Healthcare Digital Transformation

TECHNOLOGY ROADMAP STRATEGY

RICOH
imagine. change.

Ricoh Global Companies Founded 1936

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Thomson Reuters
TOP 100
GLOBAL INNOVATORS

1.2 Million Customers World Wide

120,000+ Employees Worldwide

200 countries and territories

3200 Health Systems in the US

World Class Manufacturer

Industry leader in document management

Industry leader in Advanced Commercial Print/Communications

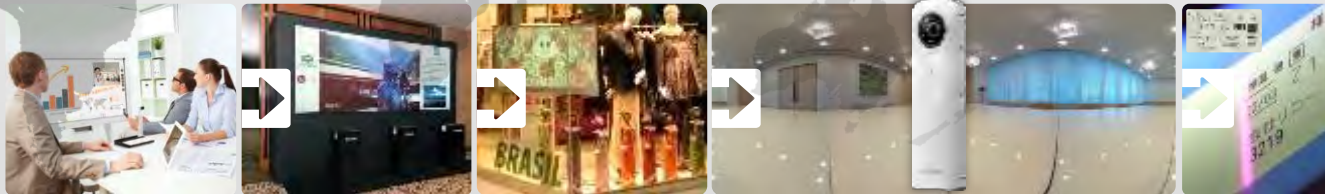A **pioneer** in environmental management

Magnetoencephalography (MEG) Brain Imagery

Bio Medical (Cell Differentiation)

3D Printing Anatomical Pathology

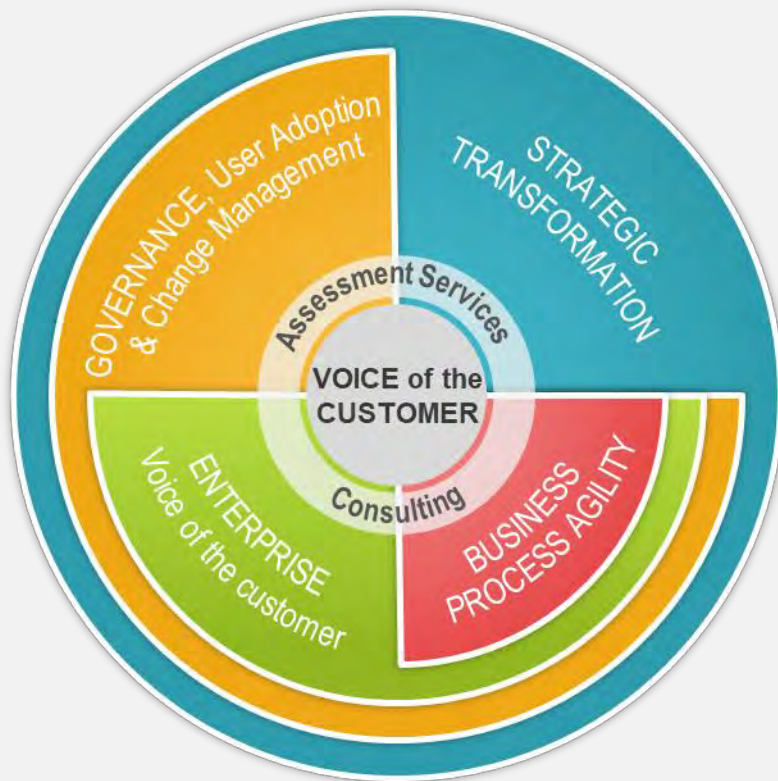Over **50,000** patents worldwide*

Ricoh Company Ltd. has **6 R&D facilities** around the world*

Introduction

Rory Fitzpatrick
Healthcare Partner Executive

Strategy, Direction & Leverage "Ricoh as a Service" to Help our Customers

Digital Transformation & Technology Management

Practice Group Areas:

- **Resource & Capacity Utilization**

- **Patient, Provider & staff Experience**

- **Care Collaboration**

- **Shared Management & Integrated Service Center**

- **Mergers & Acquisitions**

- **Information Management & Cloud Technology**

Today's Topic – Digital Transformation

Creating a technology roadmap

Key Focus Points & Terms :

Common Challenges

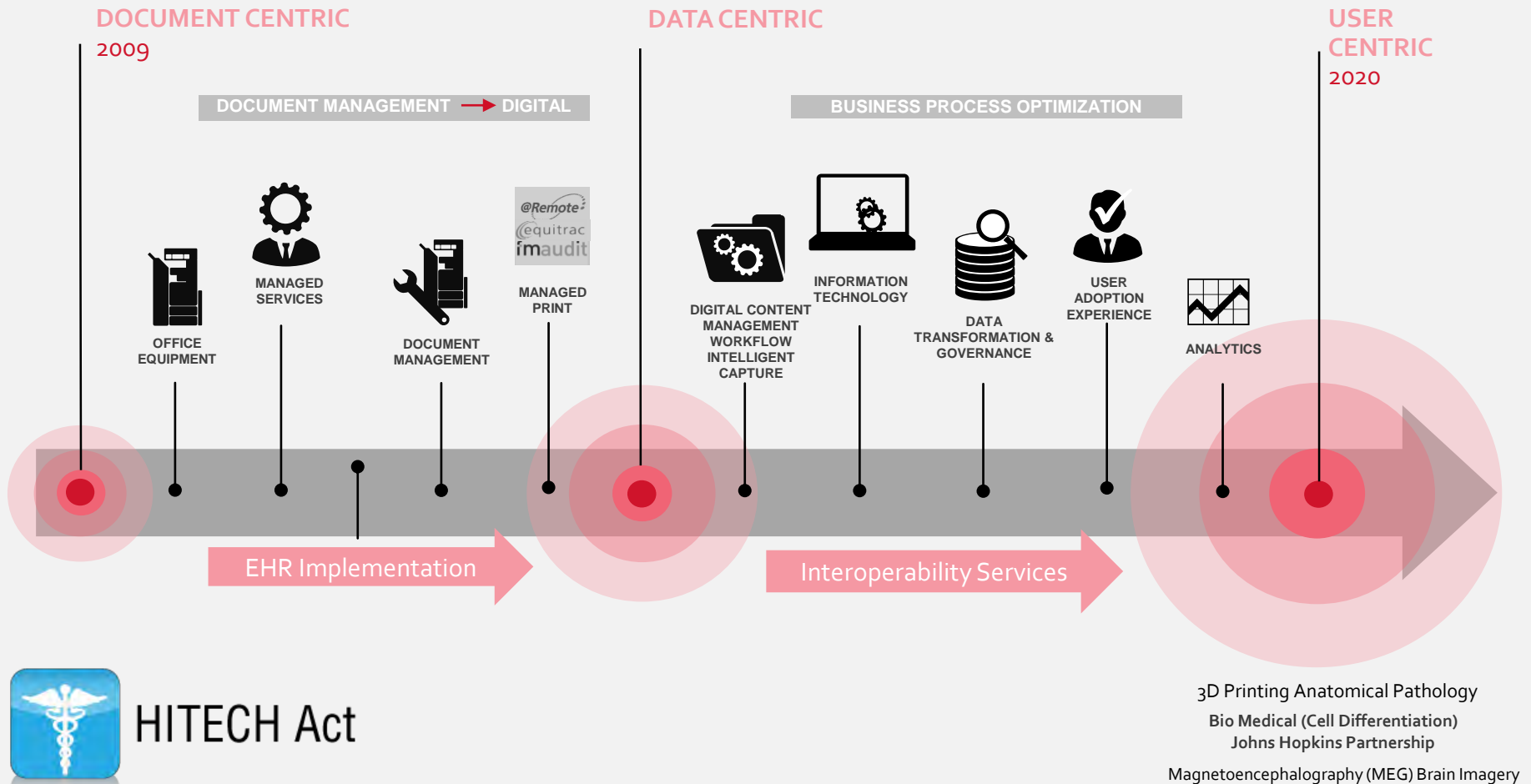Information Technology or HIT (Health Information Technology)

Workflow - Connected Care – User Adoption – Change Management

Creating a Digital Technology Transformation Roadmap

Ricoh Healthcare Digital Transformation Roadmap

HIT technology 10 year build

DOCUMENT CENTRIC
2009

DATA CENTRIC

USER CENTRIC
2020

DOCUMENT MANAGEMENT → DIGITAL

BUSINESS PROCESS OPTIMIZATION

@Remote
equitrac
imaudit

MANAGED PRINT

MANAGED SERVICES

OFFICE EQUIPMENT

DOCUMENT MANAGEMENT

DIGITAL CONTENT MANAGEMENT WORKFLOW INTELLIGENT CAPTURE

INFORMATION TECHNOLOGY

DATA TRANSFORMATION & GOVERNANCE

USER ADOPTION EXPERIENCE

ANALYTICS

EHR Implementation

Interoperability Services

HITECH Act

3D Printing Anatomical Pathology

**Bio Medical (Cell Differentiation)
Johns Hopkins Partnership**

Magnetoencephalography (MEG) Brain Imagery

Relevance

10 years of digital transformation

Challenge →

Personal Lives

- ✓ 2,083,333 : Snapchat User share Snaps
- ✓ 4,333,560: YouTUBE Videos Watch
- ✓ 12,986,111: Texts Messages Sent
- ✓ 49,380: Instagram Posts
- ✓ 3,877,149: Google Conducted Searches
- ✓ 1,111: Amazon Ships Packages

Every Minute

Work Lives

- ✓ Speed to Act
- ✓ Guiding change
- ✓ Employee Engagement
- ✓ **User Experience / Customer Satisfaction**
- ✓ Engaged and productive workforce
- ✓ Pressure to reduce operating costs
- ✓ Changing business models

40% "of all businesses will die in the next 10 years if they don't figure out how to digitize their entire company beginning with business processes."
John Chambers | Executive Chairman, Cisco System

Business Process Optimization
How many people are involved?

"The Anatomy of a $63,509 Medical Bill" (Life Magazine)

Digital Technology Roadmap Build
Where do we start/

What did we learn!

Objective
Create a Technology Roadmap that is Audience/Challenge Centric not Product
Centric that speaks to your customers challenges – careabouts.

Give the Project a name, create an Identity

Connected Care Journey

First Meeting Direction / Agenda…

WHITEBOARD STRATEGY SESSION

Current State: Understanding the current state of the organizations strategy, structure, skills and systems.

Identify gaps in time and skill: What areas of opportunities are there within the corporation, business unit and team levels that are not aligned to the overall goals

Ideation: The co-collaboration of ideas and concepts to align IT as a strategic partner to the organization

Future State: The creation of a roadmap that provides visibility, insight and multiple paths forward.

Tell a Really Good Story!

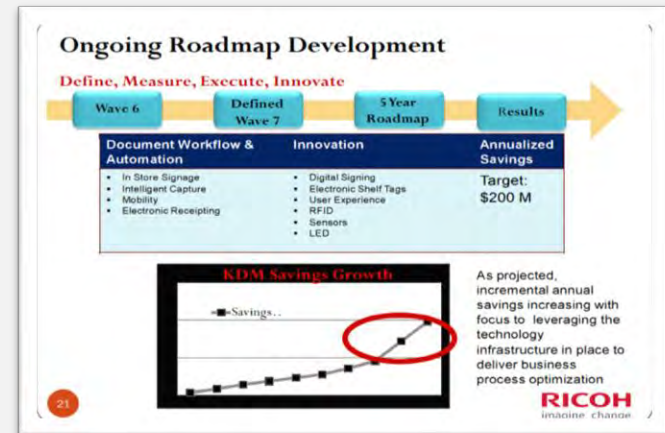**Keep it Focused & Narrow Scope**

Purpose:
Provide Clarity & Value
Introductory/ General/ Exploratory

Methods:
Brainstorming
Sharing of a concept like the
"transformation equation" or "strategy in 3 layers"
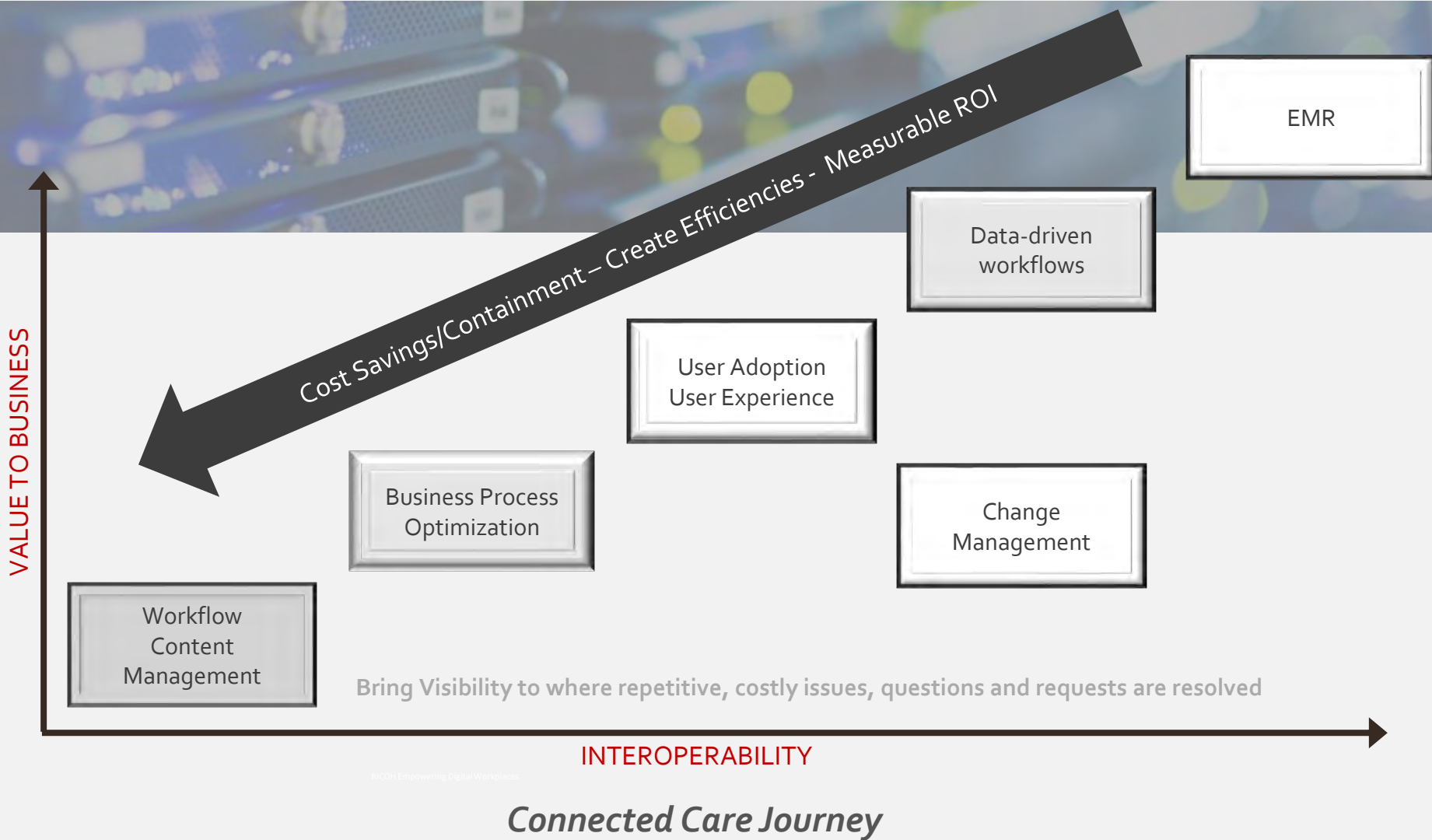4 S conversation

Outcome: Digital Technology Roadmap

Ongoing Roadmap Development

Define, Measure, Execute, Innovate

| Wave 6 | Defined Wave 7 | 5 Year Roadmap | Results |

Document Workflow & Automation	Innovation	Annualized Savings
• In Store Signage • Intelligent Capture • Mobility • Electronic Receipting	• Digital Signing • Electronic Shelf Tags • User Experience • RFID • Sensors • LED	Target: $200 M

KDM Savings Growth

Savings…

As projected, incremental annual savings increasing with focus to leveraging the technology infrastructure in place to deliver business process optimization

RICOH imagine. change.

21

Think from the EMR back – Shift Left

VALUE TO BUSINESS

Cost Savings/Containment – Create Efficiencies - Measurable ROI

EMR

Data-driven workflows

User Adoption User Experience

Business Process Optimization

Change Management

Workflow Content Management

Bring Visibility to where repetitive, costly issues, questions and requests are resolved

INTEROPERABILITY

Connected Care Journey

Roadmap – Organizational Challenges

"We Have EPIC / EMR – Doesn't That do That?"

Discharge
Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Maecenas porttitor ✓
Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Maecenas porttitor ✓
Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Maecenas porttitor ✓
Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Maecenas porttitor ✓
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⚠ Clunky communications systems

⚠ $3.2 BN waste

Consumer-driven healthcare market

INPATIENT

25% Initial cuts
40% Longer term

⚠ Registration Errors

Year

⚠ $60 Bn

No.1

Financial challenges

CEO

Year

⚠ Security events

⚠ $1.6BN

EHR

HOSPITAL LEADERS

Top 5

health records

CARD

⚠ 10 times more value

REFORM

$ $ $ $ $

Ensuing Years

Value Based Care

WASTE

⚠

31%

Narrow the Focus - Careabouts / Challenges

Focus : EHR Adoption & Optimization

Driver / Motivators:

- Reduce Cost, increase efficiency & maintain profitability
- Exploit regulatory financial "incentives" CCM
- Support coordinate / holistic care management
- Potential to optimize processes and workflows

Key Challenges:

- Integration: Acquisitions have multiple EHR's, e.g., for acute, ambulatory, specialty including those acquired with market consolidation
- Interoperability: with other key systems: revenue cycle management (RCM), ERP, BI, mobile and more
- Maintain patient safety, reduce clinical errors

On-Going & Future Goals:
Parking Lots Issues

Provide visibility / data to support:

- ✓ Payer/provider negotiations
- ✓ Risk-based re-imbursement; shared savings
- ✓ Regulatory reporting
- ✓ Populations health initiatives
- ✓ Marketing/targeting; address increased consumer demands
- ✓ Patient education
- ✓ Clinical decision-making

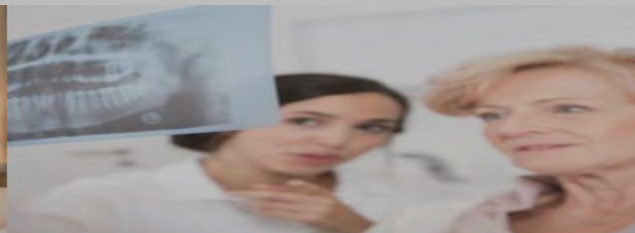# The EMR Connects Across the Care Continuum

Integrating Digital Process Improvements and Connected Care Outcomes

OPTIMIZE DEVICES   MANAGE CONTENT   IMPROVE WORKFLOW   INFORMATION MOBILITY

| Managed Print Services | Outsourced Services | Security & Governance | Administrative Efficiencies | Connected Care |

EHR
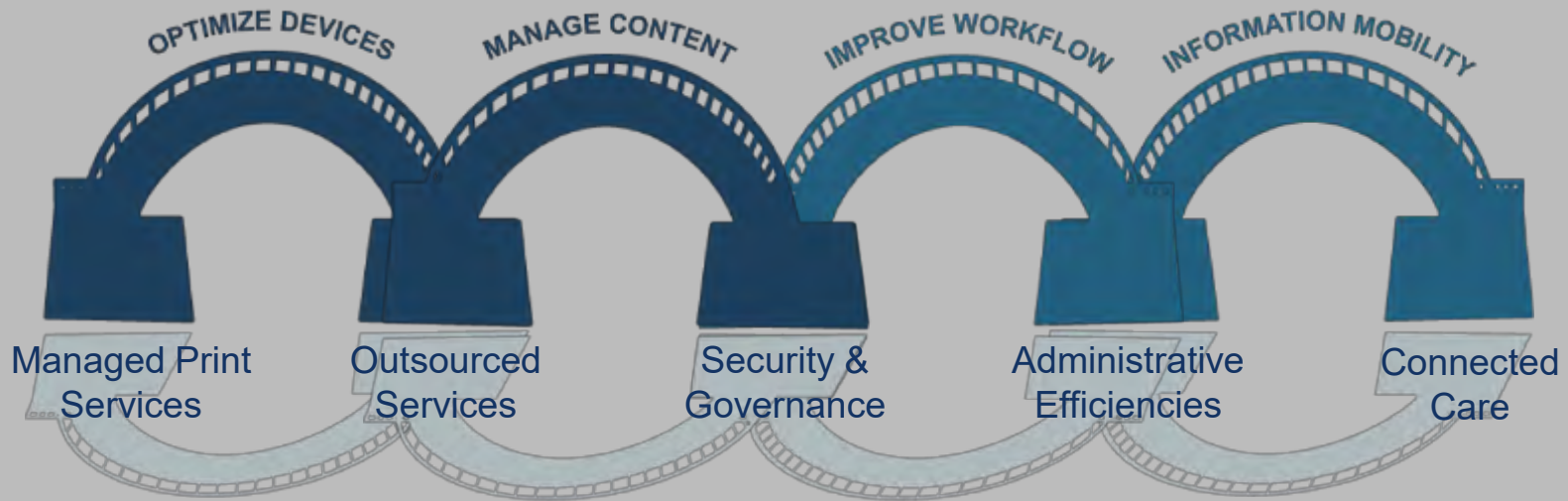
Technology

User Adoption

Change Management

Create Relevant Statements

Core digital transformation relevant statements

Connected Care Journey

- Moving from Papers and Print to Digital Transformation - MPS (Policy Management, Technology, Resources Management, Compliance and Analytics, Beach head)

- Information Transmission & Interoperability – Enabling Multi-Format, Multi-Destination Data Interoperability including adherence to Industry Standard formats (Fax and workflow Solutions)

- Improve Staff Experience and Revenue – Optimized Electronic Forms Mgmt. Workflow

- Make Data Actionable, Improve Paper Heavy & Resource Intense Workflow – Advanced Capture & ECM

- Optimizing Patient & Payer Communication – Production Print, CCM & Patient Portal

Core Digital Transformation Areas

- Enterprise Output Management and Application Print Analytics

- Enterprise Security Print, Scan, Release

- Referral / Pre-Admissions (experience, process, fax messaging)

- Forms Management

- Workflow (Registration – Discharge)
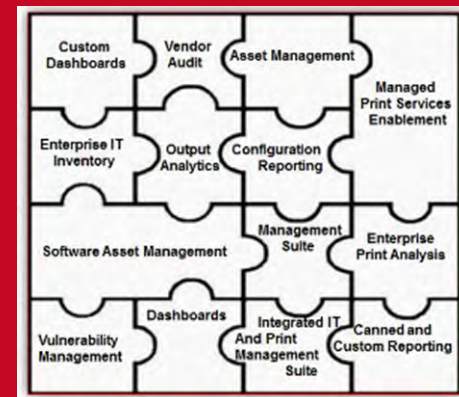
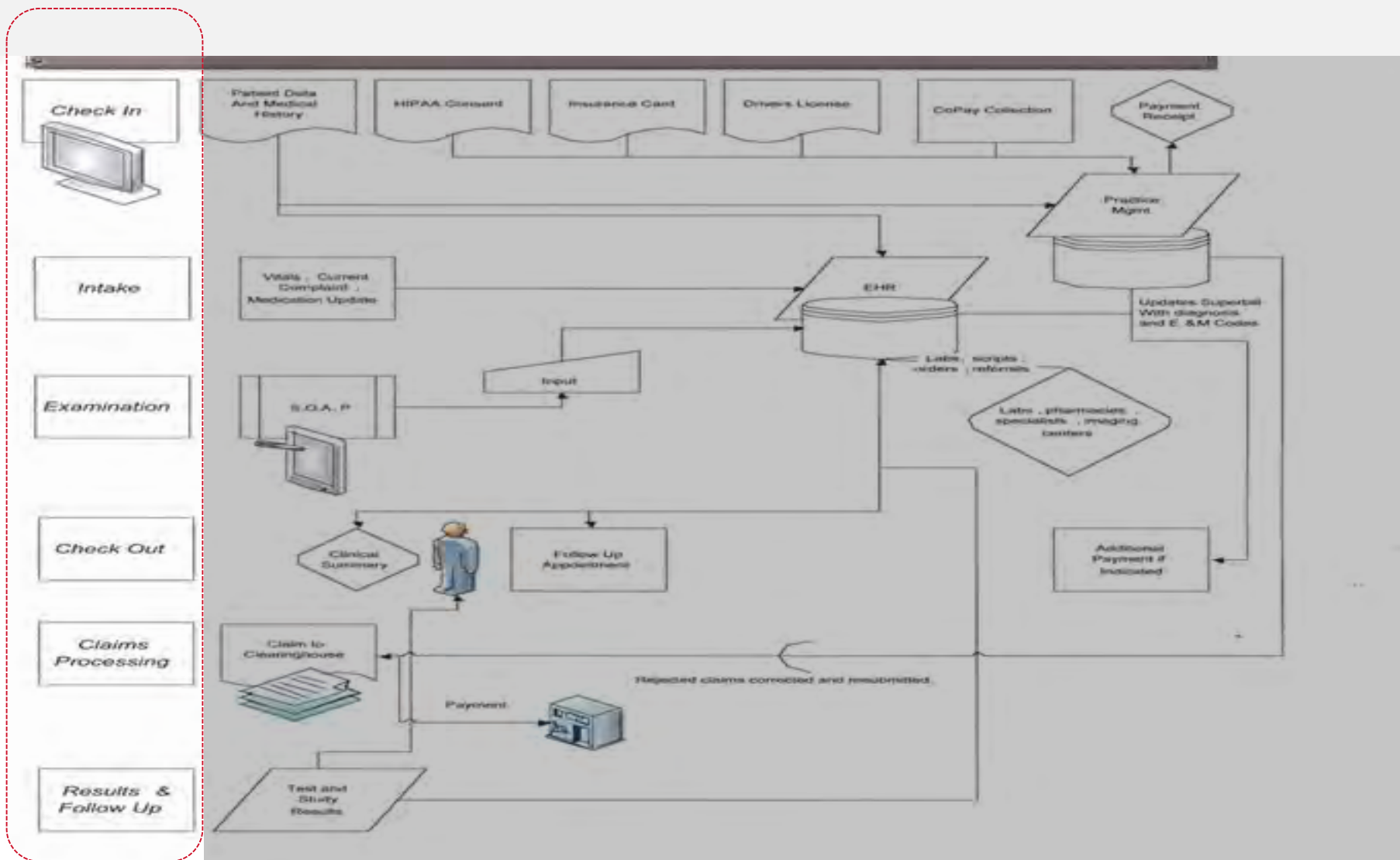# Digital Technology Roadmap Build
What do we include?

- How are you going to measure
- Mapping the patient journey & data workflow
- Where is the data / information stuck

Connected Care Journey

Clearly Understand Patient & Data Journey
Where is the information stuck and what' s that experience
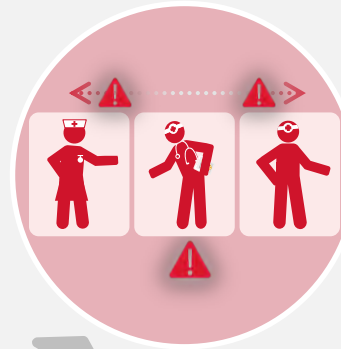
Information Gridlock – Where is it Stuck?

34%

Intangibility

Percentage of business information stored in filing cabinets or employees heads

73%

Lack of Collaboration Tools

Percentage of hospitals not providing Web Conferencing to all employees

51%

Overdependence on paper

Percentage of data extracted from paper documents

Information Gridlock

74%

Weak mobile support

Percentage of hospitals not able to access most /all core apps via mobile devices

60%

Manual workflows

Percentage of hospitals lacking automation of most/all business process document workflows

47%

Information Silos

Percentage of employees who must access 6+ core information repositories

How are you going to measure

Improves **What** for **Whom**?

What are the **Benefits**?
What are the **Costs**?

What is the **ROI** in financial terms?

BUSINESS ASSESSMENT → SOLUTION → BENEFIT / COST → RISK → FINANCIAL METRICS → **VALUE**

Is the **Risk** acceptable?

How is the environment improved?
What **Technology** is used?

DEFINE
Define the strategic direction and the objectives of your organization/department/health system.

MEASURE
Set measures for current and future effectiveness of your environment.

ANALYZE
Collect and analyze data. Data is reviewed with your staff in a validation meeting to identify opportunities for improvement.

IMPROVE
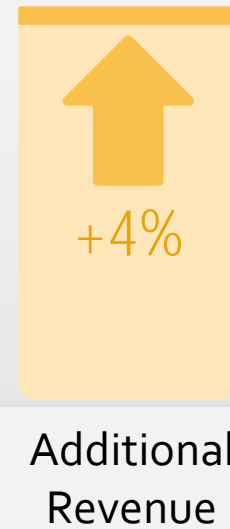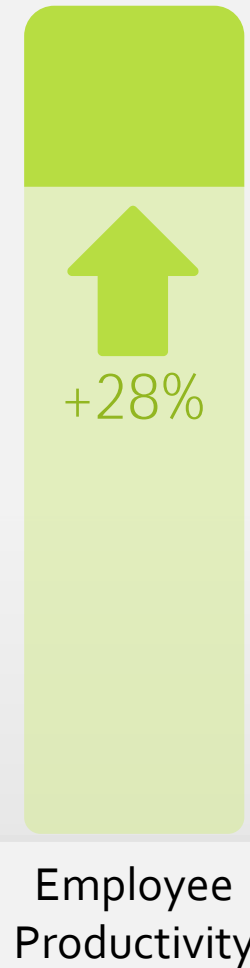Identify opportunities for improvement. During this stage, we co-author solutions for optimizing your workflow.
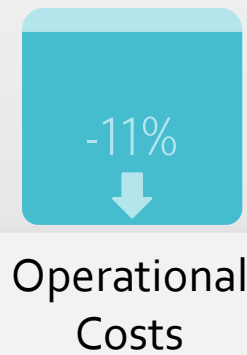
CONTROL
Create an action plan of periodic reviews to focus on continuous improvements.

Significant Measurable Impact

How can your organization benefit?

EMPLOYEE

Operational Costs: -11%

Employee Productivity: +28%

Additional Revenue: +4%

Results - Healthcare Revenue Cycle

University Hospital with $3.05B annual revenue, implementing Epic Beaker Lab module trying to recoup lost revenue streams

- Known effects/unknown causes: DTFB up; missing charges; customer attrition
- Broken communication among multiple Health System entities
- ... from internal/external ...

Within 90 days of F&R delivered, customer saw a 40% drop in days outstanding for receivables

Illustrated process flows denoting over 500 current, future and ideal state activities

CREATED CLARITY

Exposed and prioritized 72 LEAN Improvement Opportunities to regain lost revenues

REVIEW OF

15

PROCESS AREAS

TRANSFORMATION

Incubated a true continuous improvement mentality

CREDIBILITY

Forged cross communication among Revenue and Lab Leadership

Digital Technology Roadmap Build
Value of change management & user adoption

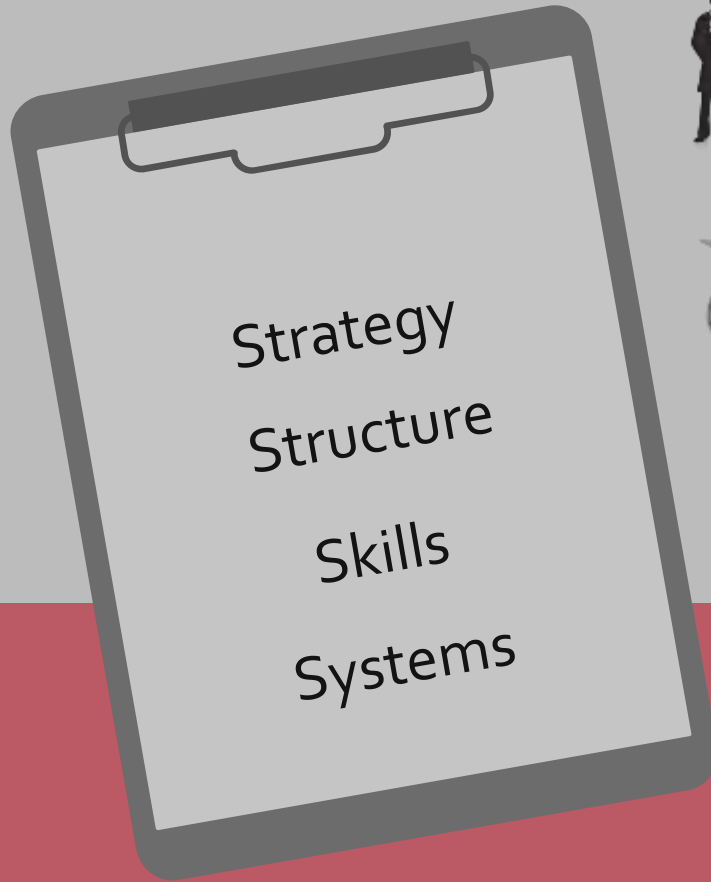**Critical Component these are big Challenges**

Don't under estimate the value of User Adoption and Change Management.

It's the "Special Sauce"

Connected Care Journey

Organizational Approach - ALWAYS CHECK

Customer centric approach

PEOPLE

PROCESS

TECHNOLOGY

Strategy

Structure

Skills

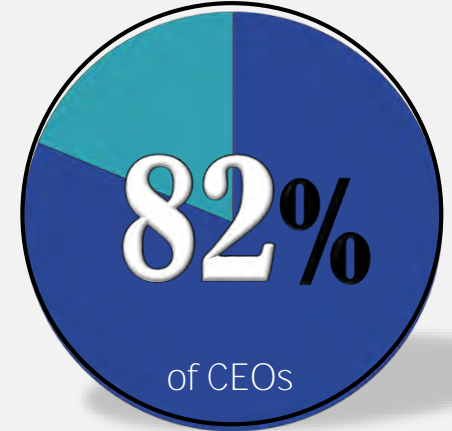Systems

The Business Conversation

Making a Case for formal Change Management

70% of all transformational change efforts fail to deliver promised outcomes *on time* and *within budget*

80% of your workforce's motivators are different than your own

$109M lost for every $1B invested in projects

People (<u>not</u> solutions) are the primary cause of project failure.

82% of CEOs

Identify Change Management as a Priority

94% of organizations who reported having excellent change effectiveness met or exceeded objectives

Poor **Fair** **Good** **Excellent**

143% RETURN ON INVESTMENT

with Change Management applied vs. 35% without

☑ Respond better to customer needs
☑ Better Employee Performance

☐ Increased ROI
☑ Reduced Risk
☐ Improved Processes

"It is not the strongest of the species that survive, nor the most intelligent, but the one **MOST RESPONSIVE to change.**"

CHARLES DARWIN

Case for formal User Adoption Approach

Collaboratively addressing the people side of change

4 Integration & Evolution

Integrate the change into the organization leveraging workflow and process analyses, change agents, and training methodologies. Develop a learning culture to enable continuous evolution and innovation.

3 Adoption

Utilize sponsorship, communications, employee engagement, training, and measurements to clarify expectations, build internal support, and drive adoption.
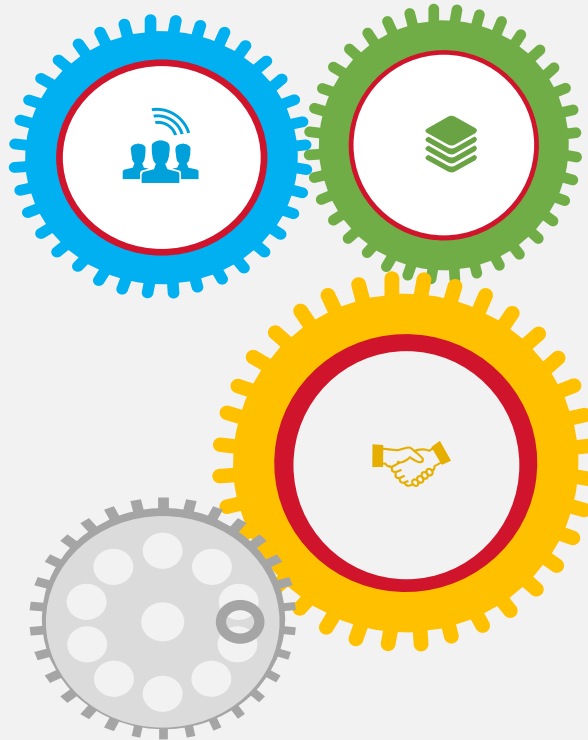
1 Identification & Alignment

Identify current workflows and impacts of change. Create a change roadmap that is measured, consistent, and ensures maximum adoption with minimal disruption.

2 Socialization

Partner with key stakeholders and process owners to socialize the drivers for change and catalyze change agents within the organization to spark innovation and drive employee engagement.

Barriers to Digital Transformation

1 Lack of clear scope.

2 Too few resources to support the number of changes.

3 Poor change implementation history.

4 Poor sponsorship or limited leadership support.

5 Major employee resistance.

6 Weak motivation.

7 Risk-averse cultures.

8 Poor communication plan.

9 Unclear and/or undisciplined governance structure.

10 Use of multiple approaches reinforcing the silo mentality.

Digital Roadmap Creation

Alignment / Impact / Solutions – Tell a great Story

Digitizing information is nothing, Activating information is everything

Connected Care

- Market Share/Revenue Growth
- Strategic Information Interoperability
- Activating DATA

- Drive Down Human Error
- Discharge Package
- Revenue Cycle + Impact

Actionable Data Processing

Administrative Efficiencies

Analysis & Workflow

- Improving Efficiencies
- Document Consumption
- Enterprise Support Costs

Digital Transfer of Patient Information

Connected Care Journey

Patient wait time
Departmental Capacity
Communication
Cost Efficiency

Administration

Patient care delivery

Administrative Efficiencies

Patient Experience

Connected Care

Provider Experience

Staff Experience

Security & Governance

Healthcare Challenges

IT LEADERSHIP

Electronic Protected Health Information (ePHI)

POLICIES & PROCEDURES

Manage report

Internal workflow

COMPLIANCE & RISK OFFICERS

REFERRING PROVIDER

Improving the exchange of infomation

Orders

Notification

Scheduling

Results

ACUTE CARE FACILITY

Patient & Data Journey
Digital Workflow

ADMISSIONS
Patient is referred for treatment. Patient history, physician notes, referral records provided to facility.

REGISTRATION
Patient history verified, insurance checked, HIPAA forms and consent forms signed, co-pays collected.

TREATMENT
Treatment is administered and recorded. Stay orders, physician orders, results, progress notes, etc. will be generated.

OUTCOME
Prescriptions, Therapy orders, treatment plans, additional tests, etc. provided.

DISCHARGE
Discharge instructions, treatment summary generated and provided. Follow up appointments scheduled.

FOLLOW UP
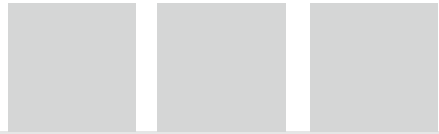Follow up appointments with patient. Review and update of medical records.

POST ENCOUNTER
Back office work starts to ensure billing is completed, claim forms are submitted and all reporting is filed under patient record.

Alignment – All on Board
People, Process & Technology

Connected Care Journey

TRANSFORMATIONAL LEADERSHIP

Develop executive vision that promotes organizational alignment and enables flawless execution to meet business challenges head on.

DIGITAL ADOPTION

Assess organizational readiness while preparing for the adoption of best-of-breed digital technologies and tools that create new efficiencies and avenues for collaboration.

CHANGE PROGRAM

Implement an organizational change program that is strategic, delivers alignment and governance, and creates opportunities for tactical excellence.

MERGERS & ACQUISITIONS

Strategize and plan transformation to maximize execution and ensure immediate synergy to make the most of mergers and acquisitions.

CYCLE PLANNING

Transition planning helps manage growth and mitigate challenges. Plan business cycles with relative ease leveraging best practices and a proven approach.

CONTINUOUS INNOVATION

Develop a program around innovation to promote strong strategy, consistent delivery, and develop tools to support a learning culture.

LEAD · ADOPT · CHANGE · GROW · PLAN · INNOVATE

Tell a Really Good Story!

Connected Care Journey

A Day in the Life of Data

Project

Connected Care Journey

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REGISTRATION

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Fewer errors

Data Integration

Optimizes operational efficiencies

Less rescheduling

Decreases leakage In revenue cycle

REGISTRATION | CLINICAL DOCUMENTATION | TREATMENT | DISCHARGE

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Intelligent Registration Management

Creates a positive patient experience
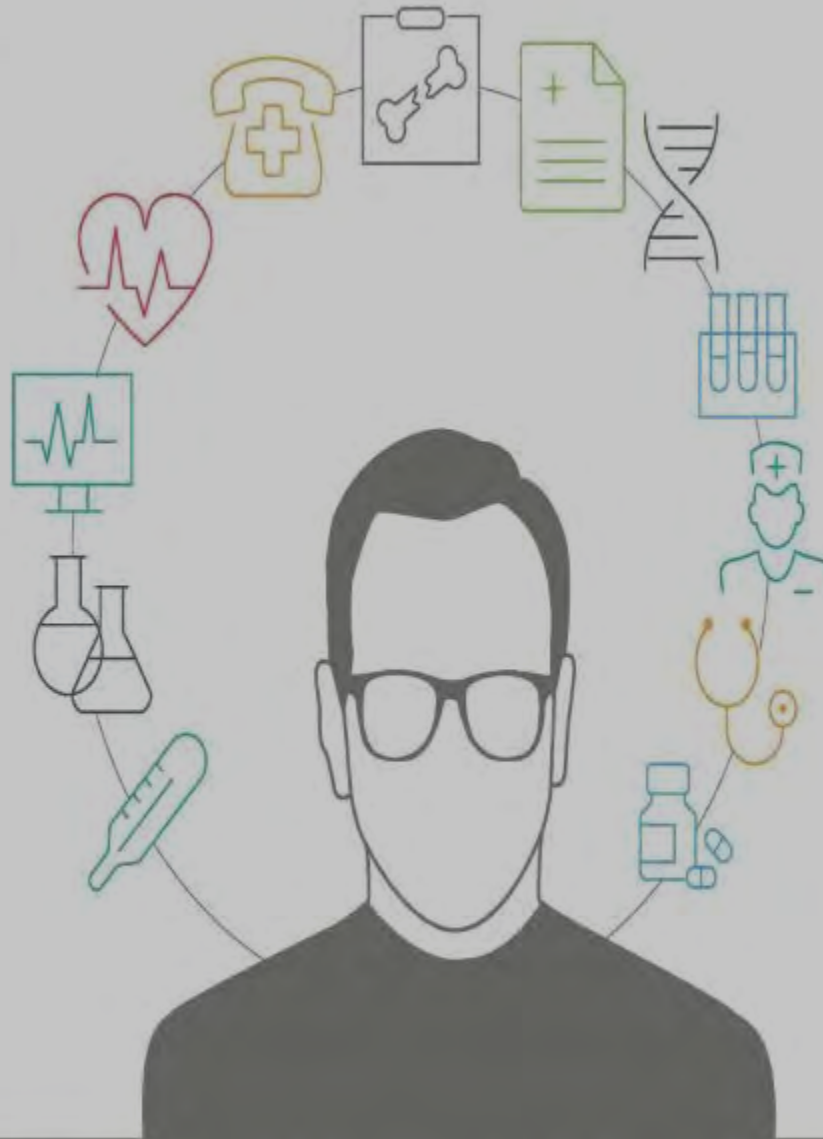
Alleviates need for "new" forms

REGISTRATION | CLINICAL DOCUMENTATION | TREATMENT | DISCHARGE

CLINICAL
DOCUMENTATION

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**Advanced
Data
Capture**
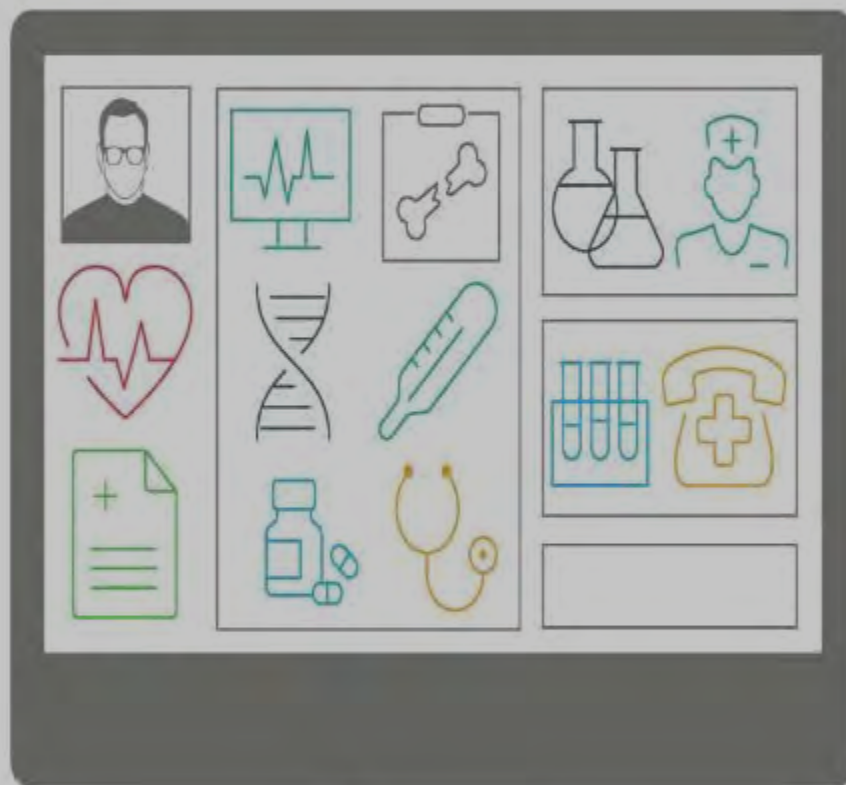
Integrated data management is especially important moving between units or departments.

REGISTRATION | CLINICAL DOCUMENTATION | TREATMENT | DISCHARGE

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No redundant
data entry

Reduced
administrative
costs

DISCHARGE

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Secure Data Management

- Improves coordination and patient outcomes
- Maximizes efficiencies
- Minimizes costs

Automated, Intelligent Workflows

- Prevent costly human errors
- Alleviate time on administrative tasks
- Improve patient experience
- Better response time to unexpected complications
  - o Immediate access
  - o Collaborative tools

REGISTRATION | CLINICAL DOCUMENTATION | TREATMENT | **DISCHARGE**

Technology Roadmap (Historical)
Digital Transformation

1980's

Partner of Trust

Ricoh became sole copier, fax machine vendor , through Ecopy : average 13% savings contract to contract

Production Print Centers average of 25% keep, Savings on ng forms and high end printing in-house

MSA for fleet management, mail and production print 2 additional FTEs Reduced 600 Printers

MS for Copier, Fax and MS for Copy and Mail Centers; L&M excluded from this, L&M bought Westerly a few years later

MSA Renewal – 120 printers support MFP and Printer fleet Management and MS for Print Shop; YNHHS Color MFP Equitrac deployment (Reduced color printing by 16% compared to pre-Equitrac, also eliminated waste due to secure printing

Production – Copy Center Mail

Ambulatory

Westerly Fleet Upgrade 40% Asset Reduction

Acquisition 3 year sole vendor agreement for 1907 MFPs for ecosystem Renewal for Mail, print Ctr & Loading Dock Savings: 18% Hardware 10% Svcs.

Cost Reduction

Cost Reduction and Color Cost control

| 1980's | 1995 | 1996 | 1998 | 2003 | 2004 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |

Outsourcing

Workflow Optimization Fleet Management and Standardization

Loading Dock Management

MFP Refresh project with CTEK/Auxilio

Mailroom (Solved significant turnover issue (backup support) with some minor cost savings

Yale New Haven Hospital affiliates with Greenwich Hospital

YNH NASSD Network Connected Fleet to improve workflow, fleet management Fleet Contract Renewal YNH, Bridgeport and Greenwich

Ricoh Standardization across Health System; FTE's Mail & Print Centers, Loading Dock, Printer Management

Fortis Registration Scanning and incoming RightFax automation Greenwich Mail and Shipping and Receiving Renewal 2 FTE's Fleet Management Renewal (Service CPC savings of 35%, free TRAC asset management software provided, 2 dedicated technicians onsite at Yale)

Loading Dock Management 1 FTE MSA Signed MFP and Fleet Management, First Responder

Renewal

Innovate & Transform

Technology Roadmap (Proactive)
Digital transformation

Strategic Alignment

1. **Patient, Consumer, Market Communication** - Targeted digital marketing programs with Evariant for patient retention, patient experience, personalized care plans, new revenue growth and reduced expenses

2. **Performance Optimization** – Retain talent and attract new, maintain quality brand, improve patient outcomes and satisfaction, reduced expenses

3. **Reducing Readmissions** – Telehealth and Project Boost implemented to monitor chronic illnesses in the home.
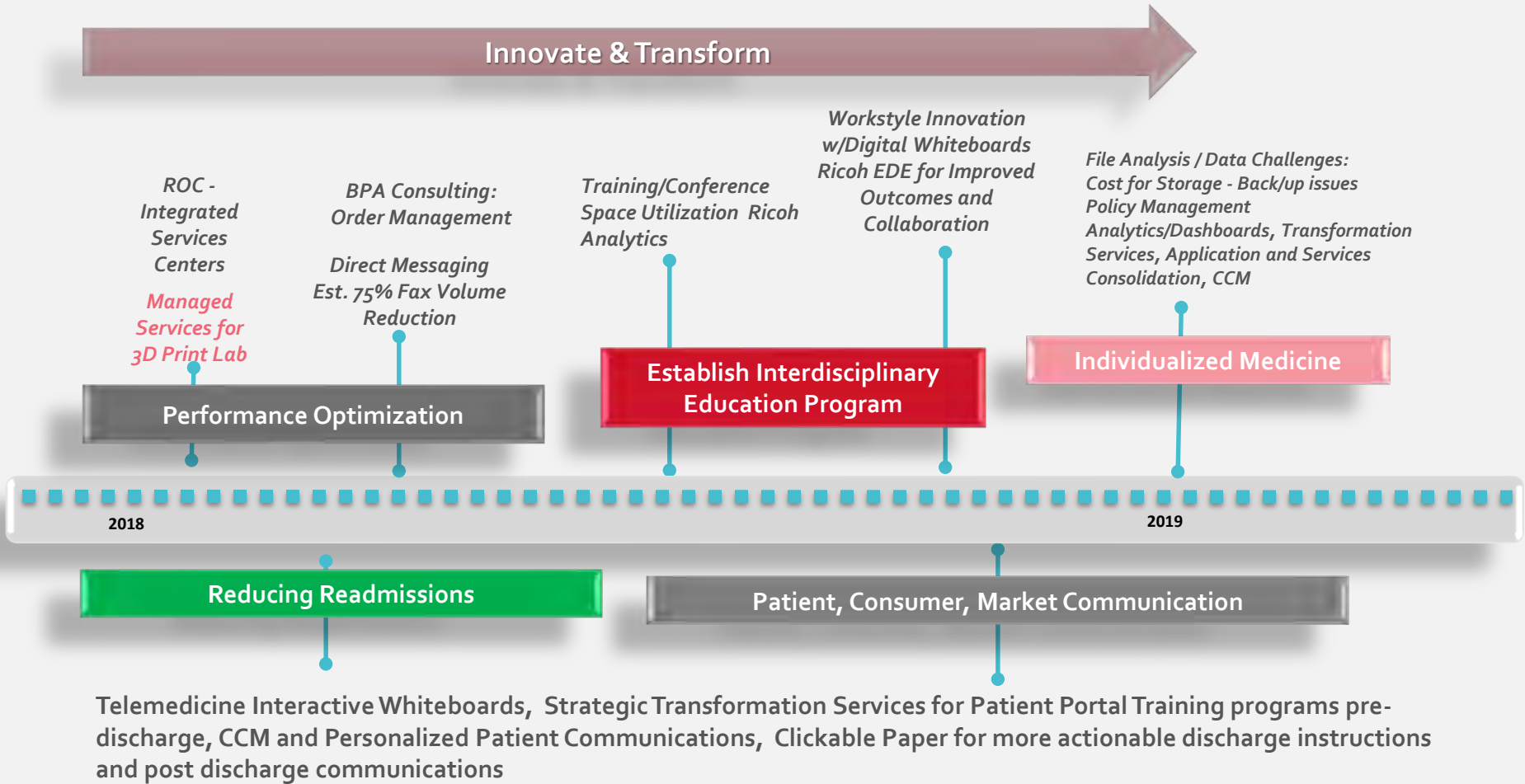
4. **Establish Interdisciplinary Education Program –** Prepare clinicians and new talent for changing workplace environments through educational initiatives on site and online.

5. **Individualized Medicine** – Improve outcomes, reduce costs, improve collaboration with ACO attracting new talent. Improve patient loyalty and satisfaction, brand.

Technology Roadmap (Future)
Digital Transformation

Innovate & Transform

Workstyle Innovation w/Digital Whiteboards Ricoh EDE for Improved Outcomes and Collaboration

File Analysis / Data Challenges: Cost for Storage - Back/up issues Policy Management Analytics/Dashboards, Transformation Services, Application and Services Consolidation, CCM

ROC - Integrated Services Centers

Managed Services for 3D Print Lab

BPA Consulting: Order Management

Direct Messaging Est. 75% Fax Volume Reduction

Training/Conference Space Utilization Ricoh Analytics

Individualized Medicine

Establish Interdisciplinary Education Program

Performance Optimization

2018

2019

Reducing Readmissions

Patient, Consumer, Market Communication

Telemedicine Interactive Whiteboards, Strategic Transformation Services for Patient Portal Training programs pre-discharge, CCM and Personalized Patient Communications, Clickable Paper for more actionable discharge instructions and post discharge communications

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