AI in Healthcare

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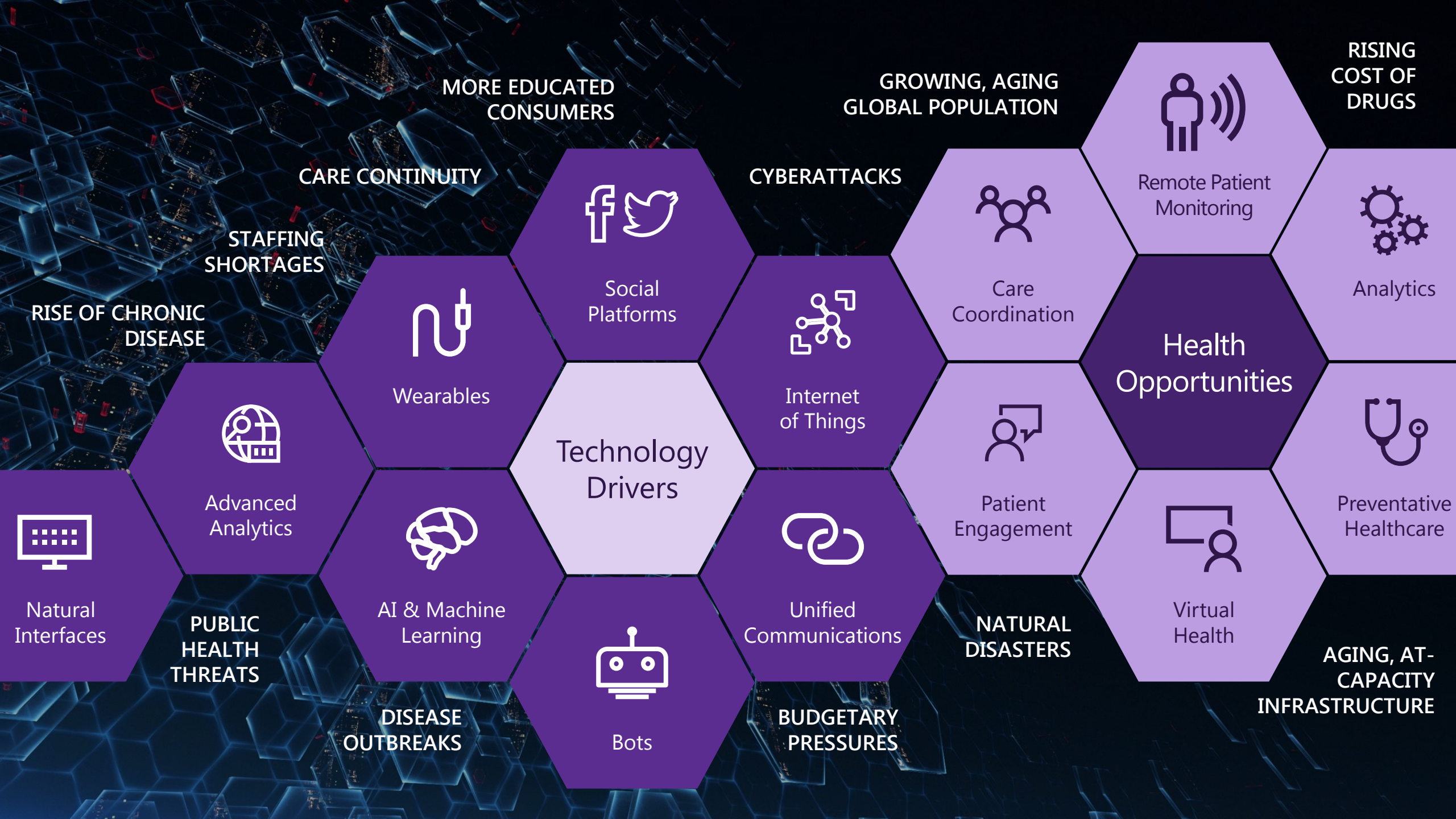
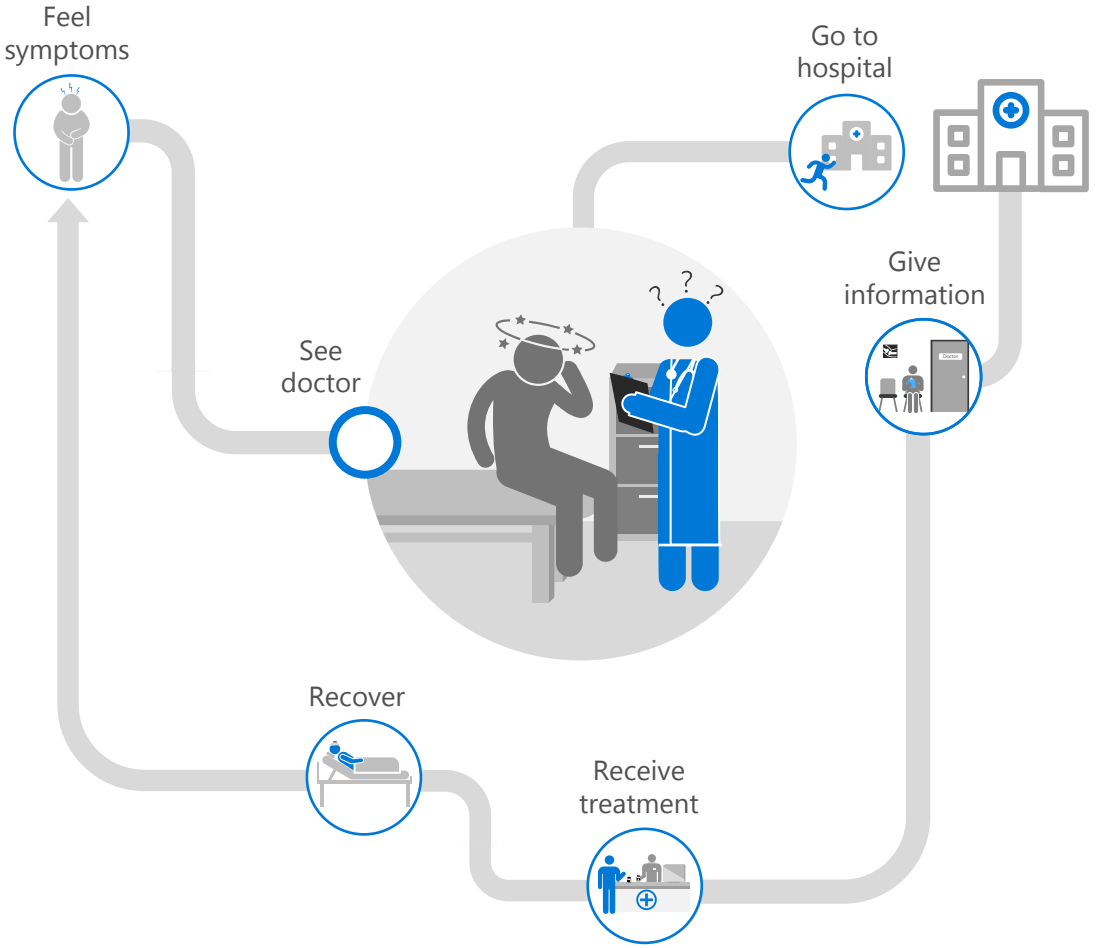
Aka.ms/health

Microsoft

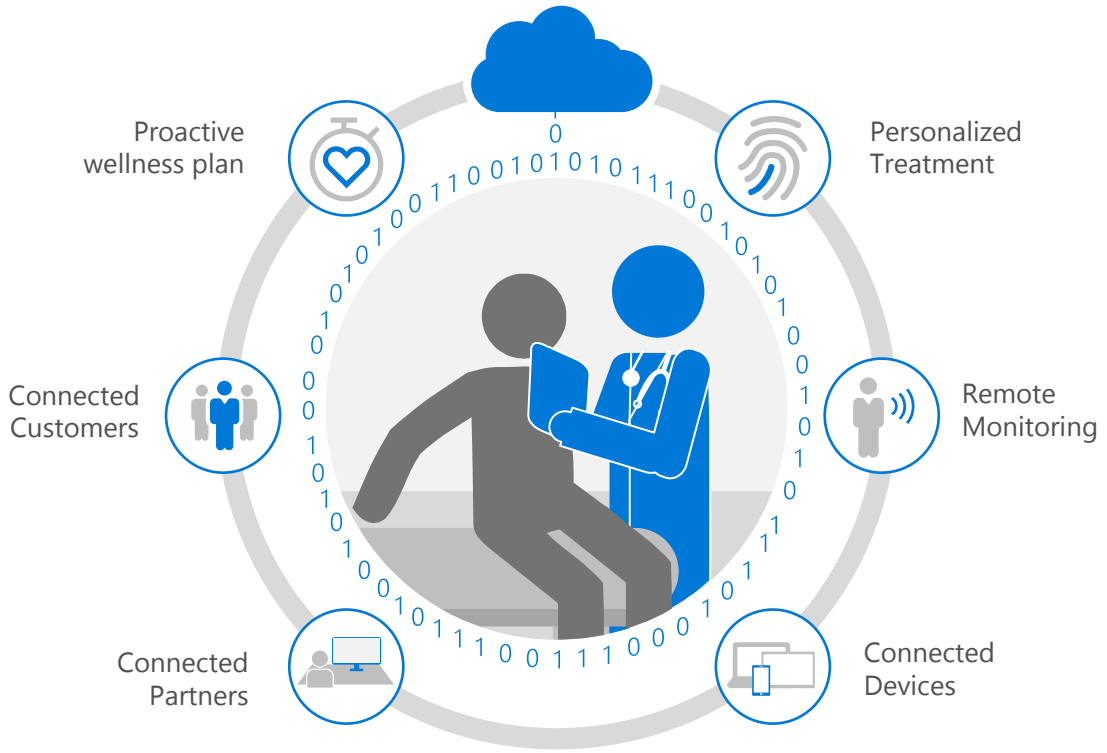

MORE EDUCATED CONSUMERS
GROWING, AGING GLOBAL POPULATION
RISING COST OF DRUGS
CARE CONTINUITY
CYBERATTACKS
STAFFING SHORTAGES
RISE OF CHRONIC DISEASE
Social Platforms
Remote Patient Monitoring
Care Coordination
Analytics
Wearables
Internet of Things
Health Opportunities
Technology Drivers
Advanced Analytics
Patient Engagement
Preventative Healthcare
Natural Interfaces
AI & Machine Learning
Unified Communications
Virtual Health
PUBLIC HEALTH THREATS
NATURAL DISASTERS
AGING, AT-CAPACITY INFRASTRUCTURE
DISEASE OUTBREAKS
Bots
BUDGETARY PRESSURES

Move to a patient-centric approach to health thru Digital Transformation

From a reactive, disconnected and cyclical process



To a continuous, collaborative approach that enables preventative care



Health Analytics Convergence zones : setting the ground for AI and Cloud

Correlational Data

Wearable Data, Geo-environmental, weather patterns, social services data etc.

Clinical Data

EMRs, diagnostic images

Claims & Cost Data

Claims, revenue cycle

Pharma & Life Science Data

Clinical trials, genomics

Patient Consumer & Citizen Data

Purchasing patterns, social media, utilization of social services data

Why AI?
Why now?

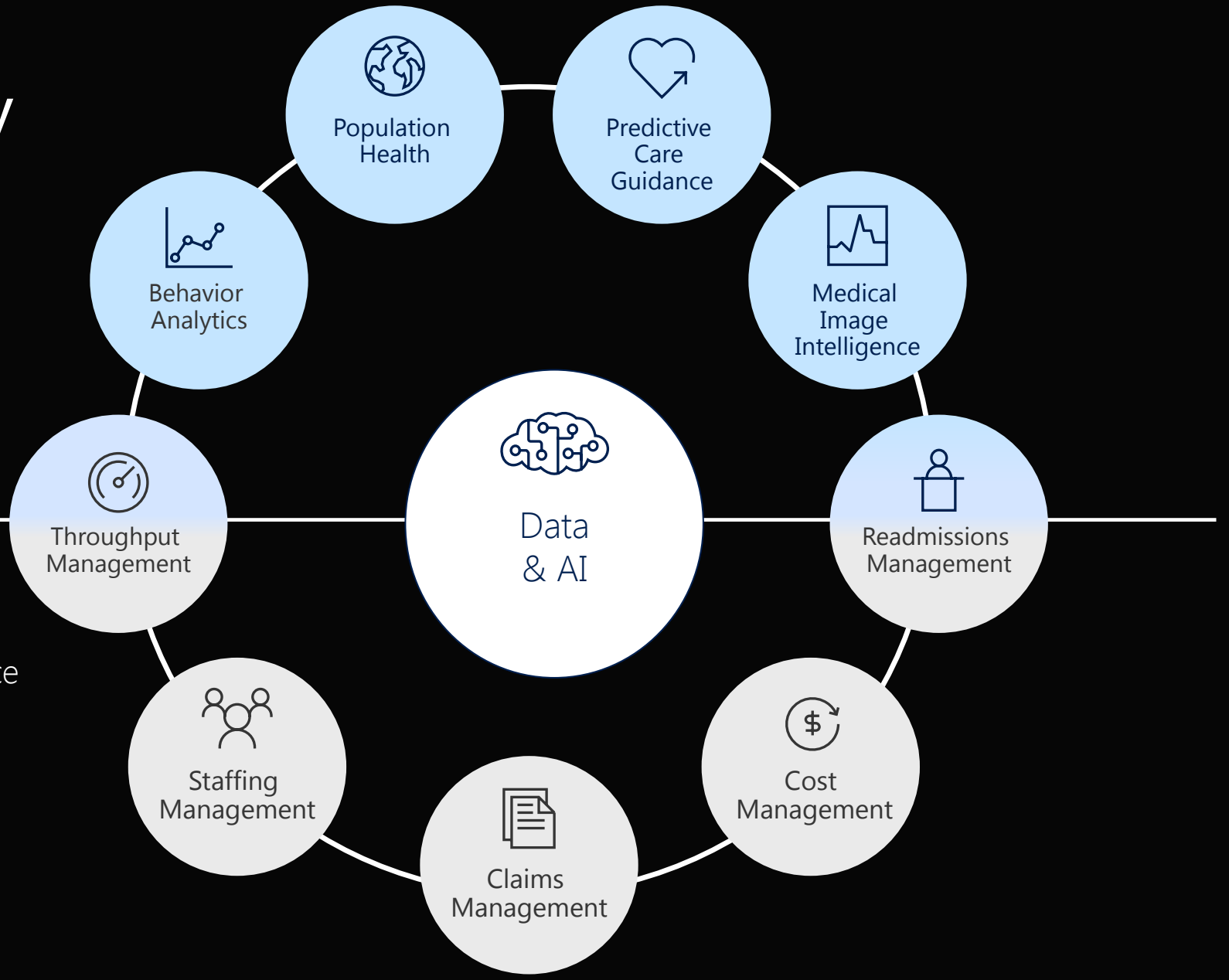
AI in Health
Use Case Taxonomy

Clinical Analytics:

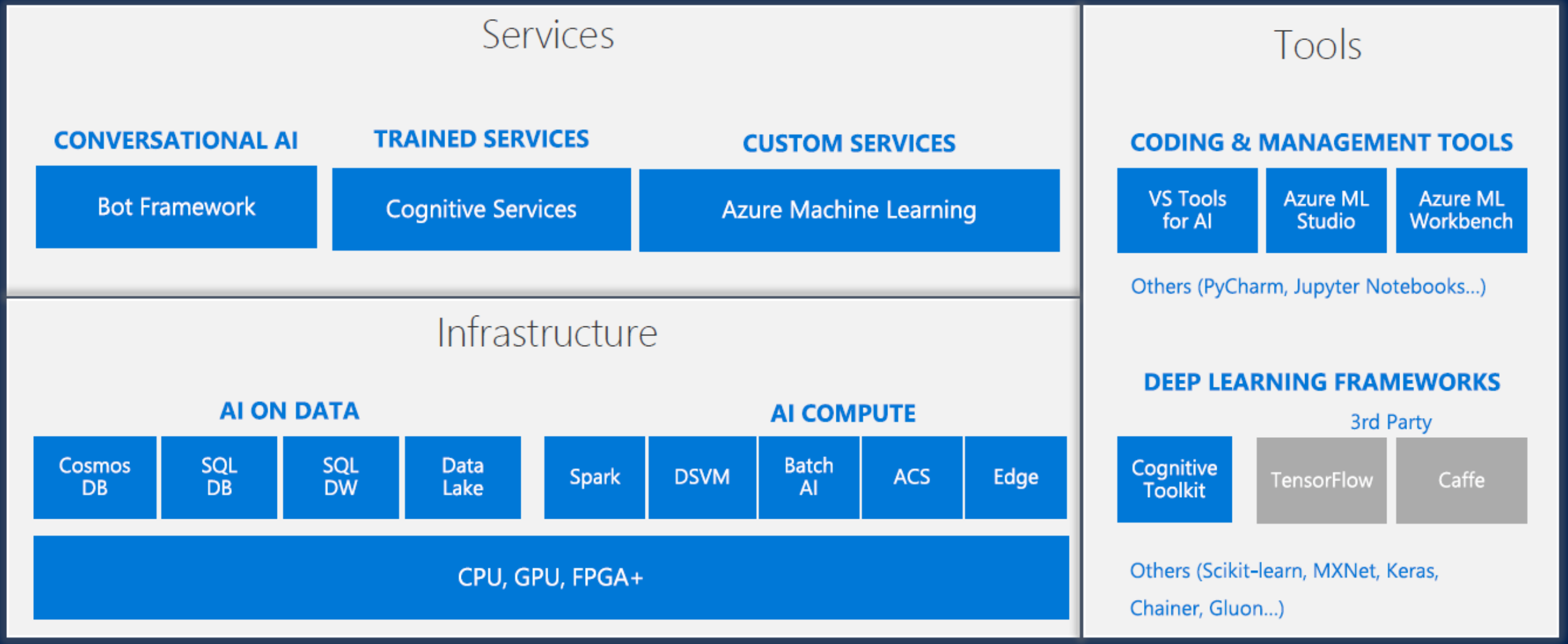
Transform data into prescriptive insights

Operational Analytics

Actionable insights to optimize performance



AI platform – infrastructure, services, tools to create your own



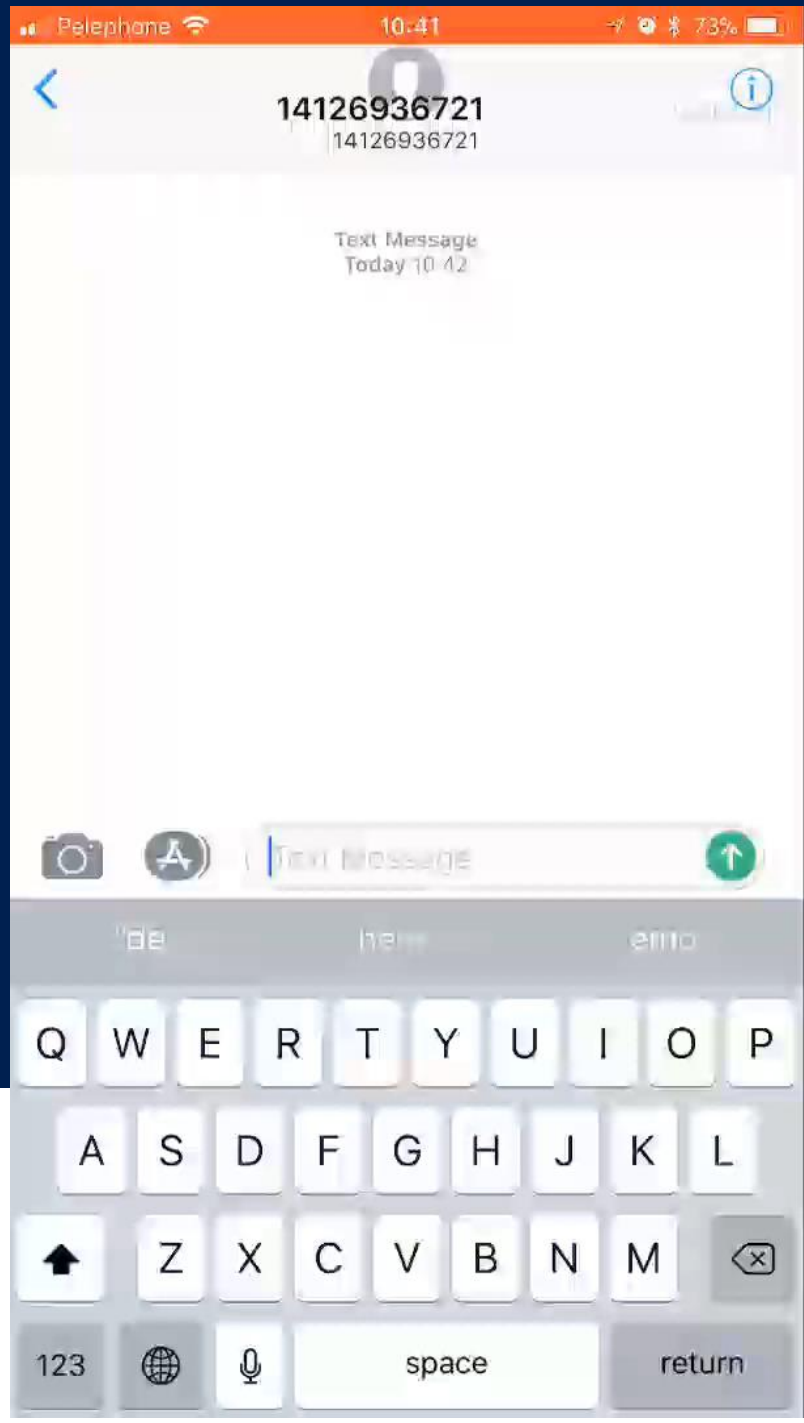
Democratizing AI - http://democratizing-ai-in-health.azurewebsites

ML and Dyslexia

Conversational AI for healthcare services

Health chatbot service enables organizations to create their own bots to extend real-time answers to customers/patients

- ✓ HIPAA and ISO compliant system
- ✓ Built-in language understanding models
- ✓ Credible triage protocols and medical content



Aurora Health Care®

Triage symptoms, find appropriate care or an ER nearby

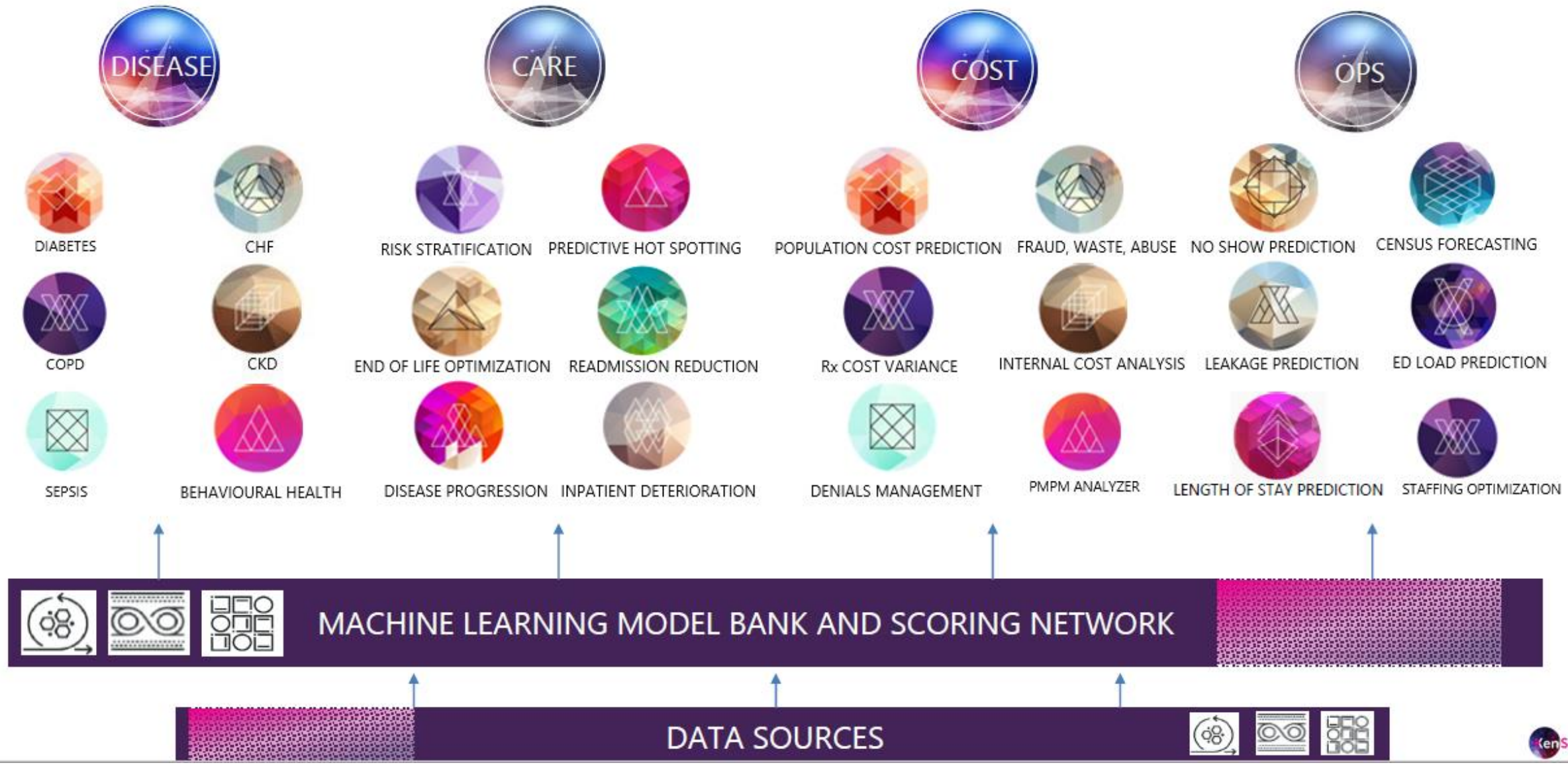
UPMC
LIFE CHANGING MEDICINE

Proactive patient engagement to drive Rx adherence

PREMERA | BLUE CROSS

Determine benefits eligibility and costs of new plan enrollees

KENSCI.AI MACHINE LEARNING RISK PREDICTION SOLUTIONS



HELPING CUSTOMERS FIGHT DEATH WITH DATA SCIENCE

How do we make healthcare more affordable and accessible for 10M patients in Asia ?

FULLERTON HEALTHCARE

Fraud Prediction | Early Risk Markers for Preventive Health
Physician Scheduling Optimization | Radiology Scheduling

How do we predict risks across the care continuum including OP, ED, PCP ?

KAISER PERMANENTE

1st Admission prediction | Post Discharge Care Plan
Readmission Risk Prognosis

How do transition to value based care without compromising on quality measures ?

St. Luke's Health Partners

ACO cost prediction across care and ops
Variation Reduction Prognosis

How do we ensure that the army remains in active duty for longer ?

Risk Stratification and Readmission Reduction for CHF | COPD | Sepsis | CKD

How do predict the lifetime cost of healthcare for 9/11 first responders ?

CDC

Disease progression prediction
Cost of Care prediction | Co-morbidity prediction

How do we reduce 'hovering' time for doctors and nurses in the general ward ?

PHILIPS

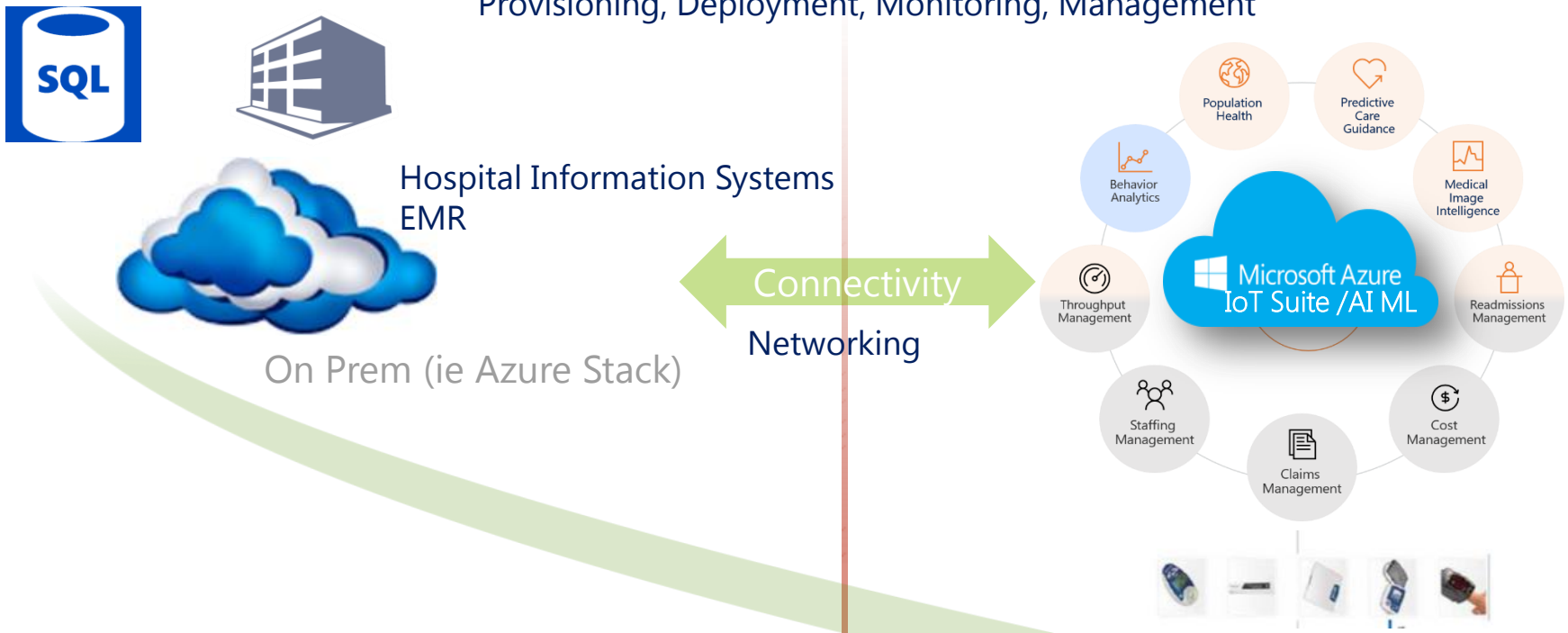
Early Warning System based on streaming data

Leveraging Microsoft Hybrid Cloud Strategy for Telemedicine scenarios

On-Premise | Off-Premise | Data/Apps Strategies

IT Hybrid Cloud Management Platform

Provisioning, Deployment, Monitoring, Management



Hybrid Strategy

The whole distributed system works as a Unique, Coherent System compliant with local Regulations

Application Strategy

Device Data Acquisition and AI Algorithms stored on Azure Public Cloud Leveraging World Best Practices (Telemedicine, Clinical Analytics, Operational Analytics)

Data Strategy

All Patient and Critical Data structures are kept in the Country on on Prem / Azure Stack DataCenter. Realtime patient vital data are processed on Azure to then be consolidated onPrem

Microsoft Azure

CASE STUDY

MICROSOFT AZURE ISV:
MedApp S.A.

WEB SITE: www.medapp.pl

LOCATION: Cracow, Poland

ORG SIZE: 35 employees

MICROSOFT AZURE ISV PROFILE:
MedApp is telemedical software provider. Application is based on Azure technology and work with compatible apps on smartphones, tablets laptops and PC's. There are three types of applications dedicated for patients, physicians and for every employee of Medical facility.

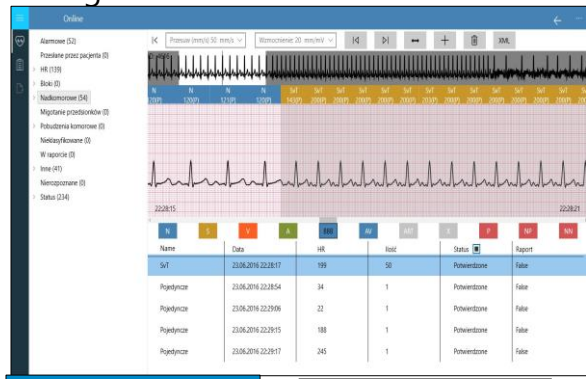
Microsoft | Go-To-Market Services

Azure – A Perfect Tool For Implementing Intellilgent Algorithms For Biomedical Signal Analysis in ECG

"We were looking for the best solutions for biomedical signals analysis. Microsoft Azure allowed us to overcome all difficulties, opened new opportunities, and proved to be safe enabler for medical software." – Mateusz Kierepka, CEO, MedApp S.A.

- **SITUATION**

  MedApp has more than 20 different algorithms which work on real-time recorded Electocardiography (ECG) medical examinations. They have already prepared database for receiving a lot of examinations in one time (sourced from different patients). After analysis performed by algorithms, they are sent to proper specialists. Currently, the examination and interpretation deal with ECG examiantions. We undergo final tests for blood pressure and glucose level analysis to be launched soon.



- **SOLUTION**

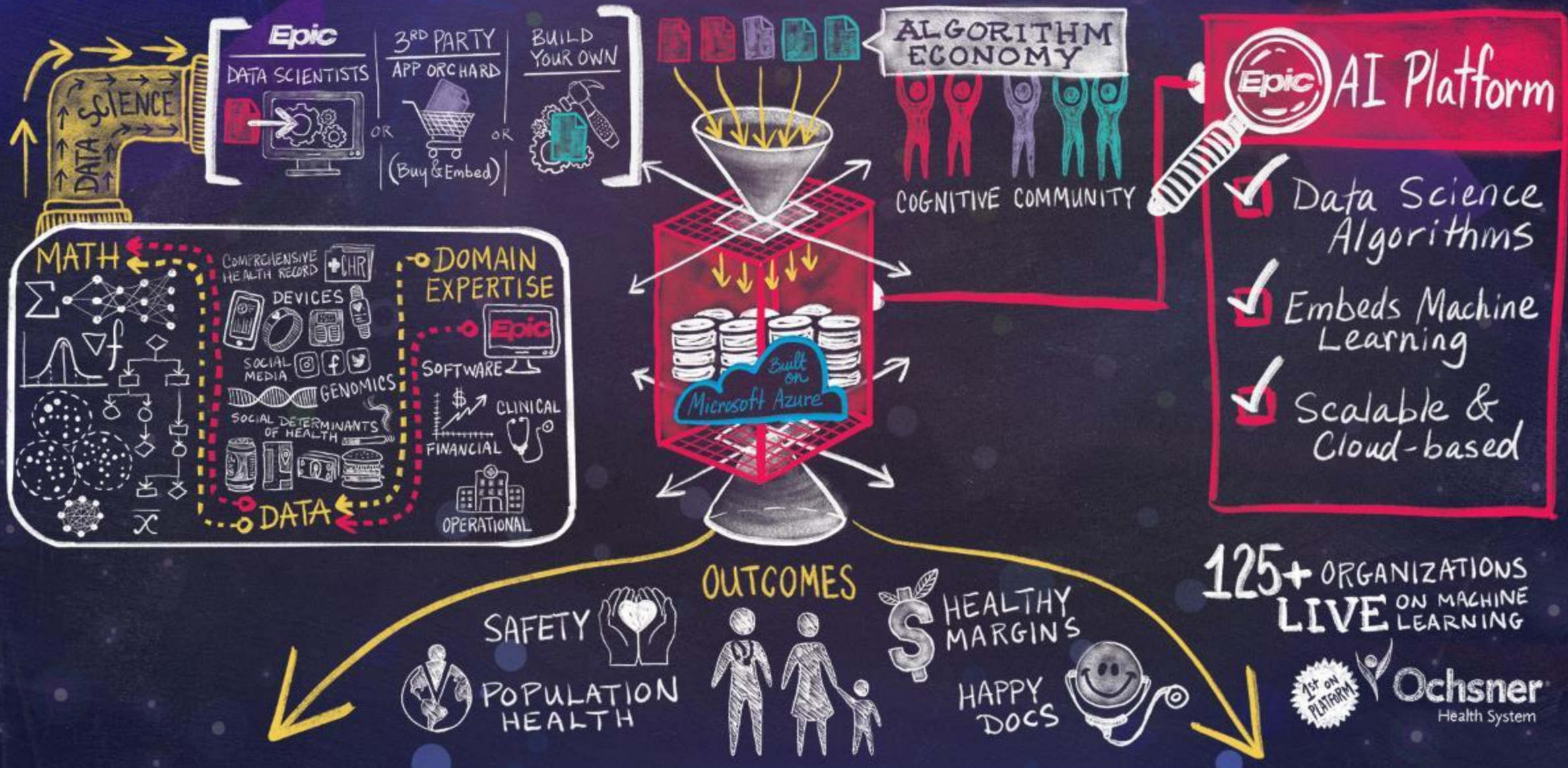
  MedApp needed to find a reliable solution, and Azure looks like fulfiled all of their requirements. Using MQ Telemetry Transport for sending exams in real time without worrying about overloading was exactly what we needed and due Azure flexibility it ensures smooth operations.

  To keep highest security standars MedAPp performed several security tests to for unparalleled solution safety. Microsoft team supported MedApp with all the cloud knowledge, to ensure that medical database can be set up on Azure with full legal compliance

- **BENEFITS**

  MedApp is one of the most dynamic healthcare start-ups. It is crucially important to rely on safety, set up easiness and cost effectiveness, which Microsoft Azure fulfilled decently.

Epic AI: From Data Science to Improved Outcomes



InnerEye

Assistive AI for Cancer Treatment

Addenbrooke's hospital, Cambridge

Digital Imaging and Pattern Recognition
via Machine Learning Cloud technology
that can measure tumors accurately in 3D from normal Computerized Tomography (CT) scans.

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Dr Raj Jena MD MRCP FRCR
Honorary Consultant Clinical Oncologist & Lead Clinician for Stereotactic Radiosurgery
Cambridge University Hospitals

http://www.bbc.co.uk/news/technology-34210351

People will only use technology they can trust

Brad Smith
President and Chief Legal Officer
Microsoft

https://blogs.microsoft.com/blog/2018/01/17/future-computed-artificial-intelligence-role-society/

and

Human ~~vs.~~ machine

Microsoft

Thank you