL TRANSFORMATION IN HEALTHCARE

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PRESENTER



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AGENDA

INTRODUCTION TO "DIGITAL TRANSFORMATION" & WHY IT IS IMPORTANT TO HEALTHCARE

Definition, Paint a Picture of the Potential, Who Can / Should Focus on Digital Transformation?

THREE PATHS FOR INVESTMENT

Implementation, Optimization & Digital Transformation

ESTABLISHING YOUR BASELINE

Review Digital Maturity Models

STARTING THE JOURNEY

Key Elements of Your Digital Transformation Journey

Q&A



INTRODUCTION TO DIGITAL TRANSFORMATION & WHY IT IS IMPORTANT TO HEALTHCARE

FORBES > SMALL BUSINESS

The Digital Economy Is Here: Is Healthcare Ready?



Cindy Roark Forbes Councils Member

Forbes Business Council

COUNCIL

50 innovative chief digital officers to know

Cameron Cortigiano and Nika Schoonover - Updated Tuesday, June 21st, 2022



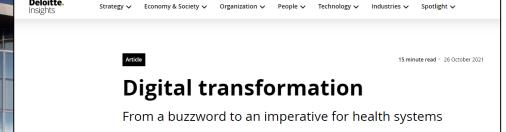
Chief digital officers are an emerging role for hospital IT teams and taking on increasing importance as systems dive deep into digital transformation.

Digital executives oversee technology use across the organization, both patient and staff-facing. The digital leaders are responsible for boosting the patient experience, access to care and innovation within the health system.











Kaiser Permanente taps Prat Vemana as first chief digital officer

By Heather Landi • Jul 29, 2019 03:11pm





Is the Chief Digital Officer as Important as the CEO in Healthcare?

February 23, 2022 Colin Hung 19 Min Read



Colin Hung

It is the responsibility of Chief Digital Officers to lead healthcare's digital transformation. They must align the C-Suite, frontline staff, and the ecosystem of technology suppliers so that there is mutual benefit as they collectively march towards the health system's digital goals. According to Raj Aggarwal, Chief Growth and Strategy Officer at Panda Health, this makes them as important as the CEO.



Share This!

Role of a Chief Digital Officer?

Healthcare IT Today recently had the opportunity to sit down with Aggarwal to discuss the role of Chief Digital Officers in health systems, the concept of digital transformation, and why both are so critical for healthcare at the moment.

When asked "What does a Chief Digital Officer (CDO) do?", Aggarwal responded with: "It's someone who can understand the clinical enterprise – the service lines of the organization – and be able to align the business model of technology companies with the business model of healthcare systems to create a win-win."

[The Chief Digital Officer needs to] know how to align the business model of the company with the business model of the healthcare system. "We'll pay you this, because we'll get this value in return." And what does that look like in a 3 or 5 year period.



HOW DO YOU DEFINE "DIGITAL TRANSFORMATION"?

DIGITAL TRANSFORMATION within Healthcare is the application of TECHNOLOGY, PEOPLE and PROCESS to:

- 1. Improve operational efficiency,
- 2. Enhance financial performance
- 3. Elevate patient and staff satisfaction,
- 4. Build patient capacity and access,
- 5. Increase the quality of care
- 6. Streamline innovation

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STRATEGIC IMPERATIVES

INTRODUCTION TO DIGITAL TRANSFORMATION

■ WHAT IS "DIGITAL TRANSFORMATION"?

Digital transformation can refer to anything from IT modernization (for example, cloud computing), to digital optimization, to the invention of new digital business models. The Transformation can occur via the use of technology itself, or via the application of a new process that utilizes technology (new or old). (Source: Gartner - https://www.gartner.com/en/information-technology/glossary/digital-transformation

☐ WHY DIGITAL TRANSFORMATION IS CRITICAL BEYOND THE STRATEGIC IMPERATIVES

- ✓ Compete with both "big tech and start-ups" and those competing healthcare organizations that embrace both
- ✓ Finding qualified healthcare employees is both difficult and costly
- √ Meet patient expectations for engagement & experience
- ✓ Effectively utilize data to improve your operations and clinical outcomes
- ✓ Compete in a larger remote healthcare delivery model

WHY DIGITAL TRANSFORMATION?

- ☐ DISRUPTION AND INNOVATION ARE COMING FROM ALL DIRECTIONS . . .
 - ✓ Amazon: https://health.amazon.com/ (Patient Experience & Data Focused Innovation)
 - ✓ TytoCare: https://www.tytocare.com/ (Efficiency Focused Innovation)
 - ✓ Walmart: https://one.walmart.com/content/usone/en us/company/walmart-health.html (Efficiency and Convenience Focused Innovation)
 - ✓ Kardia Mobile: https://store.kardia.com/products/kardiamobile (Cost and Al Focused Innovation)
 - ... HOW WILL YOUR ORGANIZATION COMPETE?
 - ... DO YOU HAVE THE "DATA INFRASTRUCTURE" TO COMPETE?

DIGITAL TRANSFORMATION IS NOT FOR EVERYONE!

☐ IS YOUR ORGANIZATION READY FOR DIGITAL TRANSFORMATION?

- ✓ Readiness for Change Management
- ✓ Leadership Priority
- ✓ Appetite for Investment
- ✓ Current Technical Maturity (Infrastructure & Applications)
- ✓ Disruption Threats?

☐ FOR MANY ORGANIZATIONS, DIGITAL TRANSFORMATION WILL BEGIN WITH A SINGLE PROJECT . . .

- √ Process Improvement
- ✓ New Electronic Health Record Implementation
- ✓ New General Ledger Implementation
- ✓ New Data Analytics Effort



THREE PATHS FOR INVESTMENT

THREE PATHS FOR TECHNOLOGY INVESTMENTS

Option #1 - Implementation

Replace End-of-Life System(s)

Update Legacy Processes

Departmental Systems & Processes

Option #2 - Optimization

Improve Existing System(s) Use

Integration of Existing
Systems

Targeted System Customizations

Option #3 — Digital Transformation

New Business models

Radically Different Cost / Productivity Structure

Advanced Data Analytics & Al

CREATE AND DEPLOY AN ACHIEVABLE BUSINESS PLAN

Option #3 — Digital Transformation

New Business models

Radically Different Cost / Productivity Structure

Advanced Data Analytics & Al



ESTABLISHING YOUR BASELINE

MATCHING DIGITAL TRANSFORMATION TO STRATEGIC IMPERATIVES

UNDERSTAND CURRENT STATE OF THE ORGANIZATION

✓ Clearly identify problems, needs, opportunities

☐ CREATE A VISION FOR WHERE THE ORGANIZATION WANTS TO BE IN 5 YEARS

✓ How will the organization function? How will patients and staff view the healthcare organization? What will the market say? How will finances look? How will jobs change? How will care be delivered?

□ PRIORITIZE TECHNOLOGY AND PROCESS CHANGE TO MAXIMIZE RETURN

- ✓ Which investments and changes will yield the fastest returns
- ✓ Build support and belief
- ✓ Take continuous steps to build up to the desired future state

☐ CONTINUOUSLY ANALYZE AND ADAPT

ESTABLISHING YOUR BASELINE

- MANY TOOLS EXIST TO BENCHMARK A CLIENT'S CURRENT STATE:
 - ✓ American Hospital Association "Digital Plus" Self Assessment: https://youtu.be/Yq4-jxyOvU
 - ✓ Advisory Board "Digital Health Maturity Model" (See Next Page)

 https://www.advisory.com/content/dam/advisory/en/public/shared/Research/HCIT/Resources/2019/WF1183512-hcita-digital-health-sys-ig.pdf
 - ✓ Eide Bailly Digital Maturity Model for Healthcare
- DATA MATURITY IS PERVASIVE IN ALL MODELS!

DIGITAL HEALTH SYSTEM Maturity Model

An ongoing journey to an ever-changing destination

CEOs must own digital transformation and innovation and lead with the right combination of practicality, engagement, and vision. However, IT leaders will play critical roles, given the reliance on technology enablement for today's business strategies.

How to use our maturity model

Our digital health systems maturity model has three stages: IT efficiencies, IT-enabled strategies, and digital transformation. There are 12 dimensions by which to assess where your organization currently is, versus where it wants to be in the future. You may fall in different maturities across each dimension. Leaders can then craft a strategy and roadmap to define the organization's digital transformation journey.

What's a digital health system?



Sets the foundation for, and reaps the rewards from, digital strategy enablement and digital or IT-powered innovation



Takes full advantage of digital technologies and IT-related capabilities to:

- Redefine business models
- Rethink processes.
- quality, and their cost structure
- Identify and address customer or patient needs

		IT efficiencies	IT-enabled strategies ○────	Digital transformation ○─○─
	Focus for and value from deploying IT	Automation for localized return on investment; quality improvement	Business and IT alignment; strategy enablement; scale; operational excellence and improvement	Digitization; sustaining or disruptiv innovations that scale and change the basis for competition
ቀֈየ	Governance, funding, and prioritization	"Scratch each other's backs"; huge backlogs of prioritized and approved requests; the haves and the have-nots of IT support	Enterprise focus; agile governance; funding for innovation proof-of- concepts; "strategic" funding	Venture capital-like innovation funding (possibly with separate bu coordinated governance)
\	Organizational and IT strategic planning	IT plan loosely aligned with business strategy; more of a prioritized list of initiatives	Tightly aligned or concurrent business and IT planning	Addresses critical business problems and opportunities
Ø	Non-IT leadership in IT-related matters	Functional and departmental leaders	C-level executives	CEO, perhaps supported by a chie digital officer
××,	Business and clinical leader skills and focus	Operations; financial; functional	Enterprise; strategic, "T-shaped": business and clinical skills; IT- literate; data-literate	Practical, engaged visionary; important end-to-end journeys; support for agile co-development
	CIO skills	Infrastructure technologies: project management; application selection and implementation	Business and clinical acumen: digitization (fundamentally rethink); analytics; "T-shaped" (T skills	Practical digital innovation: organizational change and agiity; talent and partner management
	IT-related staff skills	"Stovepiped" technical skills	Consultative; "soft-skills"; business understanding; integration; interoperability; lifelong learning	Knowledge of key business problems, exponential technologic and how to deploy them
00	IT infrastructure and operations	Localized (by facility or department); reliability; stability	Reduce "keep the lights on" expenses; centralization, standardization, reliability, and scalability	Two-speed IT ² , agile; virtualization cloud: analytics platform; mobility platform; interoperability; innovation services
<u></u>	Systems and technologies	Point solutions for transactions and analytics; proven (best-of-breed) technologies	Enterprise systems of record, systems of insight; enterprise technologies	Systems of engagement and exponential technologies; "outside in" view of systems
~o(Data and analytics	Localized: point solutions	Enterprise perspective; data- informed operational and management decisions; basic advanced analytics	Data-informed strategic decisions innovation; automated operationa decisions; artificial intelligence and machine learning
100 M	Key vendor relationships	Tactical	Strategic	Marked by joint investments, shar risk and reward arrangements
0	Security and risk management	Localized; ad hoc; reactionary	Centralized and standardized	Built-in; risk-based approach; extends to digital partners



Health Care IT Advisor

Advisory Board Learn more about how we can help business, clinical, and IT leaders prepare for digital transformation: advisory.com/DigitalHealthSystems





3 INVESTMENT PATHS

BALANCED APPROACH (PEOPLE, PROCESS & TECHNOLOGY)

THINKING "BEYOND THE EHR"

REDEFINING BUSINESS MODELS

RETHINKING PROCESSES & THEIR COSTS

The concept that two speeds of IT development can be used in a digital strategy: the customer-tacing functions are faster to deploy, and the transactional core functions should be deployed more deliberately.

Eide Bailly Healthcare "Digital Maturity Model"



AWARENESS

Attributes:

- Stable Operating Model
- Legacy Systems & Processes

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- Chaos (Data, Systems, Processes, et al.)

Business Results:

 Operations Consistent with Peer CAHs

LEARNING

Attributes:

- Digitization of Care Delivery Processes
- "Pockets" of Digital Success
- Limited Automation
- Departmental System Deployments

Business Results:

- Uneven Patient Satisfaction
- Inconsistent Patient Engagement



COMPETING

Attributes:

- Data Literate
- Digital Constituent Engagement
- Wide-Spread Automation of Processes
- Digital Transformation is Driven from the Top

Business Results:

- Improving Patient Satisfaction Levels
- Accelerating Patient Engagement



WINNING

Attributes:

- Data-Driven Clinical Decision Making
- Agile IT Systems & Infrastructure
- Pervasive Automation of Processes (Clinical & Back Office)
- Advanced Patient Engagement Platform(s)
- Real-Time Operational Insights

Business Results:

- Expanding Market share
- Leading Clinical Outcomes
- Leading Financial Performance
- Optimized Clinical Staff Utilization



TRANSFORMING

Attributes:

- Highly Optimized Use of Labor
- Differentiating Leverage of Technology
- Automated Clinical Insights (i.e., Al & Machine Learning)

Business Results:

- Transformative Care Delivery Models
- Dominant Patient Satisfaction
- Innovative New Patient Relationship Management Capabilities



EIDE BAILLY DEVELOPED & ADAPTED TO HEALTHCARE

MOVE BETWEEN LEVELS
WHEN APPROPRIATE
FOR YOUR
ORGANIZATION

STRATEGIC INVESTMENTS
TO MATCH YOUR
CURRENT MATURITY
LEVEL / DESIRE

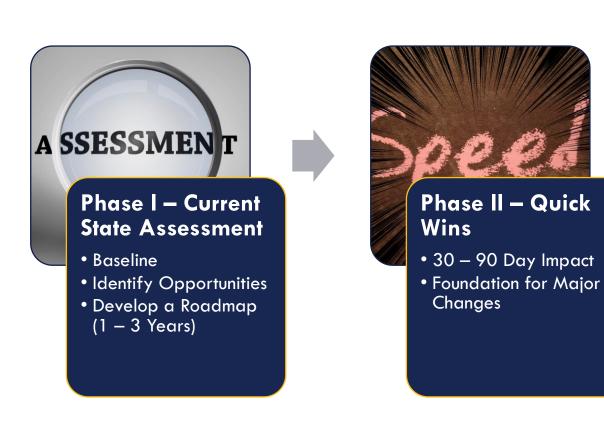
EASY PLACE TO "JUST START"



STARTING THE JOURNEY

STARTING THE JOURNEY

☐ THREE MAJOR PHASES FOR ALL DIGITAL TRANSFORMATION INITIATIVES





7 KEY PILLARS FOR HEALTHCARE DIGITAL TRANSFORMATION



#1 — PEOPLE READINESS

DIGITAL TRANSFORMATION LEADERS

- + **Digital Literacy** plan across your organization. (Board, Executives, Administrative & Clinical Staff)
- + A team comfortable with "digitally native" processes.
- + "CIO-Level" IT Leadership.

EVERYONE ELSE (IMPLEMENTATION & OPTIMIZATION)

- Staff are not comfortable with system and / or process changes.
- Technology investments are seen primarily as an opportunity to do the same work, only faster.
- "IT Director" / Infrastructure IT Leadership

Key Strategy: Establish a culture that embraces new technology and leveraging that technology to drive your organization's strategic goals and objectives.

#2 - PATIENT ENGAGEMENT

DIGITAL TRANSFORMATION LEADERS

- + Manage patient relationships like "customers". (e.g., CRM)
- + Active management of the "patient journey". (Acquisition through managed care)
- + Native integration of patient-generated data.
- + Consolidation of all patient health data.

EVERYONE ELSE (IMPLEMENTATION & OPTIMIZATION)

- Patient-Portal focused solutions. (Records, Events, Bills, etc.)
- Simple sharing of information. (Lab Results, Test Results, Visit Notes, et.)

Key Strategy: Identify "next generation" patient engagement technologies and processes.

#3 — DATA INFRASTRUCTURE

DIGITAL TRANSFORMATION LEADERS

- + Centralized "data asset". (e.g., Data Warehouse)
- + All stakeholders working off of a single version of the truth.
- + Internal data "enriched" with public and / or paid data sources.
- + A "foundation for Al" has been established.
- + Exploring Use Cases for Al.

EVERYONE ELSE (IMPLEMENTATION & OPTIMIZATION)

- Application-based reporting and insights.
- Islands of data within each core system.
- Manually generated and distributed reports.
- Limited real-time insights.

Key Strategy: Define your data strategy and implement an enterprise data infrastructure that accelerates that value achieved from your other Digital Transformation initiatives.

TOP TRENDS FOR BIG DATA IN HEALTHCARE

Expanding Categories

Data Lakes & Data Warehouses

Predictive Analytics & Artificial Intelligence

Diverse Data

EXPANDING CATEGORIES



DATA LAKES



DATA WAREHOUSE VS DATA LAKE

DATA LAKE

RAW:

• Contain unstructured, semi structured and structured data with minimal processing. It can be used to contain unconventional data such a images and sensor data.

LARGE:

 Contain vast amounts of data in the order of petabytes. Since the data can be in any form or size, large amounts of unstructured data can be stored indefinitely and can be transformed when in use only.

UNDEFINED:

 Data in data lakes can be used in a wide variety of applications, such as Machine Learning, Streaming analytics and Al.

DATA WAREHOUSE

STRUCTURED:

 Contain highly structured data that is cleaned, preprocessed and refined. This data is stored for very specific use cases such as BI.

SMALLER:

 Contain less data in the order of terabytes. In order to maintain data cleanliness and health of the warehouse, data must be processed before ingestion and periodic purging of data is necessary.

RELATIONAL:

 Contain historic and relational data, such as transaction systems, operations, etc.

AI & PREDICTIVE ANALYTICS

ONE OF THE BIGGEST TRENDS FOR BIG DATA IN HEALTHCARE IS ITS USE FOR PREDICTIVE ANALYTICS. HEALTHCARE ORGANIZATIONS ARE USING THIS INFORMATION TO MAKE DECISIONS NOT ONLY FOR PATIENT CARE, BUT FOR THEIR OPERATIONS THROUGHOUT THEIR SYSTEM.

PREDICTIVE ANALYTICS ARE BEING USED BY CLINICIANS, FINANCE DEPARTMENTS, HUMAN RESOURCES, AND ALMOST EVERY TEAM WITHIN A HEALTHCARE ORGANIZATION.

EXAMPLES:

Using socioeconomic and environmental factors to determine the likelihood of cardiovascular disease.

Using data and outcomes of past patients to provide insights into methods of treatment that will work best for current patients, improving patient outcomes.

Predict finances based on past financial performance.

IN THE PAST, A LOT OF DECISIONS WOULD BE DONE AS A REACTION TO WHAT ALREADY HAPPENED. HOWEVER, PREDICTIVE ANALYTICS PROVIDES A DIFFERENT APPROACH.

AI & PREDICTIVE ANALYTICS

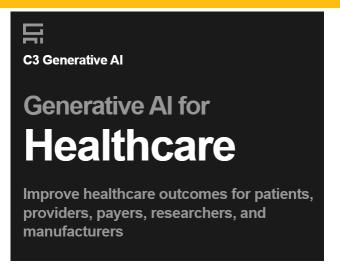


TOPICS JF SUBSCRIBE MAIN MENU

ANZ ASIA EMEA Global Edition

Al & ML Intelligence Global Edition

Generative AI can be applied to nearly every healthcare use case you can think of



How generative AI could change healthcare

Generative AI has joined the ranks of healthcare professionals in early use cases from medical research to patient communications. Al at scale isn't far behind.



Published: 11 Dec 2023

MEDTECH

Google launches MedLM generative Al models for the healthcare industry

By Andrea Park · Dec 14, 2023 11:14am

DIVERSE DATA

Sources of BigData in Health Care





An important topic in healthcare right now is equality of care—and data has a role in inclusive solutions. One of the benefits of big data in healthcare is that it is diverse, coming from multiple sources and so many different places—including socioeconomic and social determinants. All this data allows us to look at the patient more holistically and produce treatment plans that have more of an impact.

WHAT IS A "DATA STRATEGY"?

A Data Strategy can help your hospital . . .

Get More Efficient (Labor and other resources)

Grow (Identify market opportunities, grow service lines, etc.)

Uncover the Value Trapped in Your Systems and Processes

Make Better Decisions . . . And Make Them Faster!

Turn Mountains of Data From a Liability Into an Asset.



"A DATA STRATEGY IS A HIGHLY DYNAMIC PROCESS EMPLOYED TO SUPPORT THE ACQUISITION, ORGANIZATION, ANALYSIS, AND DELIVERY OF DATA IN SUPPORT OF BUSINESS OBJECTIVES."

(SOURCE: GARTNER)

<u>HTTPS://WWW.GARTNER.COM/EN/INFORMATI</u> ON-TECHNOLOGY/GLOSSARY/DATA-STRATEGY

WHY A DATA STRATEGY?

1

Payment Model Disruption

• Better and more timely data will be required to respond to the <u>transition from volume-based to value-based</u> <u>payment models</u>.

2

Consumerism

• Patients (e.g., "Customers") expect more from healthcare providers in 2024! Patient generated health data, pricing transparency, non-traditional competitors, etc.

3

Industry Challenges

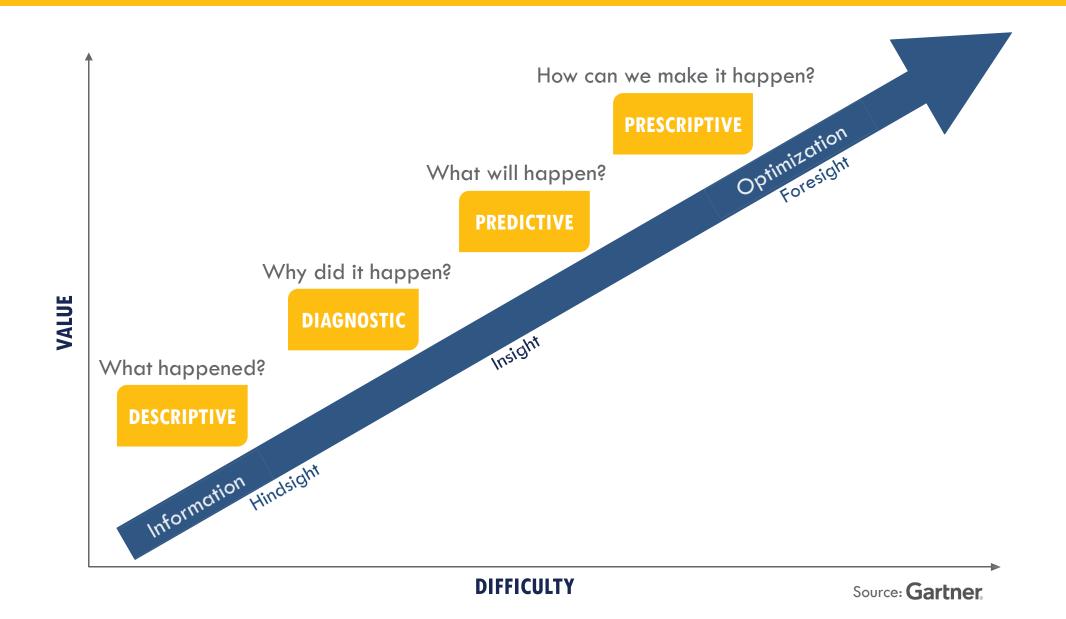
• As an industry, healthcare has created a fragmented and highly distributed data infrastructure. Systems that are experts at managing through these challenges will "win".



Artificial Intelligence Revolution

• Data to drive Artificial Intelligence clinical process will become increasingly critical to health system success.

GOAL: MOVE UP THE DATA MATURITY SCALE



#4 — REMOTE CARE DELIVERY

DIGITAL TRANSFORMATION LEADERS

- + "Telehealth First" (Where clinically appropriate)
- + View telehealth as an opportunity for:
 a) Efficient care delivery and b) An improved patient experience.
- + Invest in new and innovative remote care delivery platforms.
- + Adjust processes to account for more common remote care delivery.

EVERYONE ELSE (IMPLEMENTATION & OPTIMIZATION)

- Enhance current care processes with telehealth.
- Telehealth when required. (By patients or competition)

Key Strategy: Prepare to participate and thrive in the remote care revolution! (People, Processes & Technology Platforms)

#5 — PLATFORM MODERNIZATION

DIGITAL TRANSFORMATION LEADERS

- + Cloud vs. On-Premises
- + Replace aging systems on a timely basis.
- A flexible and dynamic platform for implementation of whatever comes tomorrow.

EVERYONE ELSE (IMPLEMENTATION & OPTIMIZATION)

- Push current systems beyond their limits. (Risk, Age, Stability, etc.)
- Default to adjusting new systems to legacy processes. (vs. Improving processes with new system implementation)
- "We need another server for . . . "

Key Strategy: Aging systems (and new systems based on archaic technology) will hold back your larger Digital Transformation initiatives. "Modernize on the cloud"!!

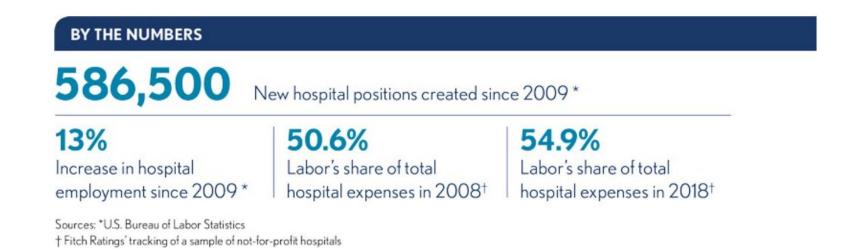
#6 — PROCESS IMPROVEMENT & STAFF PRODUCTIVITY

DIGITAL TRANSFORMATION LEADERS

- + Data-driven process improvement is pervasive.
- + Labor efficiency is known and managed.

EVERYONE ELSE (IMPLEMENTATION & OPTIMIZATION)

- Status quo for labor productivity expectations.
- Labor use and efficiency is not regularly monitored.



Key Strategy: Efficient use of labor in healthcare is the goal; however, we cannot achieve this goal without a focused effort on improving our processes and without the data that allows us to see our inefficiencies.

#7 — SECURITY & RISK MANAGEMENT

DIGITAL TRANSFORMATION LEADERS

- + Security is part of each Digital Transformation initiative.
- + A holistic view of security. (Not just technology and not just applications.)
- + Annual staff training on cyber security.
- + Annual (at least) vulnerability testing.

EVERYONE ELSE (IMPLEMENTATION & OPTIMIZATION)

- Random / Periodic assessments
- No regular testing for vulnerabilities.
- People not adequately training on cyber security risks and threats.

Key Strategy: Elevating and "building in" security to your newly Digitally Transformed organization should be integrated into your efforts from day one. (e.g., Security and risk management in healthcare is not a periodic assessment.)

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