

Cognitive Computing: A new era

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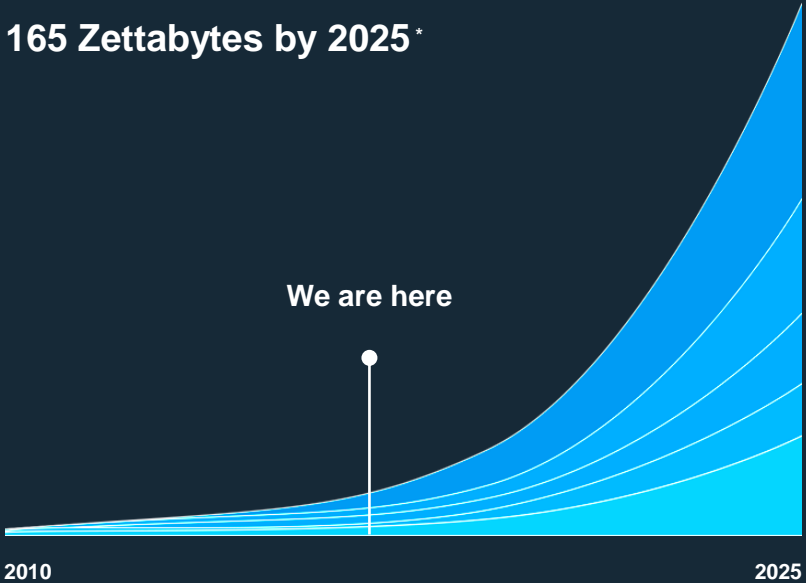


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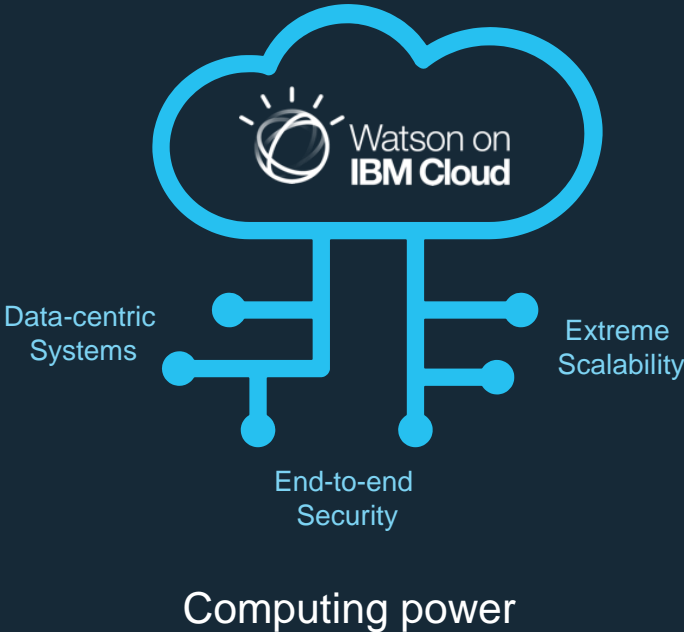
Fueling the shift to AI

Data growth



*Source IDC. IBM projections based on analyst report

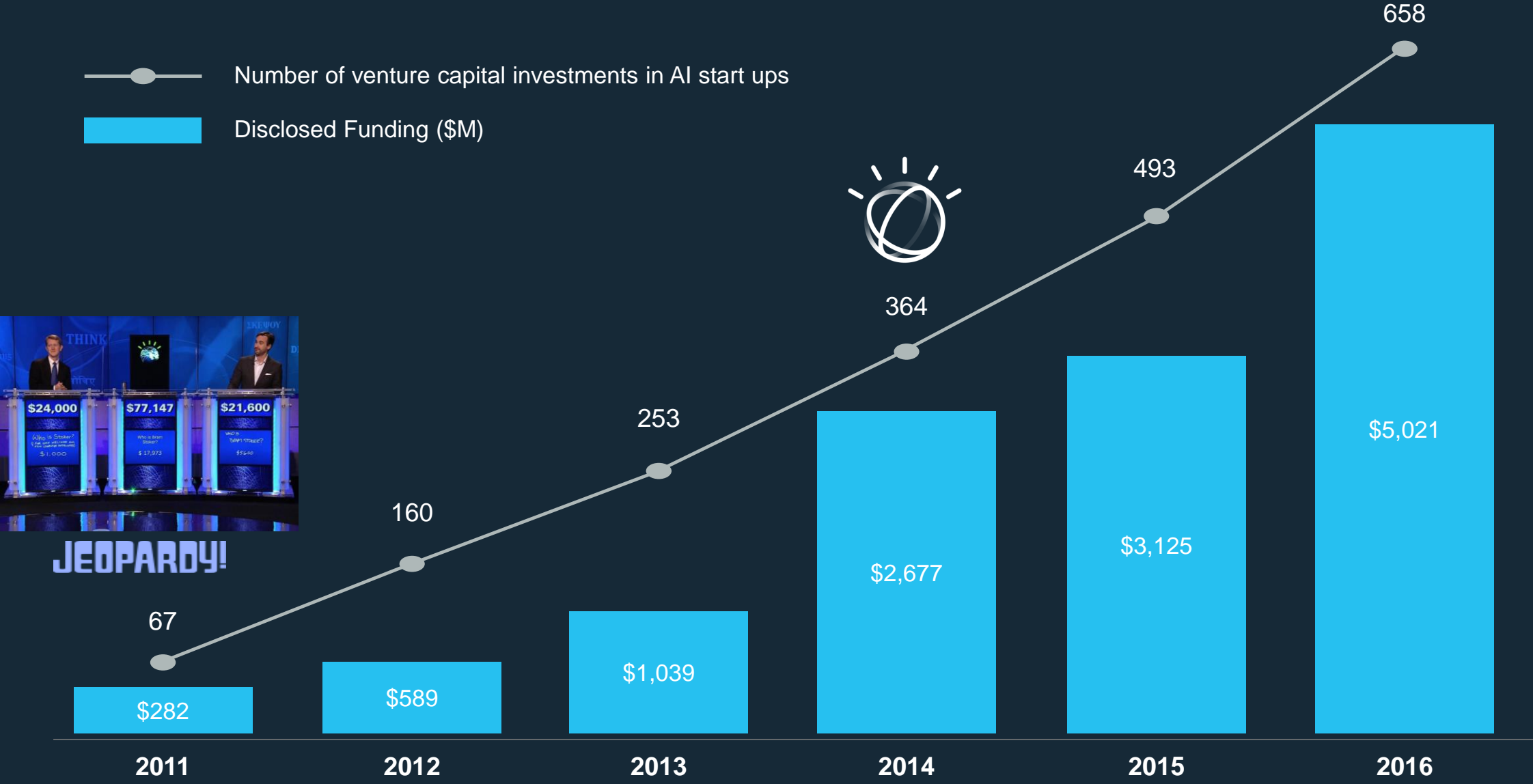
Cloud



Advances in neural networks, machine learning and deep learning



Explosive growth in AI investment 2011-16



JEOPARDY!

Source: CB Insights, Bloomberg Beta: "The Current State of Machine Intelligence 2.0"

The AI landscape in 2017

Applications & Services



Enterprise

- Cybersecurity
- Finance & Risk
- Marketing
- Forecasting
- Human Resources
- Operations / IoT
- Sales
- Virtual agents



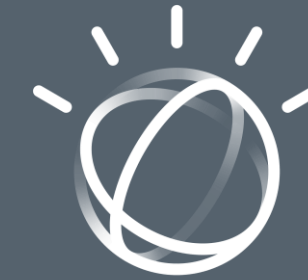
Industry

- Healthcare
- Finance
- Automotive/ Transportation
- Industrial Products
- Buildings
- Retail
- Energy & Utilities



Consumer

- Voice-activated Chatbots
- Smart Home
- E-commerce
- Wellness and Wearables
- Social Media



Cognitive Computing



Autonomous Systems

- Self-driving Cars
- Robots
- Drones
- Planning and Decision Support

Core AI

- Machine Learning
- Deep Learning
- Natural Language Processing
- Vision
- Speech
- Virtual/Augmented Reality
- Dialog
- Machine Reasoning
- Neural Networks
- Emotion

Infrastructure

- Cloud
- Enabling hardware and software



How we see it: IBM's take on the AI market

Cognitive Computing

Interactive decision-making and reasoning over deep domain models and evidence-based explanations, using Artificial Intelligence/Machine Learning tools

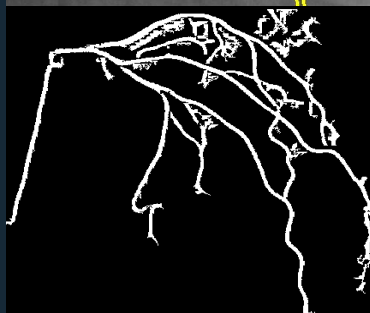
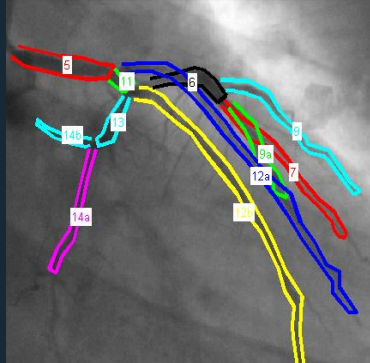


Artificial Intelligence

Range of techniques including natural language processing, knowledge, reasoning and planning, for advanced tasks

Machine Learning

Statistical analysis for pattern recognition to make data-driven predictions



Vitals						
HR	BP	RR	O2 Sat	Height	Weight	BSA
90-120	140-160 82-96	28-36	96% (on 100% nasal cannula)	180 cm	80.7 kg	2.1

Summary	
History of Present Illness 1) Abnormal ECG 2) Elevated cardiac enzymes 3) Severe chest pain	Chief Complaints Severe chest pain
Current Diagnoses 1) Angina 2013 2) Atherosclerosis 2013 3) Lateral and posterior wall infarction 2013 4) Ostial stenosis 2013 5) Right coronary stenosis 2013 6) Left ventricular hypertrophy 2013 7) Palpitations 2013	Physical Examinations
Past Hospitalizations None	Current Medications 1) Metoprolol 2010 2) Hydrochlorothiazide 2011 3) Simvastatin 2011
Past Surgeries None	Allergies None
Family History 1) Mother - Stroke 2) Father - Heart attack	Lab/Measurements 1) Mag: 2.0 2) P: 5.4 3) PPT: 25 4) PT: 12 5) Platelets: 260000 6) ST Elevation: ST elevation L3-L2, V4R, V1-V2, aVF and ST-depression in leads 1 and aVL 7) Troponin T: 1434 8) WBC: 8.0
Patient Management Emergent cardiac catheterization and possible stent placement or thrombolytic administration. Cardiac interventional team and Dr. John Watson have been reviewing the patient and are prepping for catheterization procedure.	Derived measurements Ultrasound of the heart 1) IVS Width: 18mm Angiography Exam 1) Mid RCA Stenosis: true



The AI opportunity for enterprise and industry

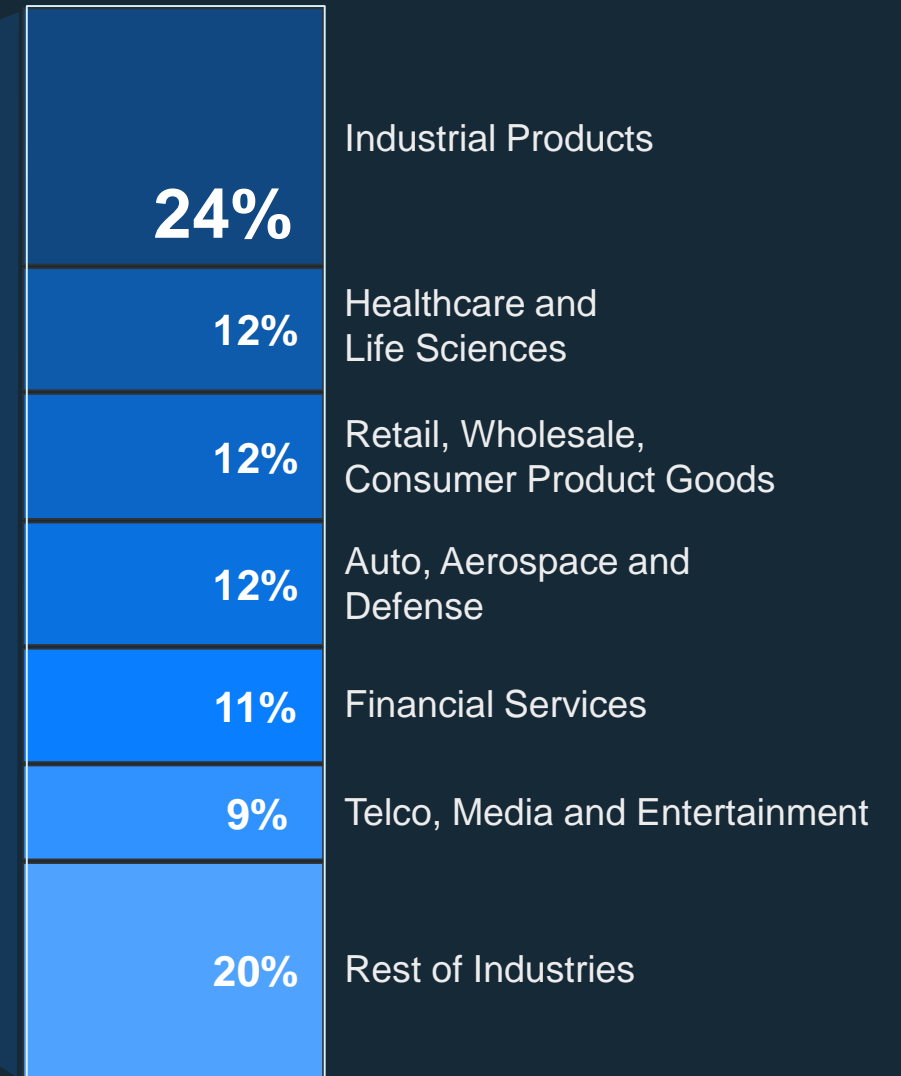
Opportunity for decision-making support
2025
~\$2T

Decision Support

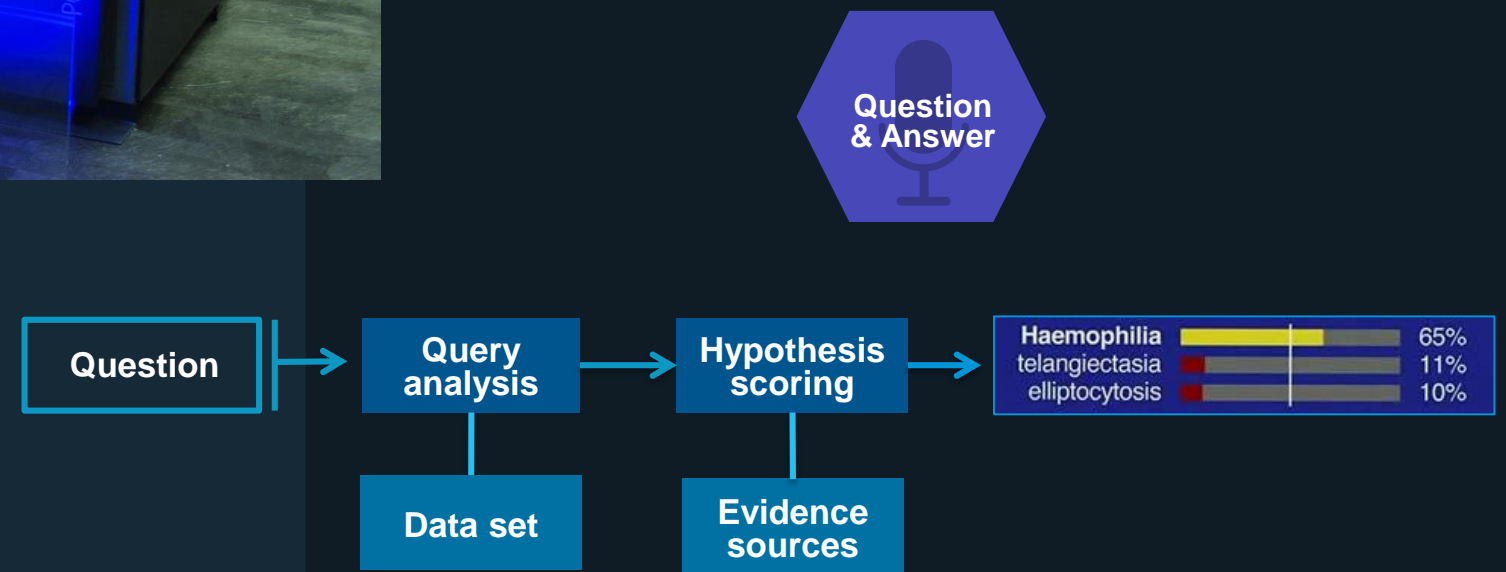


Traditional global IT spend
2020
~\$1.4T

CRM ERP
Productivity
Data center systems Infrastructure
Process automation



Watson 2011: Natural language machine



Watson 2017: Robust cognitive platform

Enterprise-scale
Cognitive Platform



Watson 2017: Strategic differentiation

Industry and Process Specialization

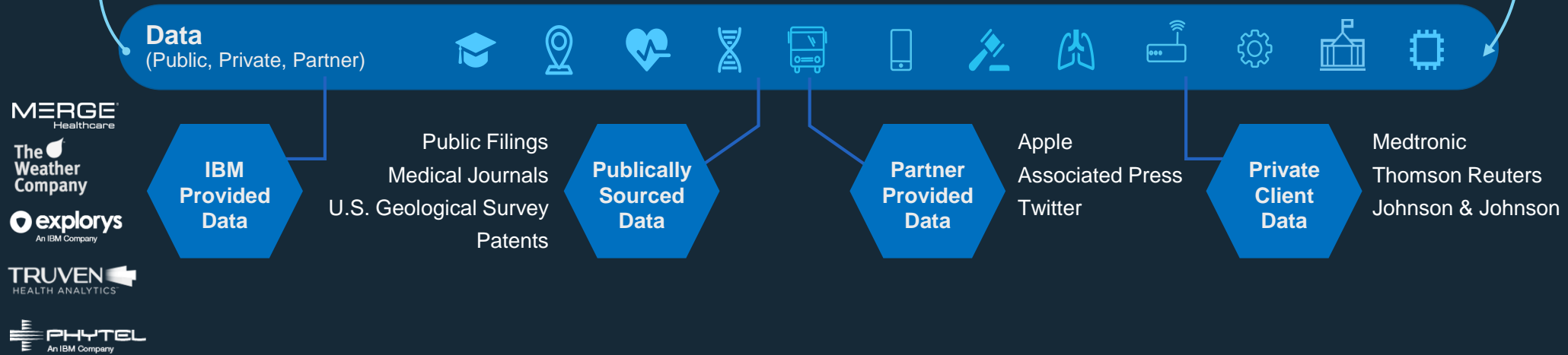
Depth of Ecosystem Collaboration

Enterprise-scale Cognitive Platform

Public, Private, Multimodal



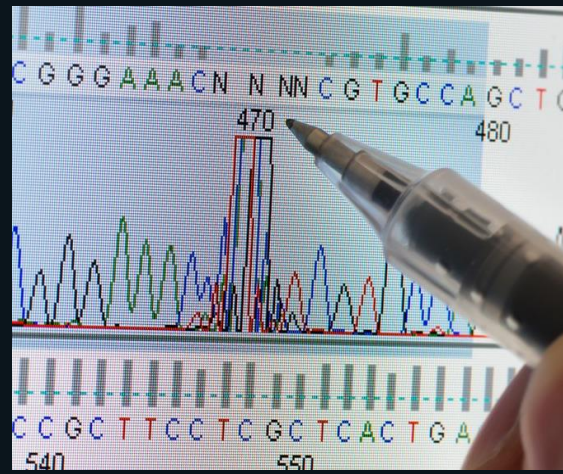
Built for Security



Watson 2017: New revenue models



Data access/ Pay-per-Insight



Subscription



Shared value with partners



Licensing

Our clients and partners are scaling

Example set of cognitive and cloud clients and partners



Shaping the future

Cognitively enable and disrupt industries



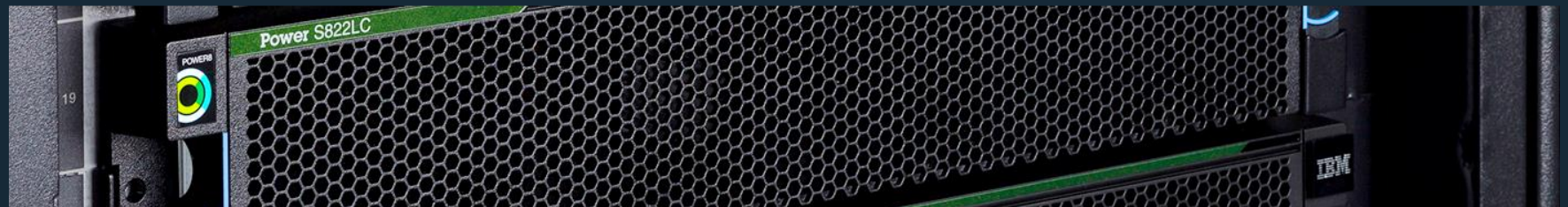
Advanced AI / cognitive reasoning /
decision making



New data assurance and trust



New hybrid system designs



New neuromorphic and quantum devices



IBM