HEADLINER

Improving Outcomes - Leveraging AI across care continuum of patient care

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Improving Outcomes: Leveraging Artificial Intelligence Across the Continuum of Patient Care

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Atlantic
Health System

Sunil Dadlani & Atlantic Health System

- CIO & Senior Vice President at Atlantic Health System since September 2020
- NY Health Information Technology & Health Information Exchange, Advisory Board Member
- Advances Atlantic Health System's use of technology to support delivery of excellent patient care & team member experiences

- Not-for-profit setting standards for quality health care in New Jersey & the New York metropolitan area
- One of the largest multispecialty practices in New Jersey
- Serving 6.2 million people
- 400 sites of care, including seven hospitals

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Today's Agenda

- Healthcare Disruptions & Digital Accelerations
- Introducing Trustworthy, Ethical AI Solutions
- Consumer Journey Through Medical Imaging AI
- A Successful Human/Machine Collaboration
- Looking Forward in AI Integration

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Healthcare Disruptions & Digital Accelerations

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Introducing Trustworthy, Ethical AI Solutions

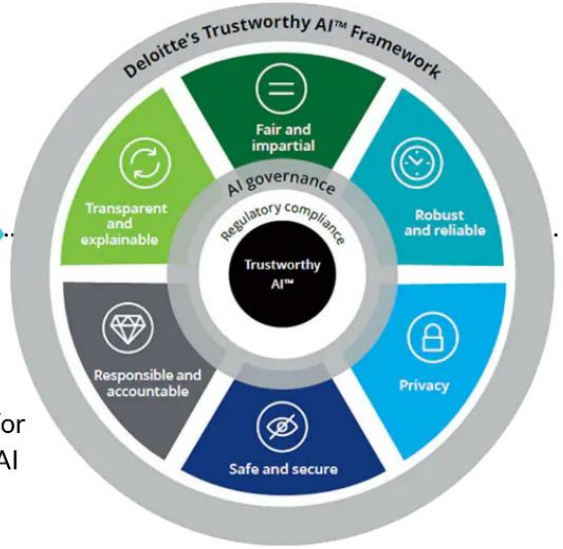
A human-centric design & constant feedback loop

- Framework has broad applicability, allows us to take calculated risks
- Gives back more time to our clinical care teams & staff, prioritizing at-risk patients
- We continue to reduce care gaps and transform patient outcomes & experiences through AI

Problem
Determine what we want to achieve

Collaborate
Work with other teams to achieve desired outcome

Find AI Solutions
Research new and/or existing potential AI solutions



Additional Opportunities
Identify any additional areas to implement the desired AI solution

AI Implementation
Elevating patient care, save time, & achieve positive outcomes

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Consumer Journey Through Medical Imaging AI

In addition to prior authorizations and similar nonclinical uses of AI

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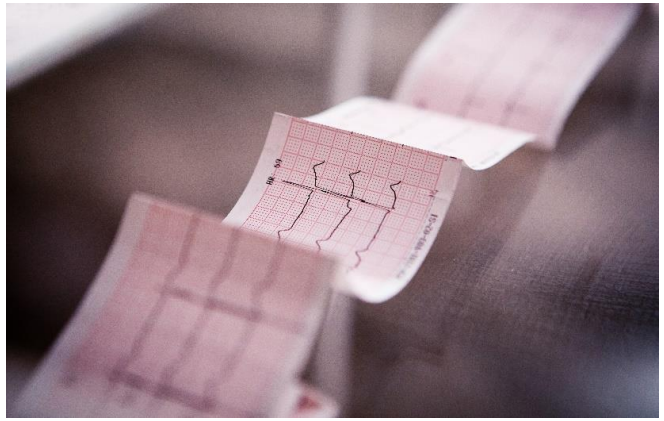
Remote Patient Monitor

- Patient prescribed remote cardiac event monitor
- Patient experienced unusual activity, logged in monitor application, goes to Emergency Department (ED)
- ED testing confirmed an irregular heartbeat
- CAT Scan of chest ordered for further analysis



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Remote Patient Monitor → Clinical Decision Support → Chest CT Image Analysis → Natural Language Processing Analysis → Blood Flow Analysis

Clinical Decision Support

Automates lengthy appropriate-use determination processes for advanced imaging

Scoring system quantifies which patients **require prioritization**

Recommends alternative imaging as needed

- Appropriate-use consult performed by clinical decision support AI during care ordering process
- Automated consult provides a score on the appropriateness of Chest CT, CT scored as appropriate
- Patient sent to Radiology to have Chest CT performed

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Chest CT Image Analysis

- Upon Chest CT analysis, Pulmonary Embolism, blood clot in lung, identified
- Analysis software alerts radiologist, patient care prioritized
- Radiologist finds abnormality in upper portion of the liver, follow up recommended

204,858 imaging exams analyzed in January to November 2022

Algorithm identified **9,353 cases to be prioritized** during this time frame

Imaging is processed on average within **2.5 minutes**

96% user engagement among radiologists

Utilized also for rib fracture and brain aneurysm imaging

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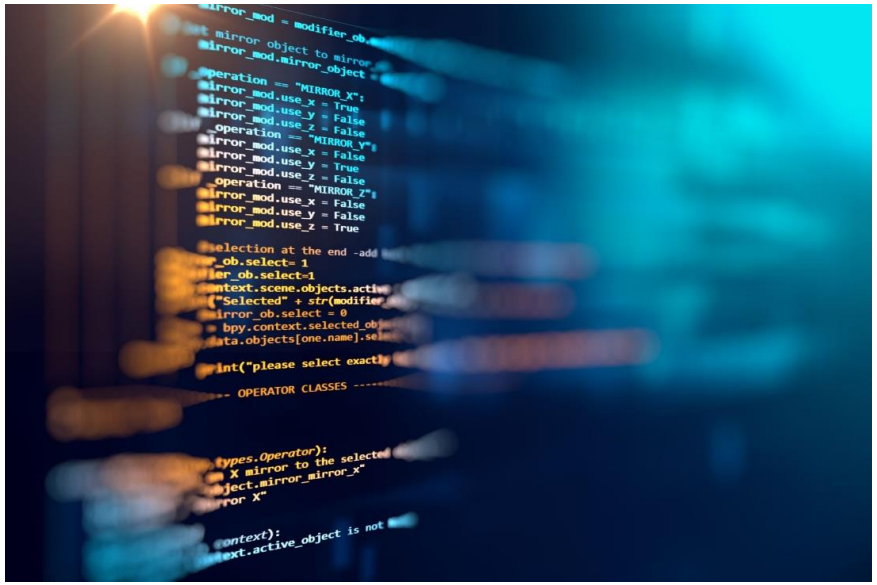
Remote Patient Monitor → Clinical Decision Support → Chest CT Image Analysis → Natural Language Processing Analysis → Blood Flow Analysis

Natural Language Processing Analysis



- Software identifies that additional review & testing maybe required related to liver abnormality
- Care team automatically notified of the liver abnormality; cardiologist follow up recommended
- Cardiologist recommends additional follow up testing, orders Coronary CT imaging

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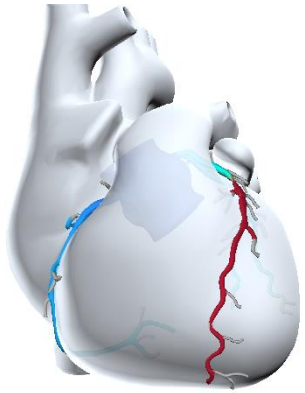
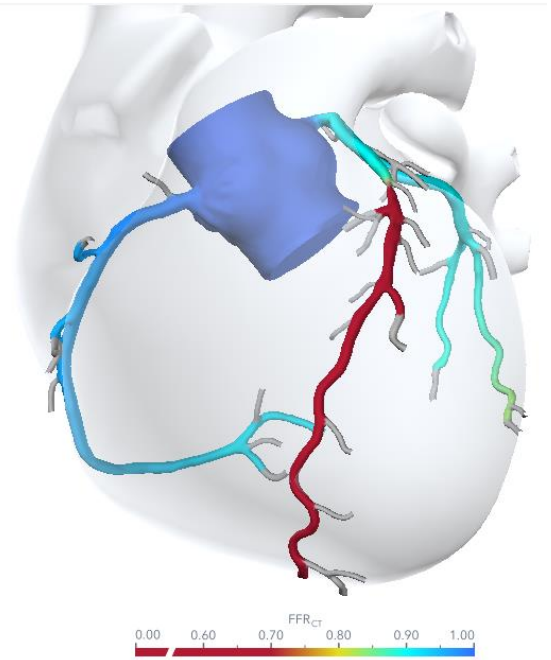
Blood Flow Analysis

- Coronary CT performed, heart images generated
- Image run through arterial blood flow analysis to detect heart disease
- Report generated along with interactive 3D model used by cardiologist to help diagnose patient





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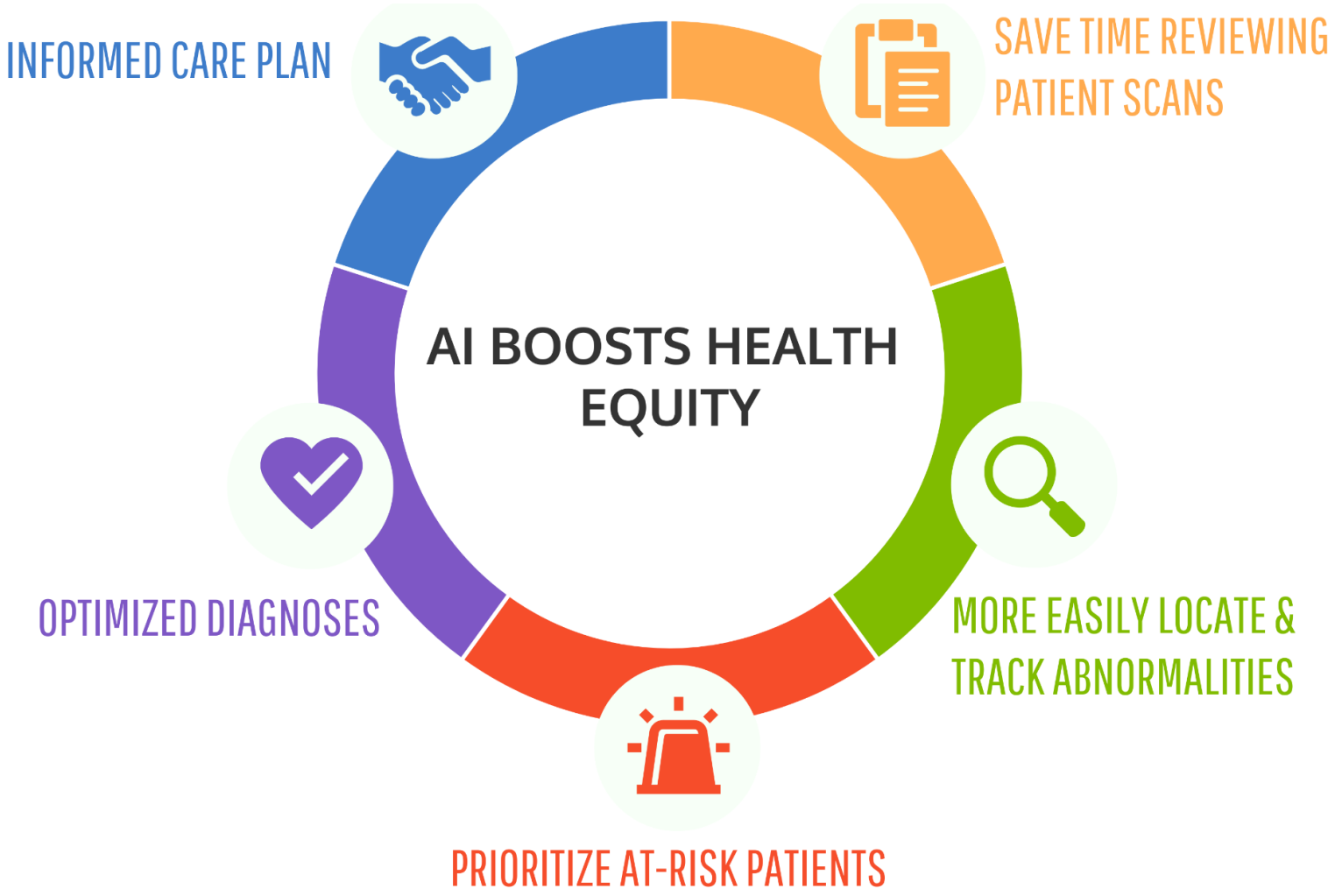
A Successful Human/Machine Collaboration



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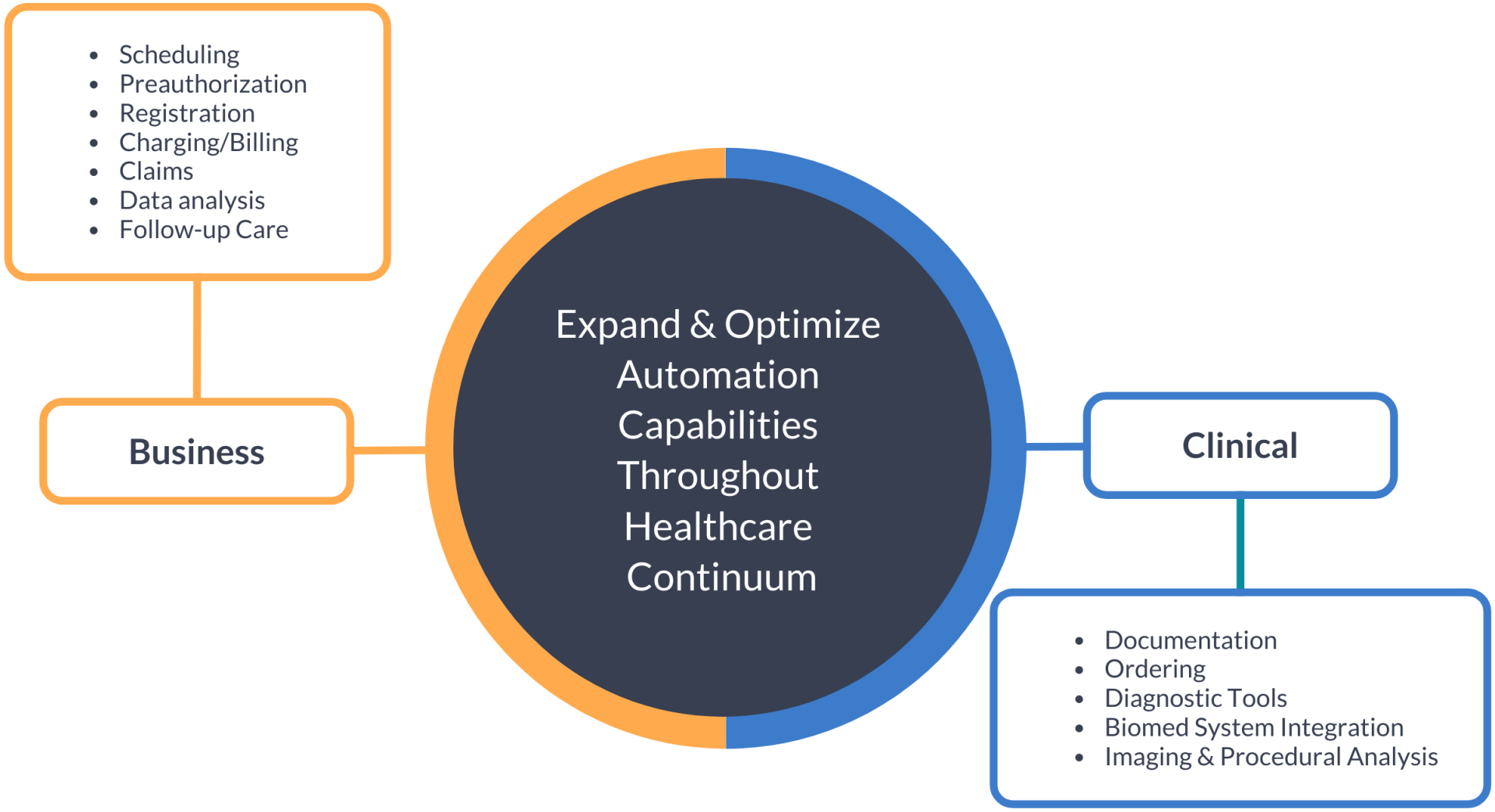
Looking Forward in AI Integration



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