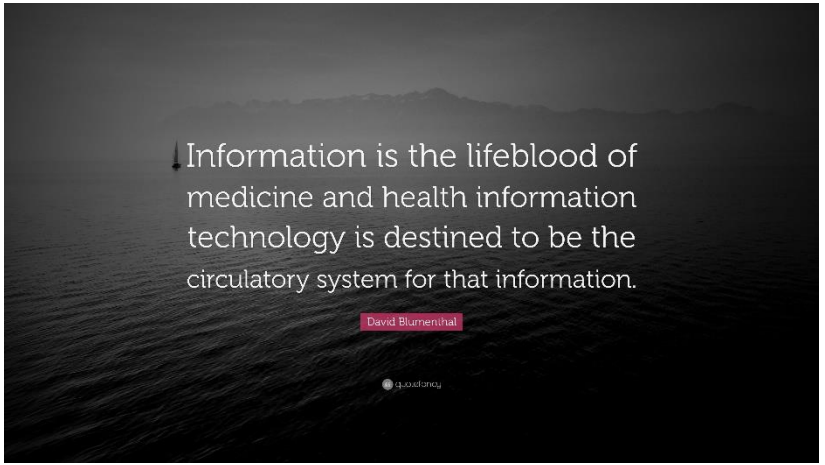
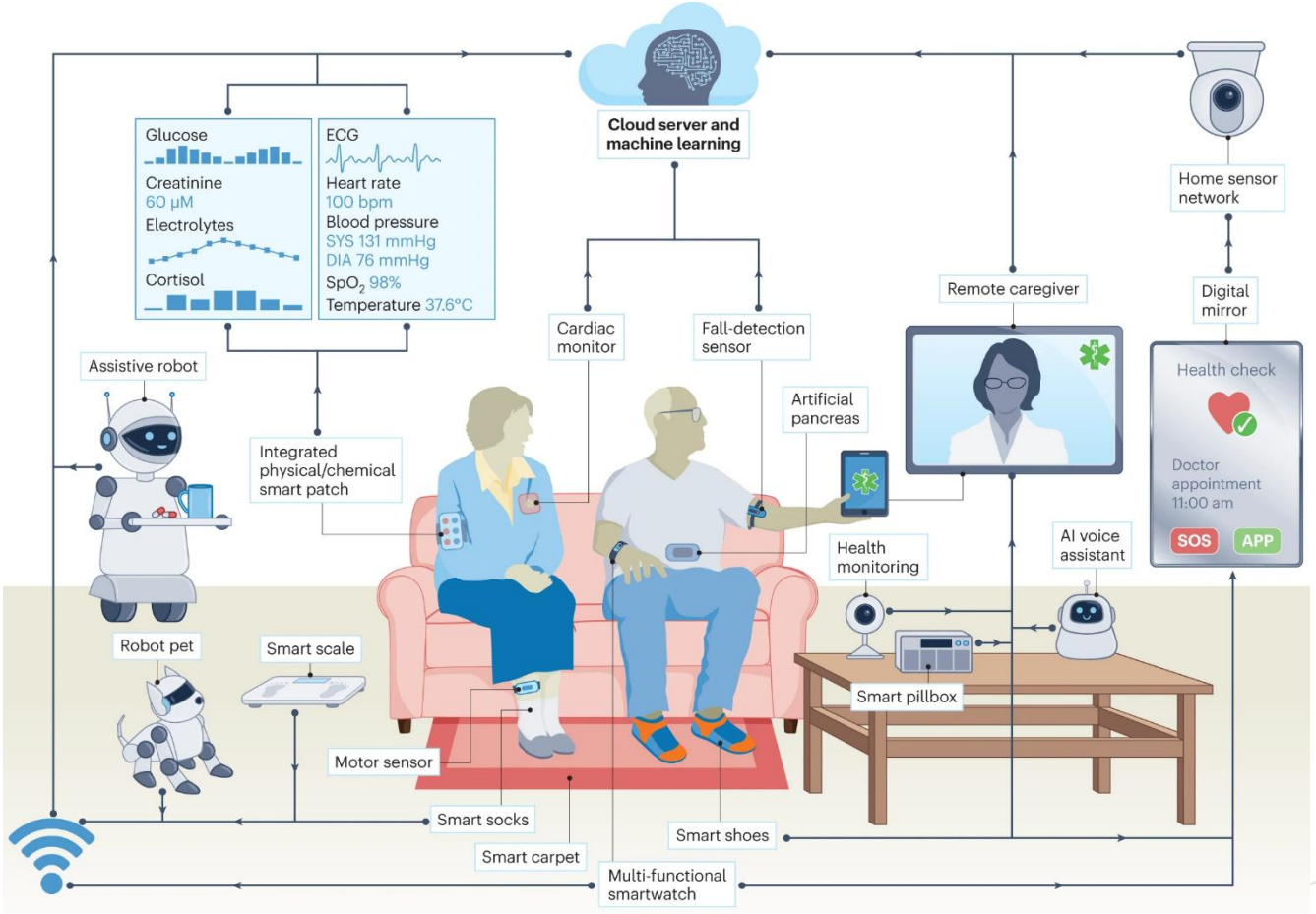
Digitalization driving tangible value in Patient Care, Operational Efficiency & Business growth

By Saqib Chaudhry
Healthcare Technology Executive

Two schools of thought, which one would you associate with?



This is the Future We're Building: Charting Our Course towards a Connected, Intelligent, and Patient-Centric Healthcare



Healthcare Digital Trends: Where Leaders are Investing?

Investment Goals, Spending Trends and Priority Areas

Increased Spending

From 2019 to 2023, 75% of providers increased their digital and IT budgets with 1 in 5 citing increases of more than 30%. These increases are expected to continue as most providers project their digital and IT budgets to grow in 2024, and nearly half cited moderate to significant increases.

Increased digital and IT budgets since 2019

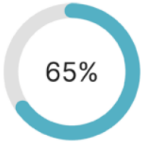
Expect digital and IT budgets to increase in 2024

Increased digital and IT spending by more than 30%

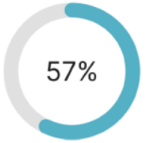
Investment Goals

Health system leaders seek solutions that streamline administrative processes for clinicians and make it easier for patients to access healthcare services, communicate with providers, and manage their health.

Increasing investments due to patient and/or provider feedback



Hope to benefit via increased operational efficiencies



Hope to benefit via improve consumer experiences

Priority Areas

When selecting top areas for digital and IT investments in 2024, cybersecurity infrastructure was identified as the highest priority, followed by electronic health record (EHR) modernization, digital care, and advanced analytics, AI, and machine learning.

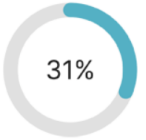
85%

of CEOs and 79% of health system leaders see substantial or transformative change ahead

Cybersecurity infrastructure

Digital care

EHR modernization



Advanced analytics, AI, and machine learning

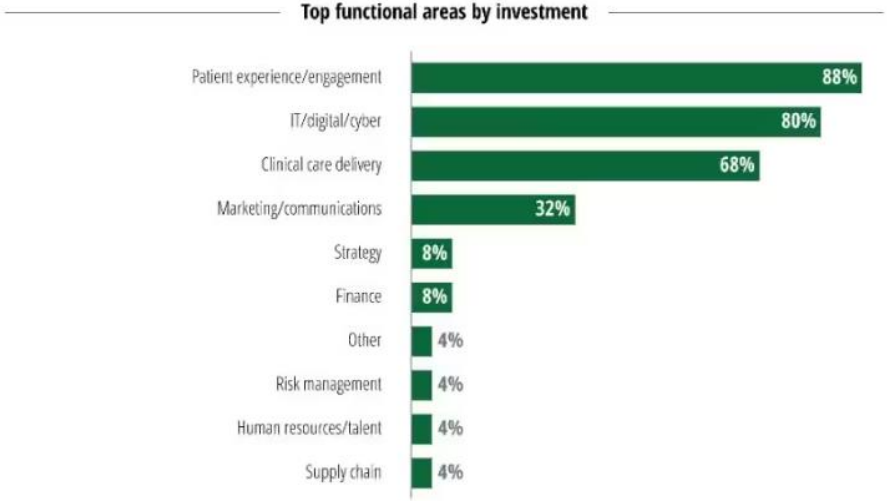
1.82x

increase in home and virtual care expected by health executives over the next decade

Where Healthcare is Investing Digitally, and Why it Matters?

Consumer engagement is a top outcome and digital investments priority

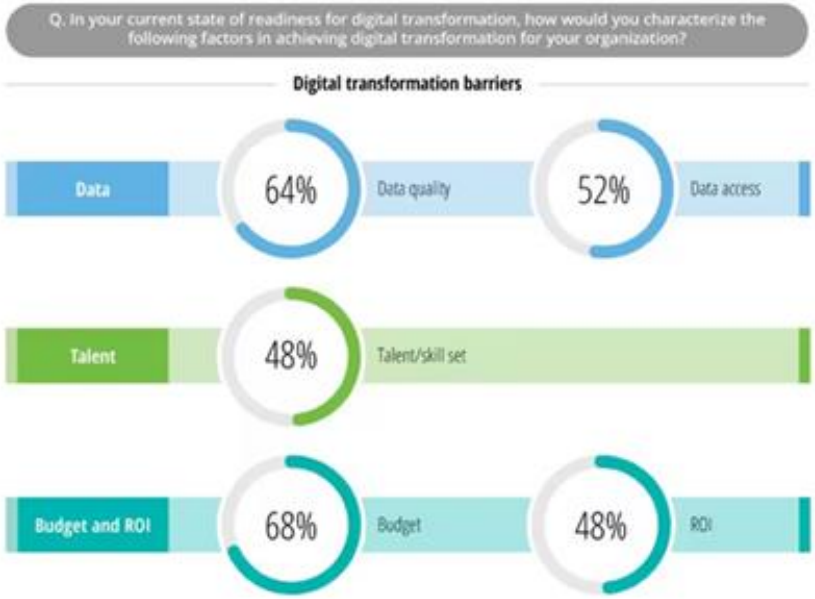
Q. In which functional area(s) is your organization investing in digital transformation efforts the most today?



Q. What are the top three outcomes that you hope to achieve as a result of digital transformation in your organization? (Select top three)

Digital Transformation: What's Holding Us Back, and What's Driving Us Forward?

Data, talent, & budget among top barriers whereas, leadership and change management seen as accelerators



Notes: Total responses = 25; the responses are not mutually exclusive.
Source: Scottsdale Institute-Deloitte, Health System Digital Transformation Survey, 2021.

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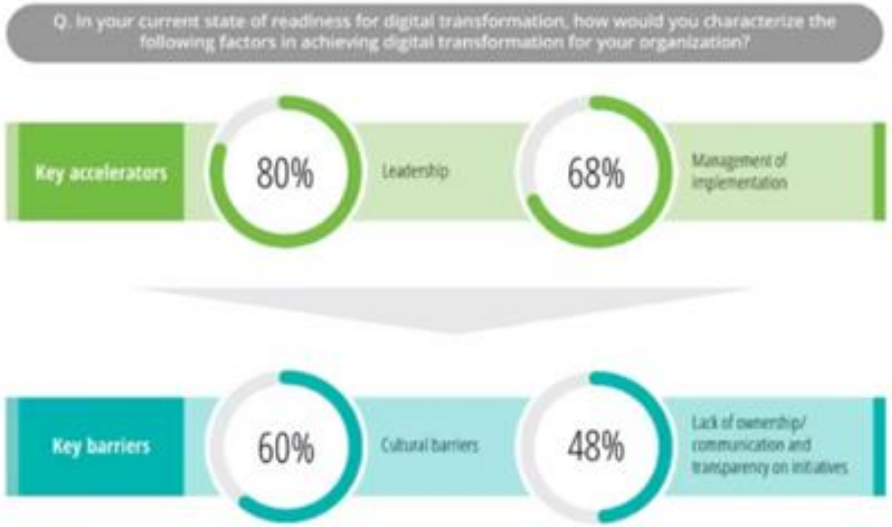

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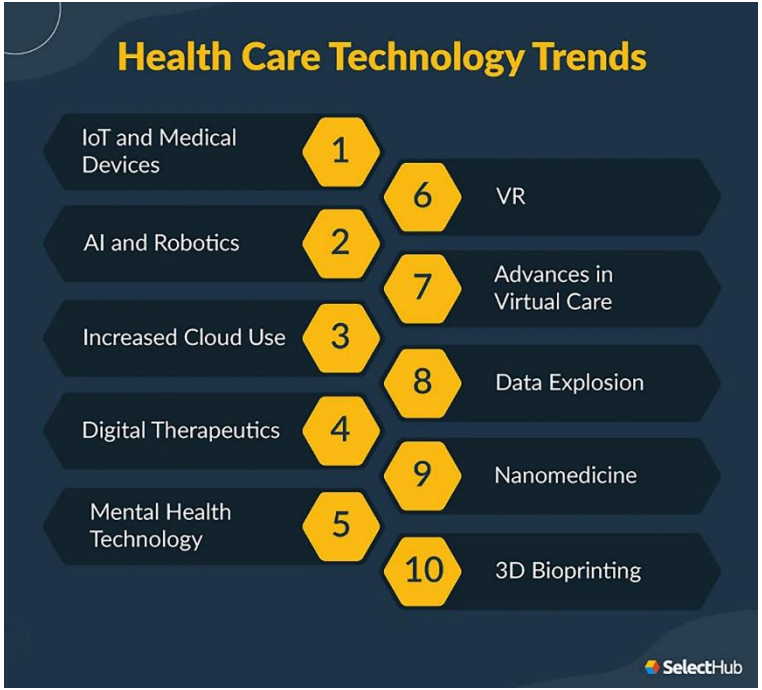
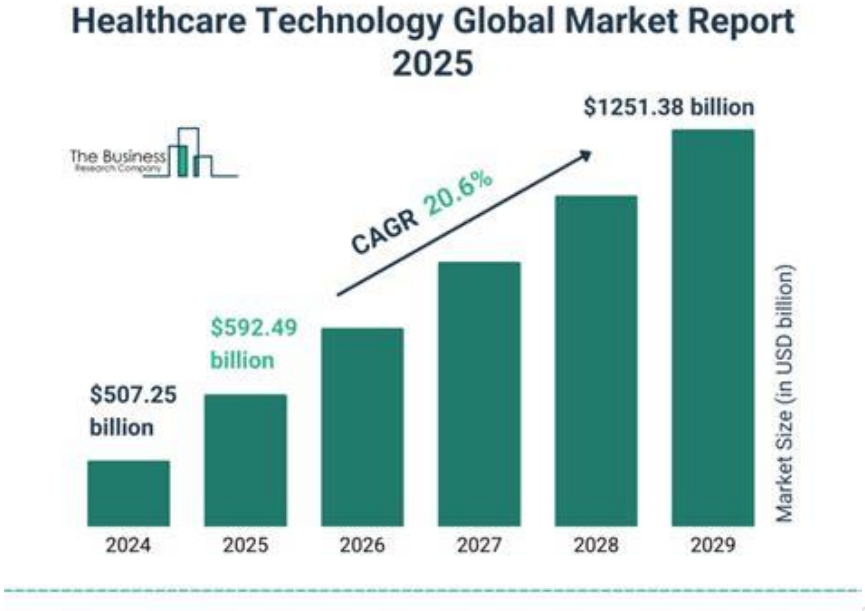
Where is Healthcare Innovation Heading: Trends & Market Insights?

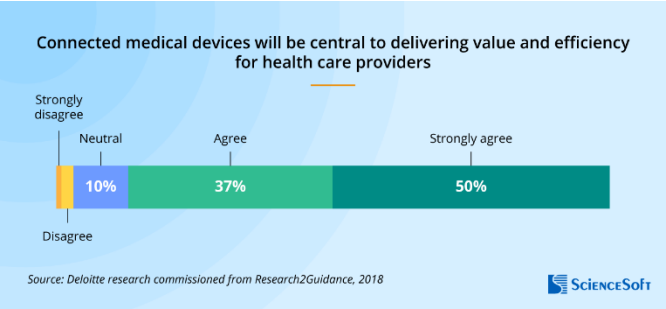
Top 10 Trends Shaping the Next Decade of Digital Health; Emerging Technologies Driving the $1.2 Trillion Healthcare Market

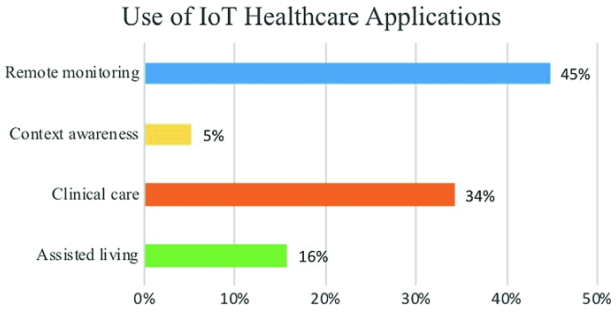


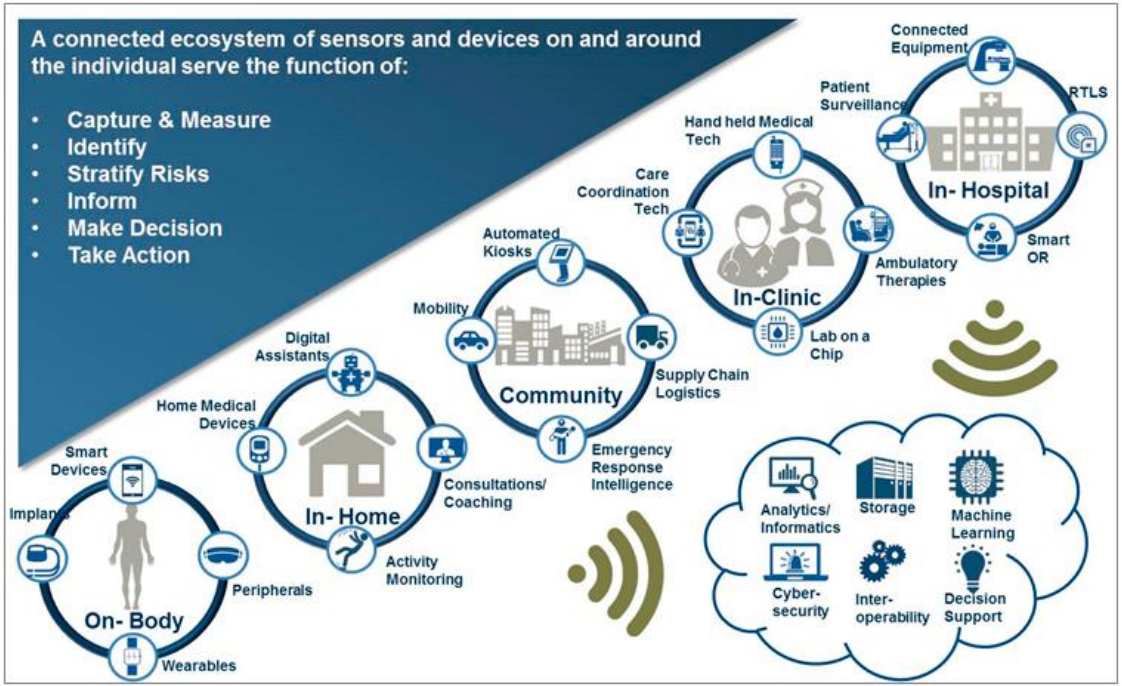


Connected Care Ecosystems: The Next Frontier in Digital Health?

A How IoT and Smart Devices Are Reshaping Healthcare Delivery

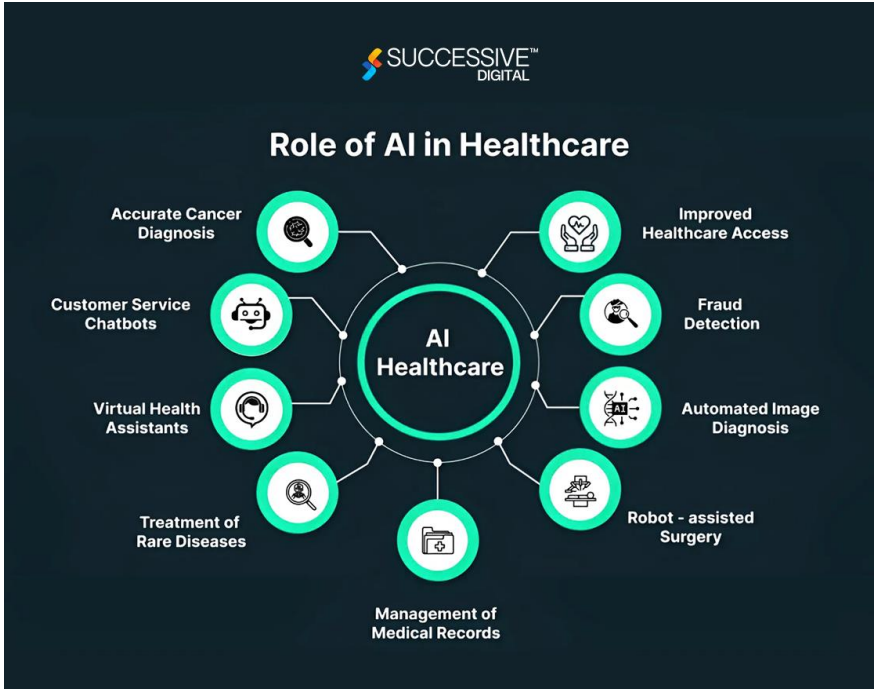


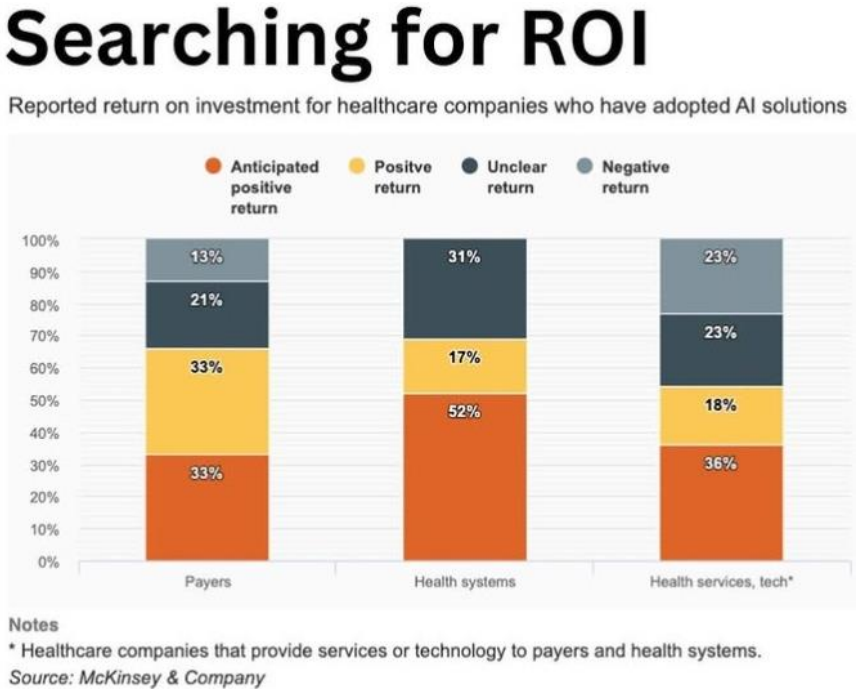




Artificial Intelligence in Healthcare: Transforming Outcomes but Still Chasing ROI?

How is Artificial Intelligence, being the alpha technology, is transforming healthcare





How to Measure ROI in Digital Health: What Leaders Should Track

8 Critical Factors That Define Value, Outcomes, and Sustainability

Digital Transformation Done Right: What You Can Expect?

Combined impact across a 18–24 month period can lead to a 25–35% increase in total patient volume handled with the same clinical resources.

1 AI-Driven Scheduling & Triage Optimization

- **What it does:** Uses AI to optimize patient scheduling based on historical no-shows, provider availability, and clinical complexity.
- **Impact:** Reduces idle provider time and no-show rates.
- **Example:** A ***reduction*** in missed ***appointments by 20–30%*** can directly boost throughput.

2 Digitization of Clinical Documentation & Order Entry

- **What it does:** Implements streamlined electronic health records (EHR) workflows, speech-to-text tools, and automated order sets.
- **Impact:** ***Frees up 10–15 minutes*** per patient encounter, allowing more patients to be seen per day.

3 Real-Time Bed & Resource Management

- **What it does:** Automates tracking of bed availability, discharge readiness, and patient transport using dashboards and IoT devices.
- **Impact:** Speeds up patient flow, reduces emergency room boarding, and shortens inpatient stays.

4 Clinical Decision Support (CDS) Systems

- **What it does:** Offers AI-augmented recommendations for diagnostics and treatments.
- **Impact:** Reduces diagnostic errors and avoids unnecessary tests, speeding up patient throughput by ***up to 10%***.

5 Automation in Imaging & Lab Workflows

- **What it does:** Uses AI to pre-read radiology images or auto-flag abnormal labs.
- **Impact:** ***Cuts turnaround time by 20–40%***, enabling faster clinical decisions.

6 Virtual Care & Telehealth Integration

- **What it does:** Routes non-urgent or follow-up visits to virtual channels.
- **Impact:** Offloads physical clinics and increases available slots for higher-acuity in-person patients.

7 Integrated Data Dashboards

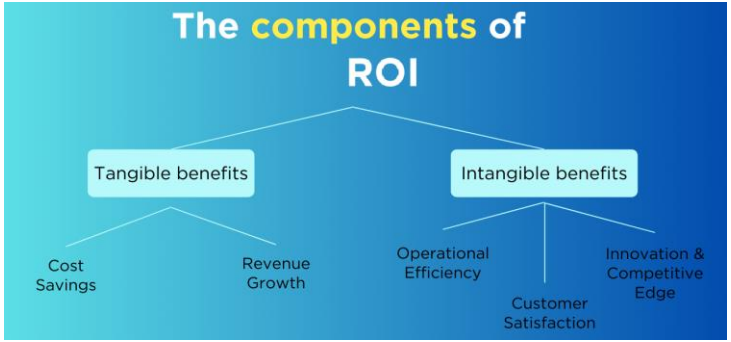
- **What it does:** Provides clinicians with unified patient views, reducing time spent switching between systems.
- **Impact:** Increases clinician efficiency and decision-making speed.

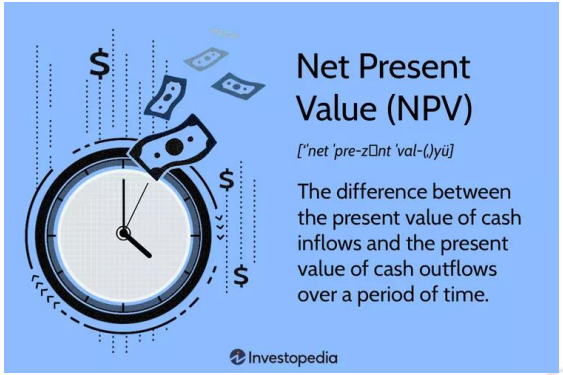
Our digital transformation program was organized in 7 themes

5 years NPV return of approx. 2.5x

7 Main overarching themes supported by 50 Clinical & Back Office Use Cases

- Digital Front Door
- Tele, Virtual & Remote Health
- Population Health Analytics & Personalized Medicine
- Hospital Digitization
- Process & Operational Efficiency
- Workforce Development & Talent Management
- Data-Driven Decisions & Value Capture





USE CASE DETAIL BY THEME

Medical Use Case | Business Use Case | Active Use case

1 - Digital Front Door

- M5 AI Tools & Chatbots for Enhanced Triage (Omnichannel Experiences with Robotic Process Automation & Chatbots)
- M13 Automated proactive referral management and follow-up
- B11 Customer Relationship Management Deployment
- M26 Pre-Care Transparency calculator

4 - Process & Operational Efficiency

- M28 AI-driven Resource Alloc. Optimiz. & Capacity Planning
- B6 Demand forecast management solutions
- B 13 Digitalization of paper-intensive workflow
- B 7 Digitalization of the Audit Process
- B8 Digitalization of the Quality Process
- B1 Enablement of Mobile Journey for employees
- B12 Enterprise-wide Self-BI Enablement
- B15 Next Gen Upgrade - Transforming System Capabilities (NEW USE CASE)
- B 14 Organization-wide process efficiency boost
- B9 Procurement-process efficiency boost
- M31 Smart Enhancement of Patient Management E2E
- B10 Smart Internal Inventory Management & Tracking - (Smart Supply Chain Tracking)
- M33 Visual, real-time KPI tracking and dash-boarding for Hospital operations' monitoring
- B16 Cyber Resiliency & Data Protection (NEW USE CASE)

2- Tele/Virtual & Remote Health

- M18 Adv. Telehealth, Remote Sensing & Remote Patient Monit.
- M10 App & AI enabled solutions for Senior Care management
- M11 AR/VR augm. guidance & treatment delivery support
- M12 AR/VR-based rehabilitation programs & therapies
- M14 Digital Health Assessments, Coaching & Engagement
- M15 Digital neurocognitive assessment & early identification
- M20 Medication adherence platform & devices
- M19 Mental Health Self-Care Solutions
- M22 Next-gen digitally-enhanced rehab therapies

3 - Clinical Data-Driven Decisions

- M4 AI based EHR scan for risk management
- M6 AI for Autom. document processing & medical coding
- M7 AI-assisted diagnostics & clinical decisions support
- M9 AI-supported tools for emergency Triage
- M32 Smart Examiner for Automated Retinal Image Analysis
- M 10 App & AI enabled solutions for senior care management
- M16 Digital Therapeutics DTX Solution
- M 30 Smart and connected scales for RPM

5 - Pop. Health Analytics & Pers. Medicine

- M8 AI-driven genetic risk profiling & counseling
- M34 Healthcare Community Connections (NEW USE CASE)
- M17 Gene editing
- M21 Molecular testing for Cancer
- M23 Patient Journey Optimizer & Personalized Care
- M24 Pharmacogenomics and Personalized Medicine
- M25 Population Health Program Development

6 - Hospital Digitization

- M1 3D printed devices & advanced prosthetics
- M3 Advanced Intra-hospital communication
- M27 Remote imaging, interpretation and Home testing
- M29 Robotic and AI-assisted surgery

7 - Workforce Development & Talent Mgmt.

- B2 Holistic employees' skills mapping
- B 3 Human capital management - employee journey
- B 4 Human capital management - medical staff journey
- B 5 Internal upskilling and reskilling training journeys

Selected Project Example 1

Enterprise PACS – AI Modules for Lung & Breast Screening

Use Case

COO

AI-ASSISTED DIAGNOSTICS & CLINICAL DECISIONS SUPPORT

KPI Formula

Number of studies with applied algorithm

Key Stats

# of modules

2+

ROI Formula

Number of screenings in 2023	11,000
Average time saved per screening	~5 minutes
Total time saved per year	(11000*5)/60 = 917 hours
Blended rate of radiologists	
Annual ROI	USD 73,333
NPV for 5 years	$17k

Theme

Data-Driven Decisions & Value Capture

Tangible ROI

Tangible ROI

5 Year NPV

~$15K - ~$17K

Intangible ROIs

- Increases the rate of capture of abnormalities. Improving quality and decreases cost of delayed diagnosis and disease burden.

Selected Project Example 2

EHR Cognitive Computing Models

Use Case

CIO

AI-driven Resource Allocation
Optimization & Capacity Planning

KPI Formula

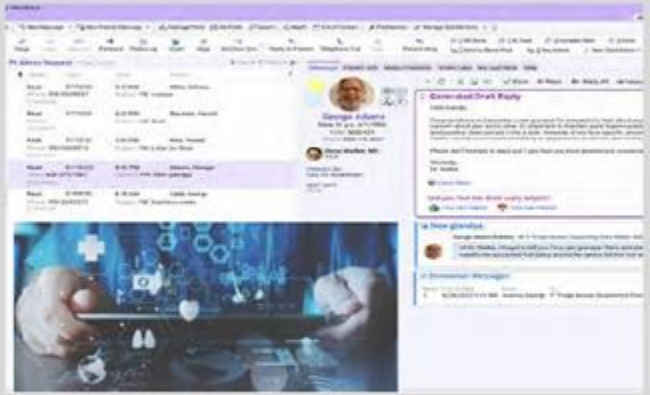
a. Reduction of In-basket messages through AI categorization (Yearly)

b. Bed days saved from ED to IP (9% LOS savings)

c. % of AI-generated messages utilized (Yearly)

ROI Formula

Advanced Capacity Planning Cognitive Computing Models	In Basket Categorization	Annual ROI Calculation: ((4,215,750 In Basket messages X 0.25 minutes X 0.3 reduction) / 60 = 5,270 Physician Hours Saved.
		NPV:1.27 M over 5 years
Advanced Capacity Planning Cognitive Computing Models	ED Likelihood to Occupy a Bed	LOS of patients admitted from ED X % of reduction in **LOS X the Avg cost of LOS. Current LOS is 6.3 days
		NPV:3.16 M over 5 years
AI In Basket Generated Draft Responses	Profitability/ Cost Avoidance	Annual ROI Calculation: (180,000 messages X 2.5 minutes saved) / 60 = 7,500 clinician hours saved per year.
		NPV:1.05 M over 5 years



Theme

Process & Operational Efficiency

Tangible ROI

5 Year NPV

~$4.8M - ~$5.9M

Intangible ROIs

- Streamlines medication management by reducing errors and enhancing inventory control with real-time updates.
- Speeds up prescription fulfillment through automation, freeing staff to focus on patient care.

All numbers shown on this slide are indicative and are for demonstration purposes only

Selected Project Example 3

Self-serve Business Intelligence Dashboards

Use Case

CFO

Enterprise-wide Self-BI Enablement

Our SAC Dashboards are helping our Business Stake-holders to take DATA DRIVEN DECISIONS and to effectively manage their KPIs.

KPI Formula

Min	Target	Stretch
2	5	7

# of KPIs added Per quarter

Key Stats

# of Dashboards	Total KPIs
48	63

ROI Formula

Annual ROI	5 days per department per month (40 hrs) x 4 x12 months = 1920 hrs / year
NPV for 5 years	190k

Theme

Process & Operational Efficiency

Tangible ROI

5 Year NPV

~$150K - ~$190K

Intangible ROIs

- Potential cost avoidance savings = **~$5M**
- Improves decision making and operational efficiency with detailed insights.

All numbers shown on this slide are indicative and are for demonstration purposes only

Selected Project Example 4

AI Powered Diabetic Eye Exam

Use Case

COS

Smart Examiner for Automated Retinal Image Analysis

KPI Formula

Number of images read by AI

Key Stats

Diabetic AI Algorithm Eye Validation – 98% sensitivity

* - compared to current 91%

ROI Formula

Total Screenings	15000
Nursing Hours Saved	6250
Doctor reading Hours Saved	3750
Care Coordinator Hours Saved	375
Amount of savings after blended rate application	643,250
NPV for 5 years	173,600

Theme

Data-Driven Decisions & Value Capture

Tangible ROI

5 Year NPV

~$150K - ~$175K

Intangible ROIs

• Implementing this technology will allow exponential increase in the number of screening for Diabetic Retinopathy and decrease in screening time with instant results and referrals. Eventually freeing Ophthalmologist to see more patients.

All numbers shown on this slide are indicative and are for demonstration purposes only

Selected Project Example 5

RPA & Patient Facing AI Chatbot

Use Case

CIO

AI Tools & Chatbots for Enhanced Triage (Omnichannel Experiences with Robotic Process Automation & Chatbots)

KPI Formula

Overall call center cost saving

Functionalities Planned

Appointment scheduling for Primary Care

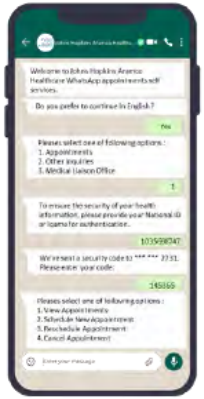
Connection with live agents

ROI Formula

Total Call Center Operational Cost

Savings attributed to RPA and AI Chatbot — Lower limit 15% - Upper Limit 25% - Target 20%

KPI Target	KPI	NPV
15%	900K	2.7M
20%	1.2M	3.9M
25%	1.5M	5.1M



Theme

Digital Front Door

Tangible ROI

5 Year NPV

~$2.7M - ~$3.9M

Intangible ROIs

- Enhances patient satisfaction with quick, standardized responses and seamless escalation to live agents.

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Selected Project Example 6

EHR Home Health Module

Use Case

CNO

Advanced Telehealth, Remote Sensing & Remote Patient Monitoring

KPI Formula

Number of home health visits conducted using home health

Key Stats

9000+ planned home visits yearly

ROI Formula

Year	Calculation	Cost avoidance
(Annual nursing hours saved per year) x Med-Surg Nursing Hourly Blended Rate		
Annual nursing hours saved per year:		
2025	4,500 *	144,000
2026	9,395 *	300,640
2027	9,590 *	306,880
2028	9,781 *	312,992
2029	9,978 *	319,296
NPV 5 Years		617,284

Theme

Tele/Virtual & Remote Health

Tangible ROI

5 Year NPV

~$450K - ~$650K

Intangible ROIs

- Enhances patient safety through immediate data availability, contributing to additional ROI.

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Food for Thought: The ROI of $0.25 – Small Investment, Massive Global Impact

According to WHO, investing an additional US $ 0.24 per patient per year in Telemedicine, mobile messaging and chatbots now, means that over the next decade:

Thank you!