AI (Augmented Intelligence) in the Healthcare Data Landscape

February 2025

MultiCare

Today’s Objectives

- Provide insights into the transformative potential of AI in healthcare.
- Share real-world examples and best practices.
- Engage in discussions on the future of AI in healthcare.

Enhancing Data Analysis and Improving Patient Outcomes

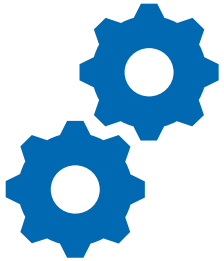
AI's Role in Data Analysis

- Advanced Algorithms: Machine learning algorithms process large datasets to identify patterns (e.g., detecting early signs of diseases like cancer).
- Identifying Patterns and Trends: Predicting disease outbreaks based on historical data.
- Real-Time Data Analysis: Monitoring patient vitals and alerting healthcare providers to anomalies.

AI in Patient Care

- Personalized Treatment Plans: AI analyzes patient data to create customized treatment plans (e.g., IBM Watson for Oncology).
- Early Diagnosis and Intervention: AI tools like Google's DeepMind diagnose eye diseases from retinal scans.
- Monitoring and Predicting Patient Health: Wearable devices equipped with AI predict potential health issues, such as heart attacks.

Streamlining Healthcare Operations and Predictive Analytics



Operational Efficiency

Automating Administrative Tasks: AI automates scheduling and managing patient records, reducing administrative burden.

Optimizing Resource Allocation: Predicting patient admissions and optimizing hospital resources.

Reducing Operational Costs: Improving efficiency and reducing errors to save costs.

Predictive Analytics in Healthcare

Forecasting Disease Outbreaks: Predicting and managing potential epidemics.

Predicting Patient Admissions: Forecasting hospital admissions to manage capacity.

Risk Stratification: Identifying high-risk patients for proactive care.

Data Integration, Ethical Considerations, and Future Prospects

Data Integration

- Combining Clinical, Genomic, and Lifestyle Data: Creating a comprehensive view of patient health.
- Creating Comprehensive Patient Profiles: Merging data from different healthcare systems for personalized care.
- Enhancing Interoperability: Facilitating data exchange between healthcare systems.

Ethical Considerations

- Ensuring Patient Privacy and Data Security: Protecting sensitive patient information.
- Addressing Biases in AI Algorithms: Ensuring fairness and accuracy in AI predictions.
- Transparency and Accountability: Making AI processes understandable and accountable.

Future Prospects

- Emerging Technologies and Innovations: Exploring new AI advancements.
- Potential Challenges and Solutions: Addressing obstacles and proposing solutions for AI integration.
- Vision for the Next Decade: Envisioning the future landscape of AI in healthcare.

Double-Click on Ethical AI

- **Bias Mitigation**: AI systems can inadvertently perpetuate biases present in the data they are trained on. To address this, it's essential to use diverse and representative datasets, regularly audit AI systems for bias, and implement corrective measures when biases are detected.
- **Transparency and Explainability**: AI systems should be transparent about how they make decisions. This involves developing models that can explain their reasoning in a way that is understandable to healthcare professionals and patients. This transparency helps build trust and allows for better scrutiny of AI decisions.
- **Patient Consent and Autonomy**: Patients should be informed about how AI is being used in their care and should have the option to consent to or opt-out of AI-driven interventions. This respects patient autonomy and ensures that AI is used in a manner that aligns with patients' values and preferences.
- **Accountability and Liability**: Clear guidelines should be established regarding who is accountable when AI systems make errors. This includes defining the roles and responsibilities of AI developers, healthcare providers, and institutions. Ensuring accountability helps maintain trust and encourages responsible AI development
- **Ethical Oversight**: Establishing ethical oversight committees can help monitor the development and deployment of AI systems in healthcare. These committees can provide guidance on ethical issues, ensure compliance with regulations, and address any ethical dilemmas that arise.
- **Continuous Monitoring and Evaluation**: AI systems should be continuously monitored and evaluated to ensure they perform as intended and do not cause harm. This involves regular updates, performance assessments, and feedback loops to improve the system over time

Let’s Click into 201

[Satya Nadella | BG2 w/ Bill Gurley & Brad Gerstner]

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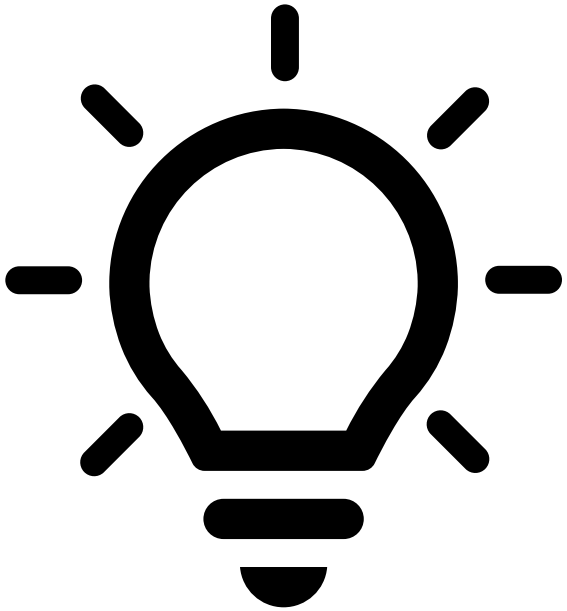
Implications for Healthcare

Imagine a scenario where a patient, Priya, has been diagnosed with diabetes. Here's how an AI agent could assist her:

- **Personalized Monitoring**: The AI agent continuously monitors Priya's blood sugar levels through a wearable device. It analyzes the data in real-time and provides personalized feedback.
- **Medication Reminders**: The AI agent sends reminders to Priya to take her medication at the prescribed times. It also alerts her if it detects any irregularities in her medication adherence.
- **Diet and Exercise Recommendations**: Based on Priya's health data and lifestyle, the AI agent suggests dietary changes and exercise routines to help manage her diabetes more effectively.
- **Virtual Consultations**: If Priya has any concerns or symptoms, she can interact with the AI agent, which can provide initial advice and, if necessary, schedule a virtual consultation with her healthcare provider.
- **Emergency Alerts**: In case of a critical situation, such as a dangerously high or low blood sugar level, the AI agent can immediately alert Priya and her healthcare provider, ensuring timely intervention.



How to Prepare for AI

- **Invest in Education and Training**: Equip healthcare professionals with the necessary skills to understand and work with AI technologies. This includes offering courses, workshops, and continuous learning opportunities focused on AI and data science.
- **Develop Robust Data Governance Policies**: Establish clear guidelines for data privacy, security, and ethical use. This ensures that patient data is handled responsibly and that AI systems are transparent and accountable.
- **Foster Interdisciplinary Collaboration**: Encourage collaboration between healthcare providers, data scientists, and AI developers. This helps in creating AI solutions that are practical, effective, and aligned with clinical needs.
- **Pilot AI Projects**: Start with small-scale pilot projects to test and refine AI applications. This allows for the identification of potential issues and the gathering of valuable insights before broader implementation.
- **Engage Stakeholders**: Involve patients, healthcare providers, and policymakers in discussions about AI adoption. Their input can help address concerns, build trust, and ensure that AI solutions meet the needs of all stakeholders.
- **Promote Ethical AI Development**: Focus on developing AI systems that are fair, unbiased, and transparent. This includes conducting regular audits and assessments to ensure ethical standards are maintained.
- **Invest in Infrastructure**: Ensure that healthcare facilities have the necessary technological infrastructure to support AI applications. This includes high-speed internet, advanced computing resources, and secure data storage solutions.
- **Stay Informed**: Keep up with the latest advancements in AI and healthcare. This helps in understanding emerging trends, potential benefits, and challenges, allowing for better preparation and adaptation.

Open Discussion

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AI Slides

innovaccer

Industry 1.0

Mechanization, steam power, weaving loom

1784

Industry 2.0

Mass production, assembly line, electrical energy

1870

Industry 3.0

Automation, computers, electronics

1969

Industry 4.0

Cyber physical systems, internet of things (IoT), networks today

Today

Digital Health Requires Significant Capabilites

Layer of engagement

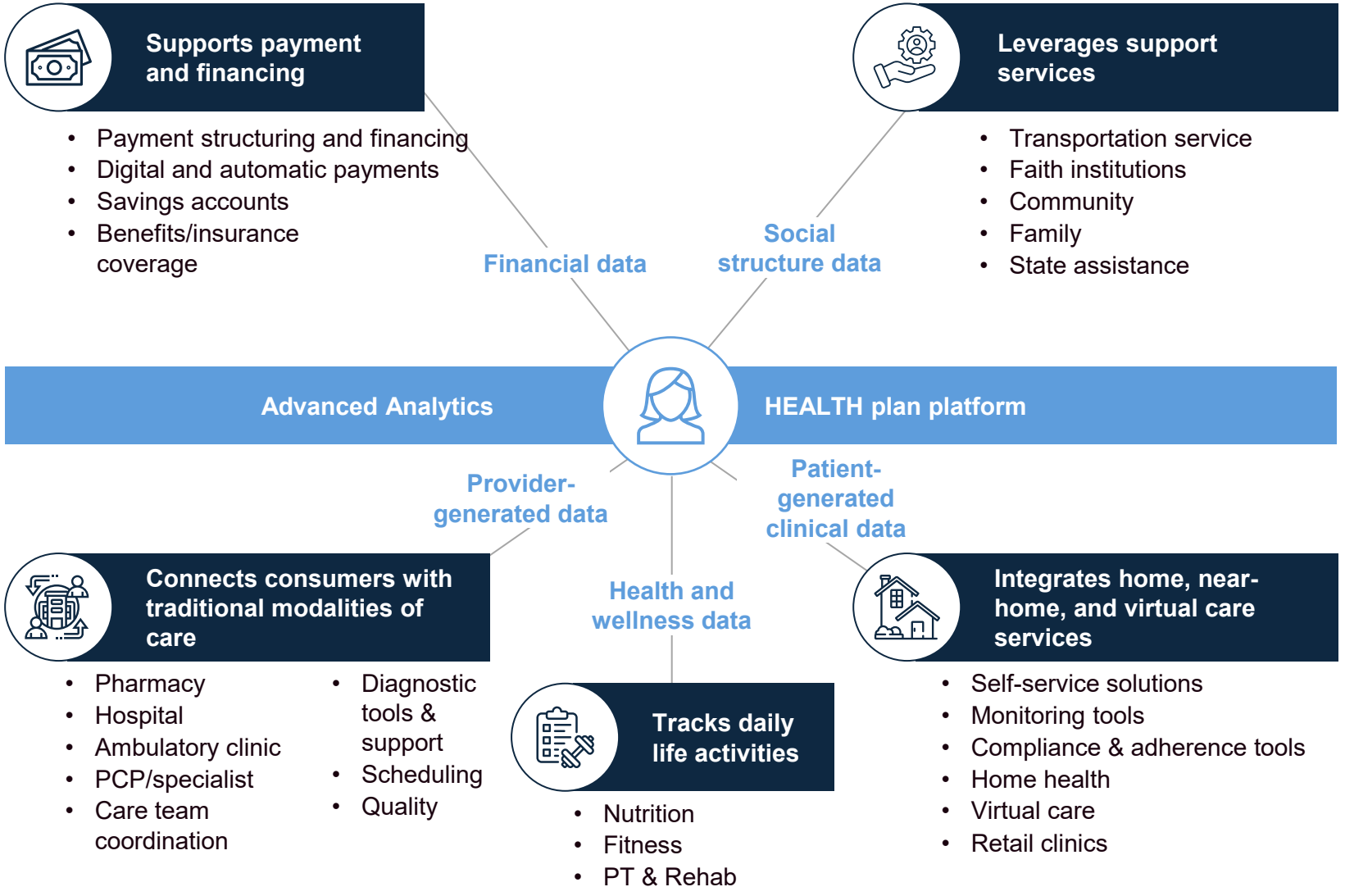
Systems of consumer and patient engagement (e.g., search, wearables, e-commerce, behavioral health aps, IoT)

Layer of intelligence

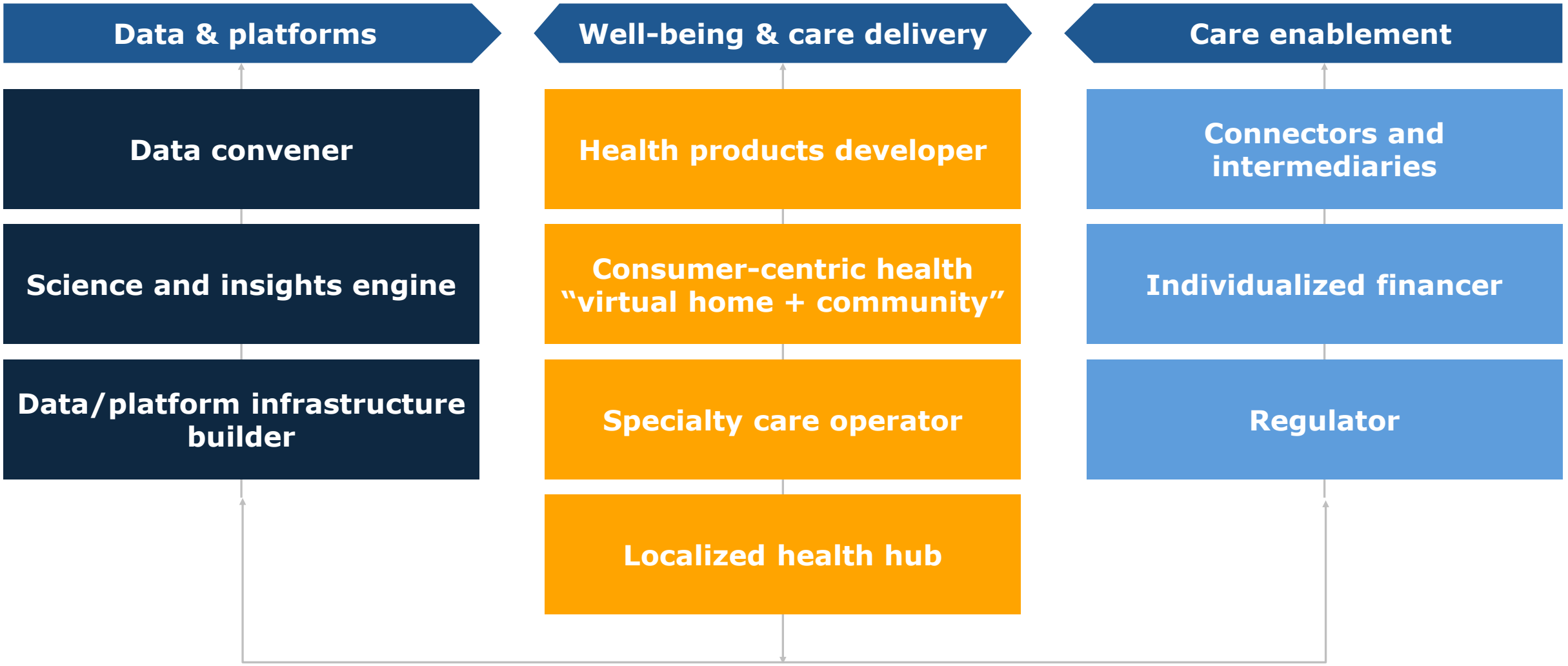
Systems to convert data elements into insights and intelligence to inform or drive actions

Layer of infrastructure

Systems of data capture, curation management, and interoperability

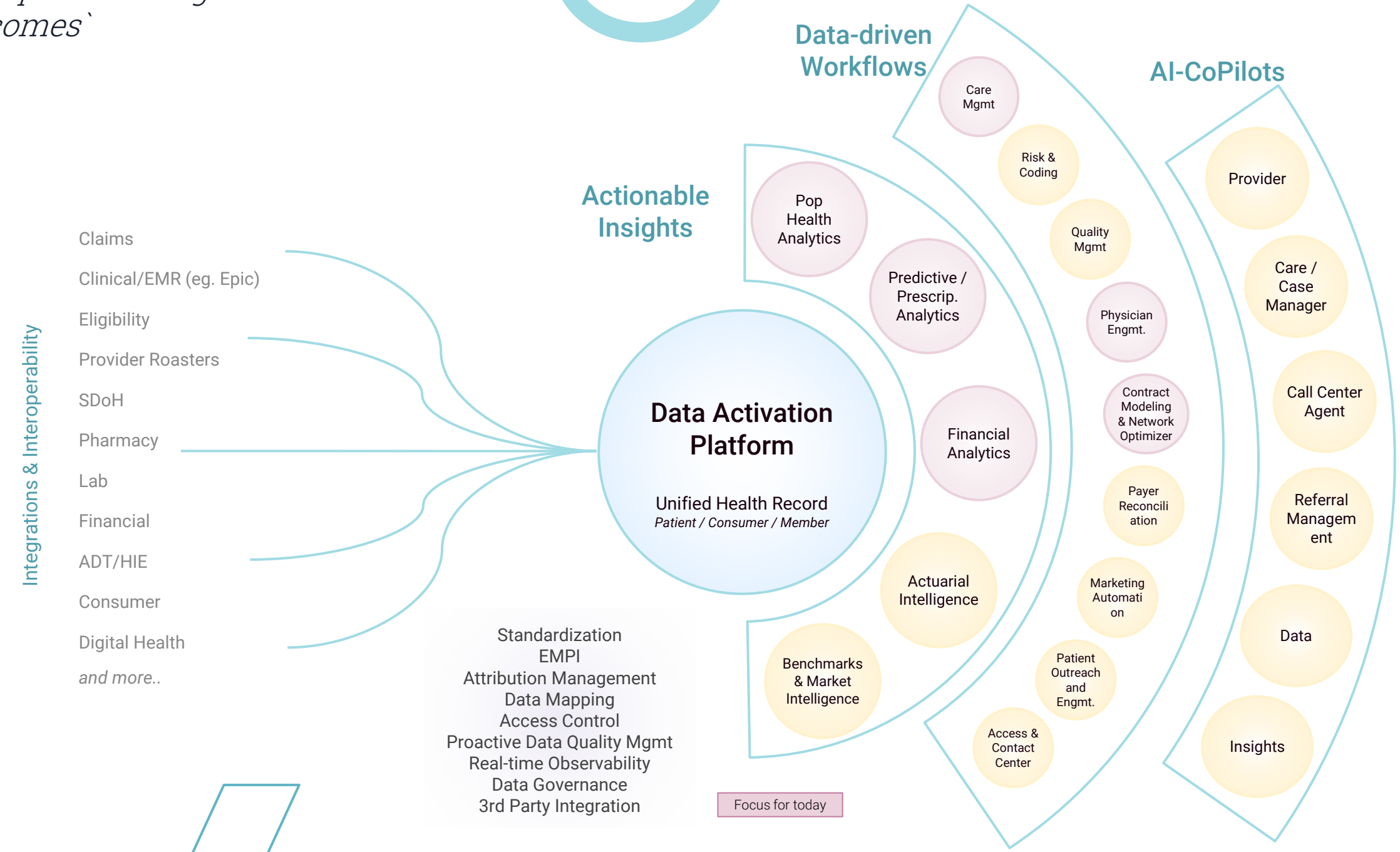


Source: McKinsey



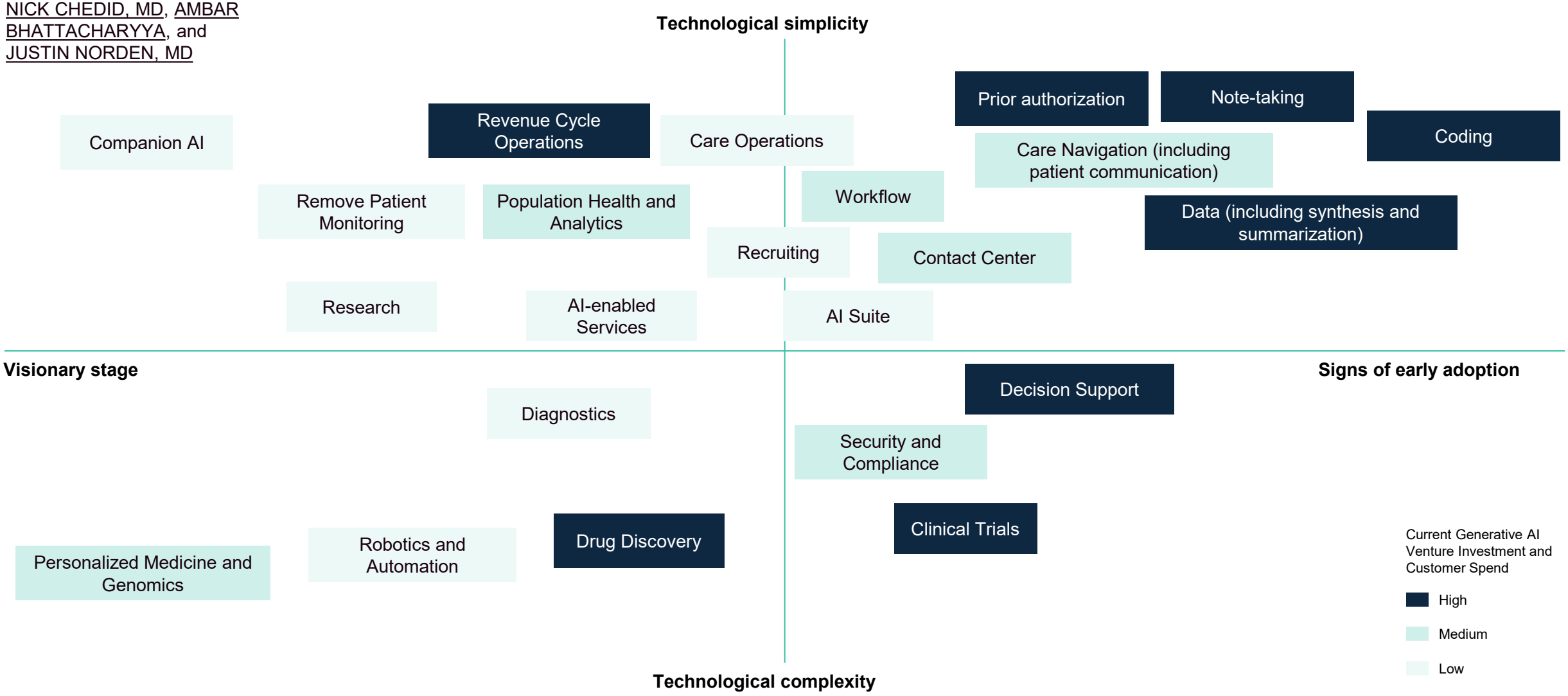
Powered by radically interoperable data for a personalized and seamless consumer experience

AI Requires the Right Data to Get Outcomes`



Re-Imagining the Healthcare Delivery Journey with Generative AI

NICK CHEDID, MD, AMBAR BHATTACHARYYA, and JUSTIN NORDEN, MD



AI Improving End User Experience

Insights CoPilot

AI driven conversation tool that provides quicker access to data driven insights thus reducing administrative burden.

Users

 Executives & Administrators

 Reporting Analyst

 Program Manager

Outcomes

Productivity, Rapid Insights, Reporting cost reductions

Care Management CoPilot

Using AI to streamline care mgmt and documentation, share summaries and provide insights to deliver personalised care.

Users

 Physicians

 Care Managers

 Pharmacist

Outcomes

Productivity, Patient Satisfaction, Utilization reduction, Quality improvement

Provider CoPilot

Pre-visit summaries, ambient documentation and clinical guidelines to support the physician at the point of care.

Users

 Physicians

 Office Staff

 MA/Nurse

Outcomes

Productivity, Patient satisfaction, Increased face to face w/ patient , Administrative burden reduction

Access / Referral CoPilot

Automates workflows across the referral and contact center workflows with documentation, AI call agents and more

Users

 Contact Center Rep

 Engagement Manager

 Referral Coordinator

Outcomes

Productivity, Patient Satisfaction, Clerical cost reduction

AI Platform