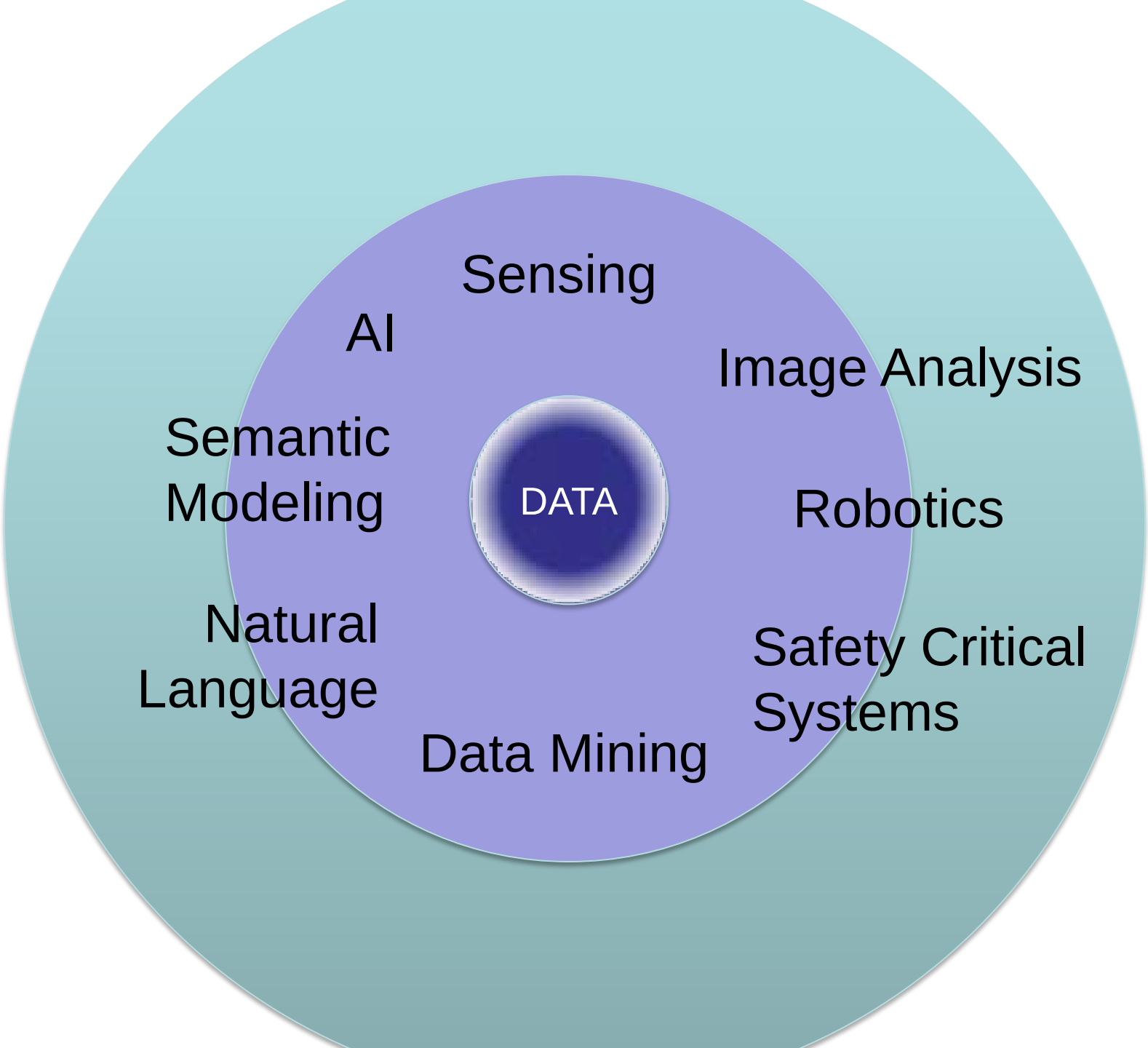
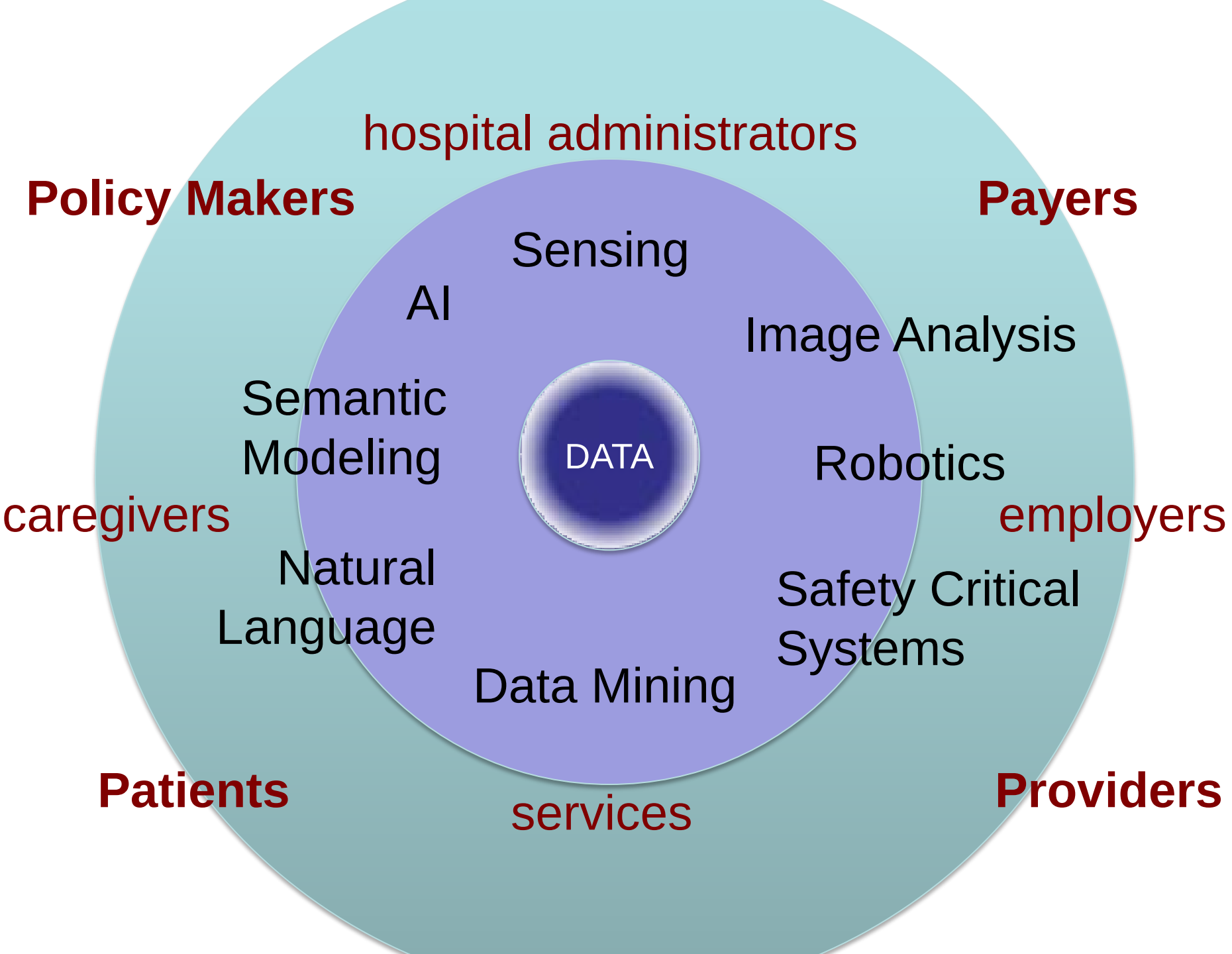
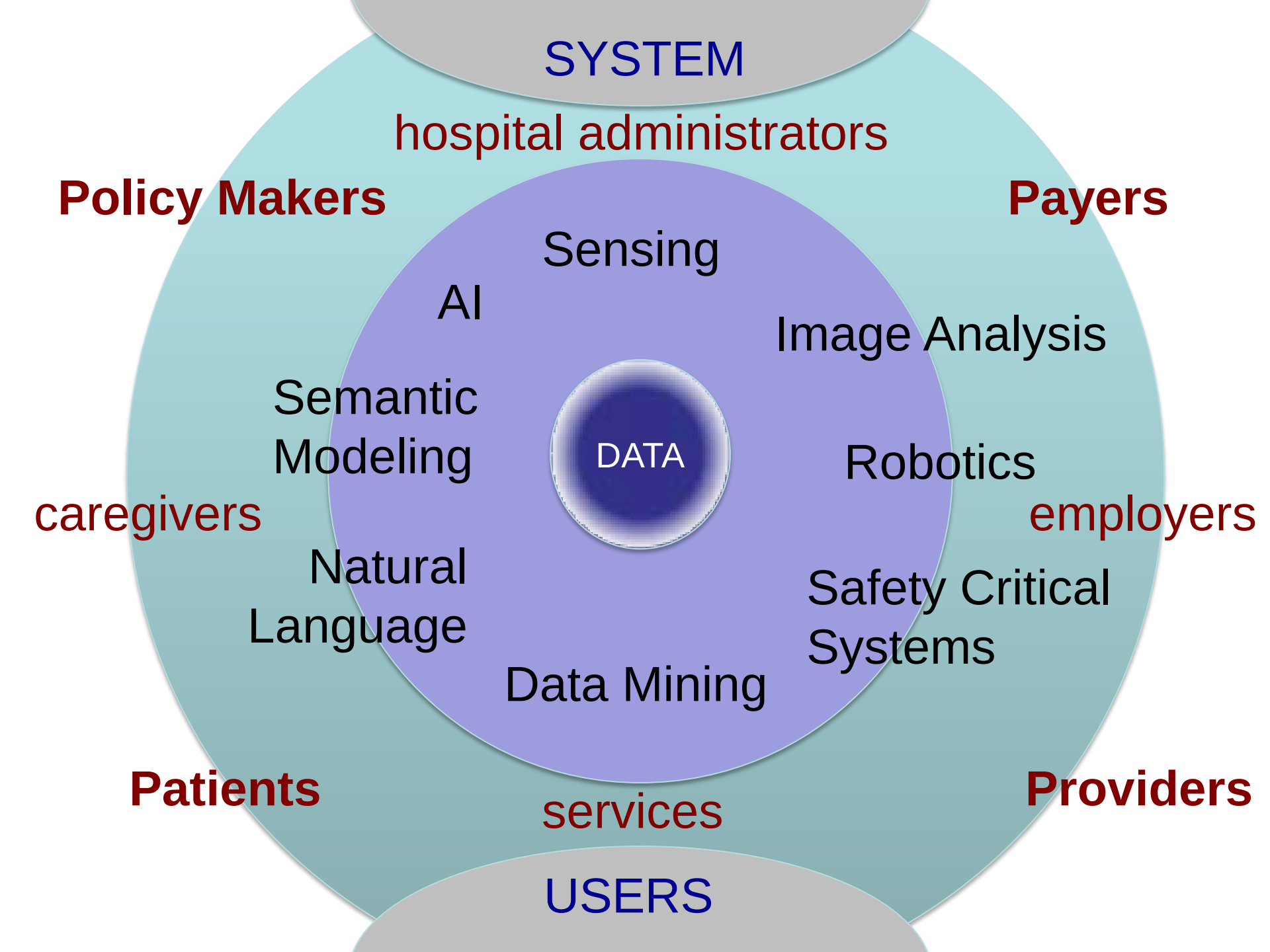
A Human-Centered Computing Agenda for Health IT

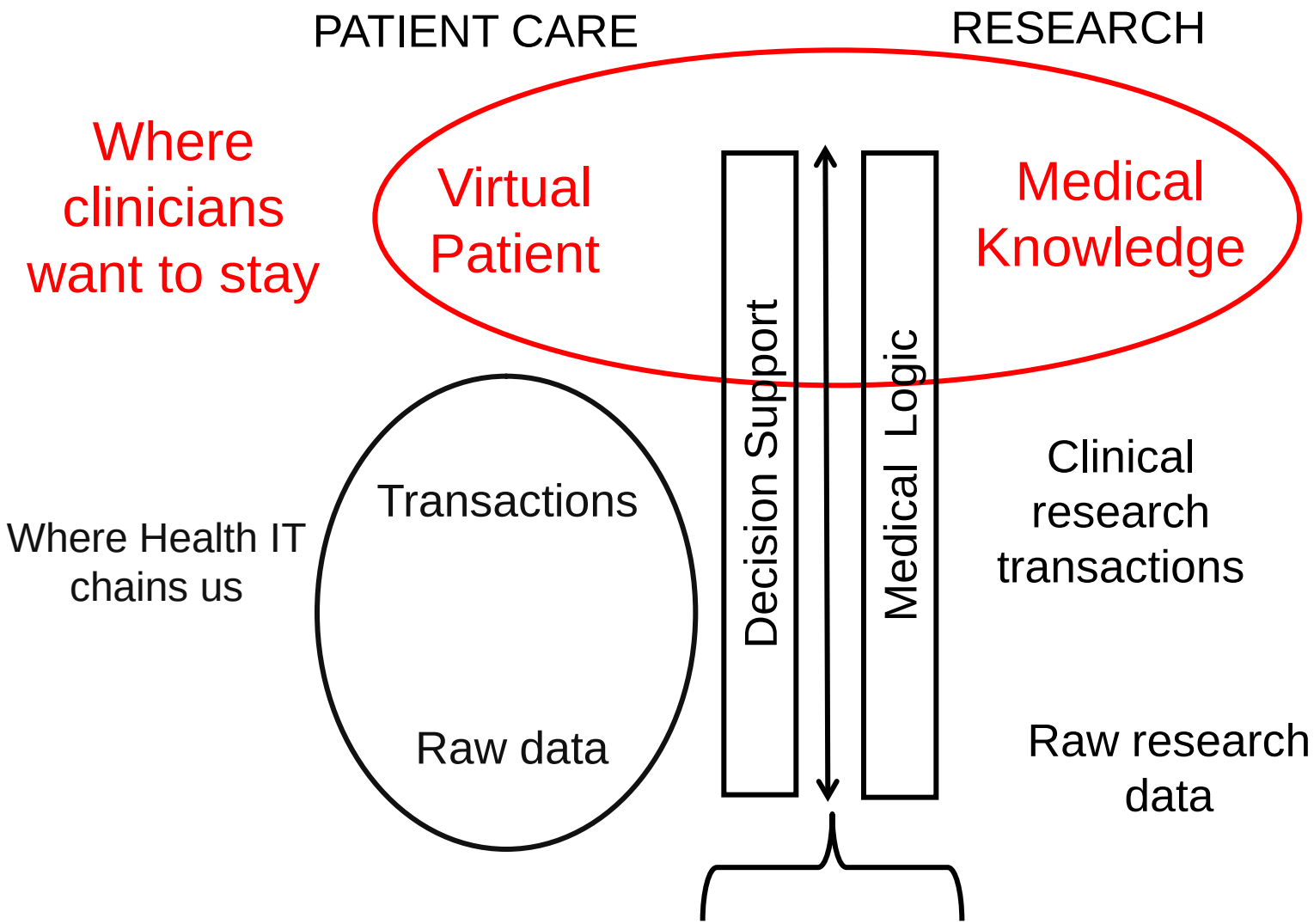
Beth Mynatt
College of Computing
Georgia Institute of Technology


Sensing
AI
Image Analysis
Semantic Modeling
DATA
Robotics
Natural Language
Safety Critical Systems
Data Mining


hospital administrators
Policy Makers
Payers
Sensing
AI
Image Analysis
Semantic Modeling
DATA
Robotics
caregivers
employers
Natural Language
Safety Critical Systems
Data Mining
Patients
services
Providers

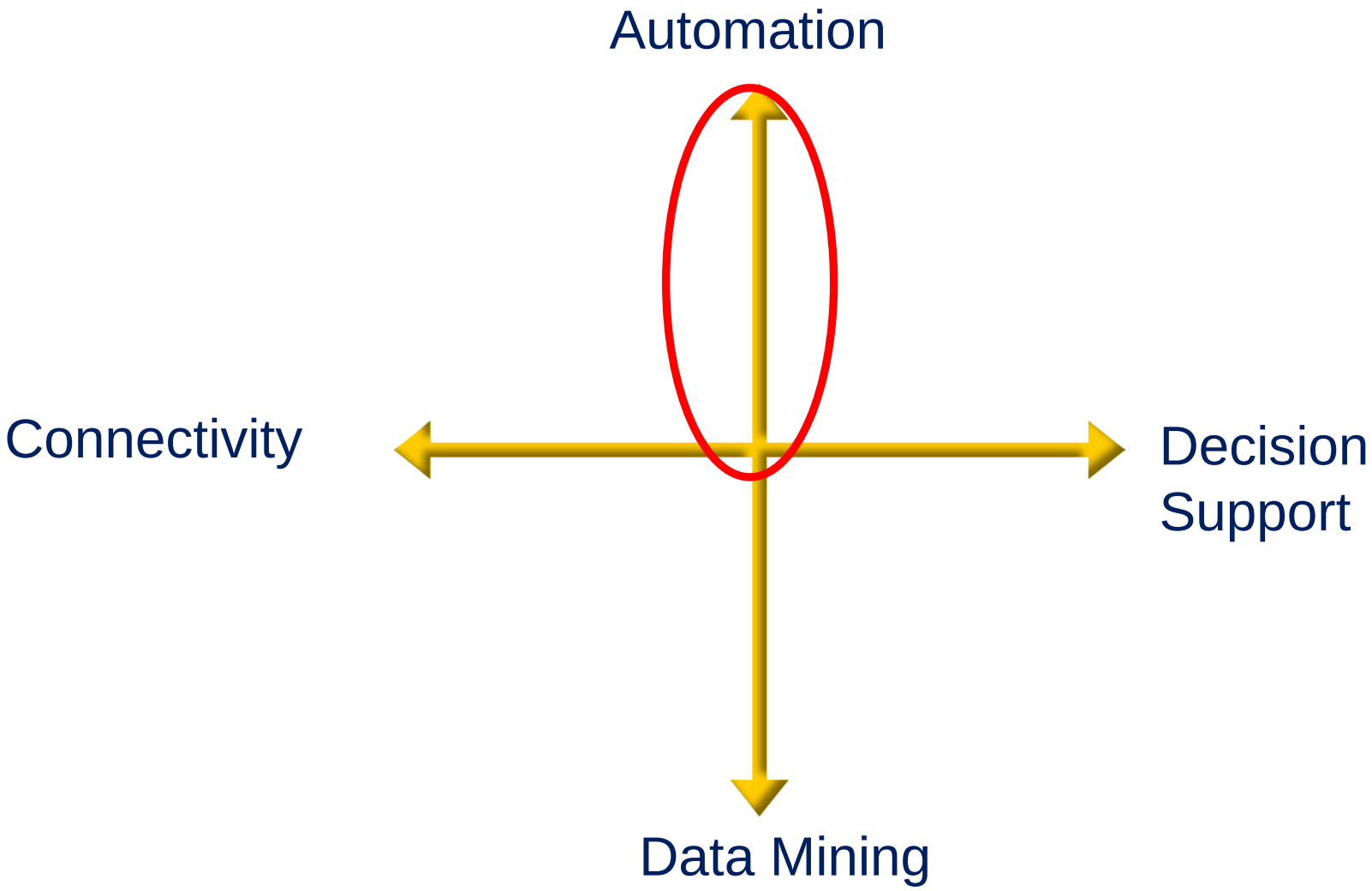

SYSTEM
hospital administrators
Policy Makers
Payers
Sensing
AI
Image Analysis
Semantic Modeling
DATA
Robotics
caregivers
employers
Natural Language
Safety Critical Systems
Data Mining
Patients
Providers
services
USERS

Overarching Grand Challenge: Cognitive Support

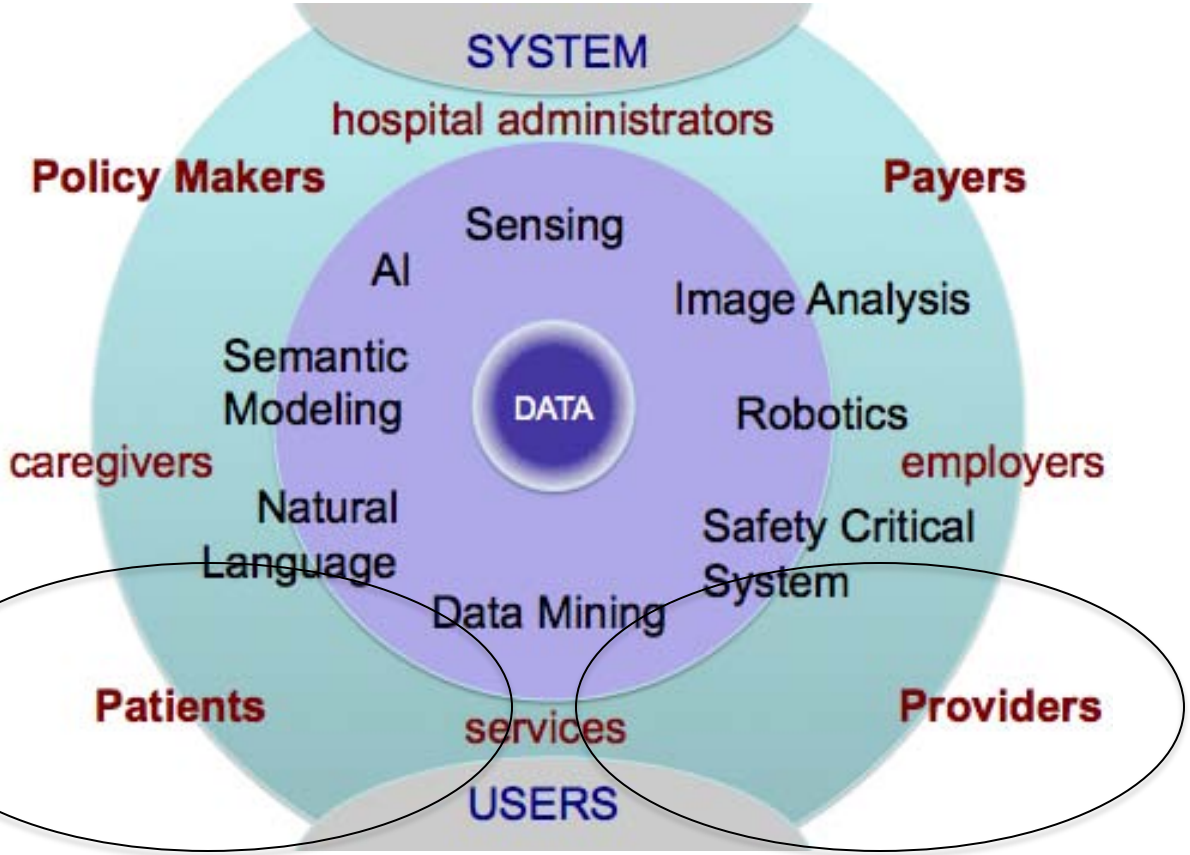


Stead WW, Lin HS. 2009. Computational technology for effective health care: immediate steps and strategic directions. Comput Sci and Telecom Board, Nat Res Council. Washington: National Academies Press.

Mismatch between Computationa Technique & Scale of Problem



How would you create a tool that would….



Personalized medicine

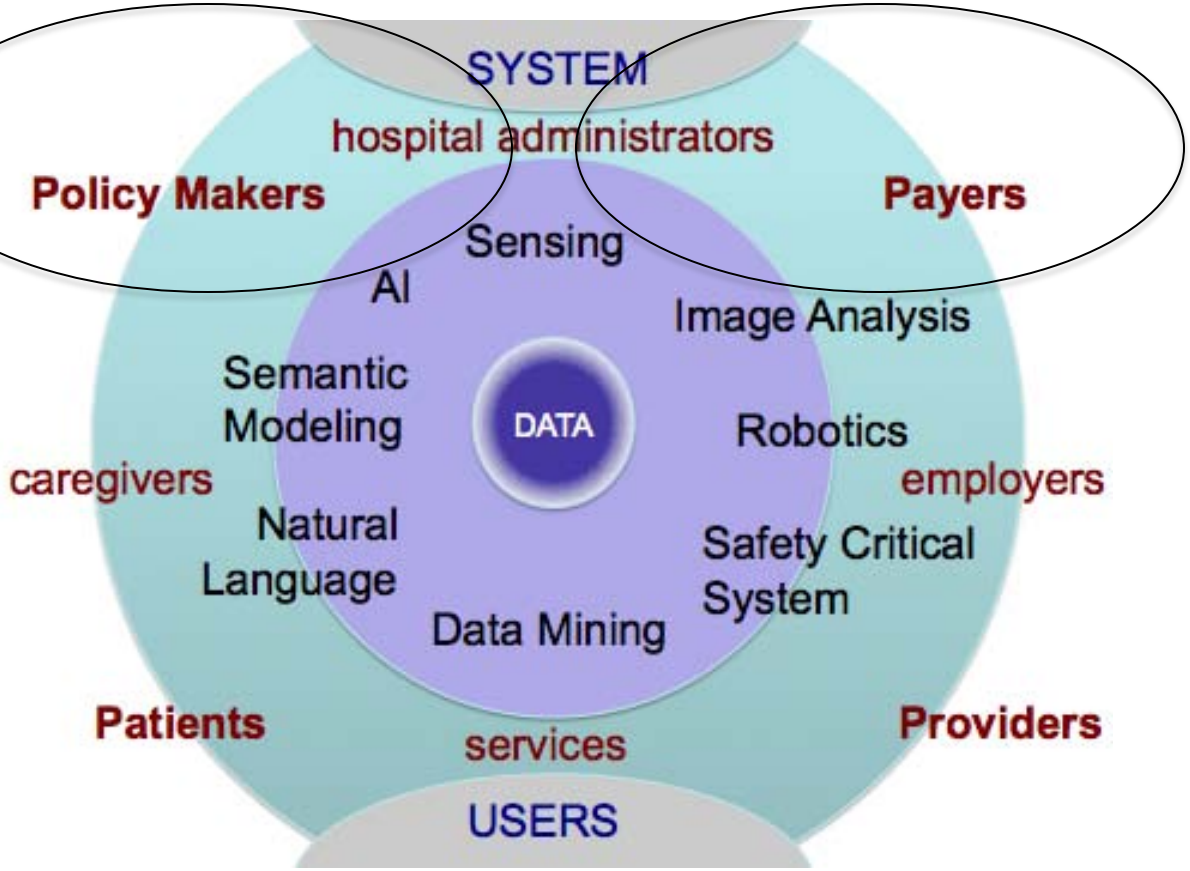
Detect indicators for autism from video records.

Create models of surprise for physicians

Support collaboration across a distributed care team

Provide personalized health coaches

How would you create a tool that would….



Drive before buying

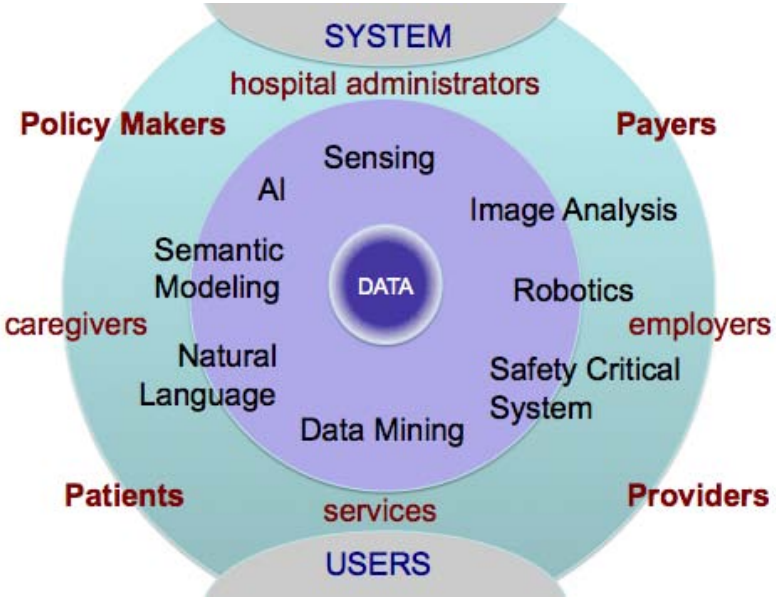
Optimize resources across the system

Align incentives to pay-for-outcome vs. pay-for-fee

Understand health disparity and utilization data

Predict overall economic losses due to poor healthcare

Why now?



Transforming Healthcare

Major national investment in basic Health IT, e.g. EMRs and HIEs

New avenues for funding

US at or near bottom for managing chronic and population health care needs despite massive spending

Exponential growth in chronic diseases, esp associated with nutrition

Save $80B / yr through improving care of 7 most common chronic diseases