Trimble

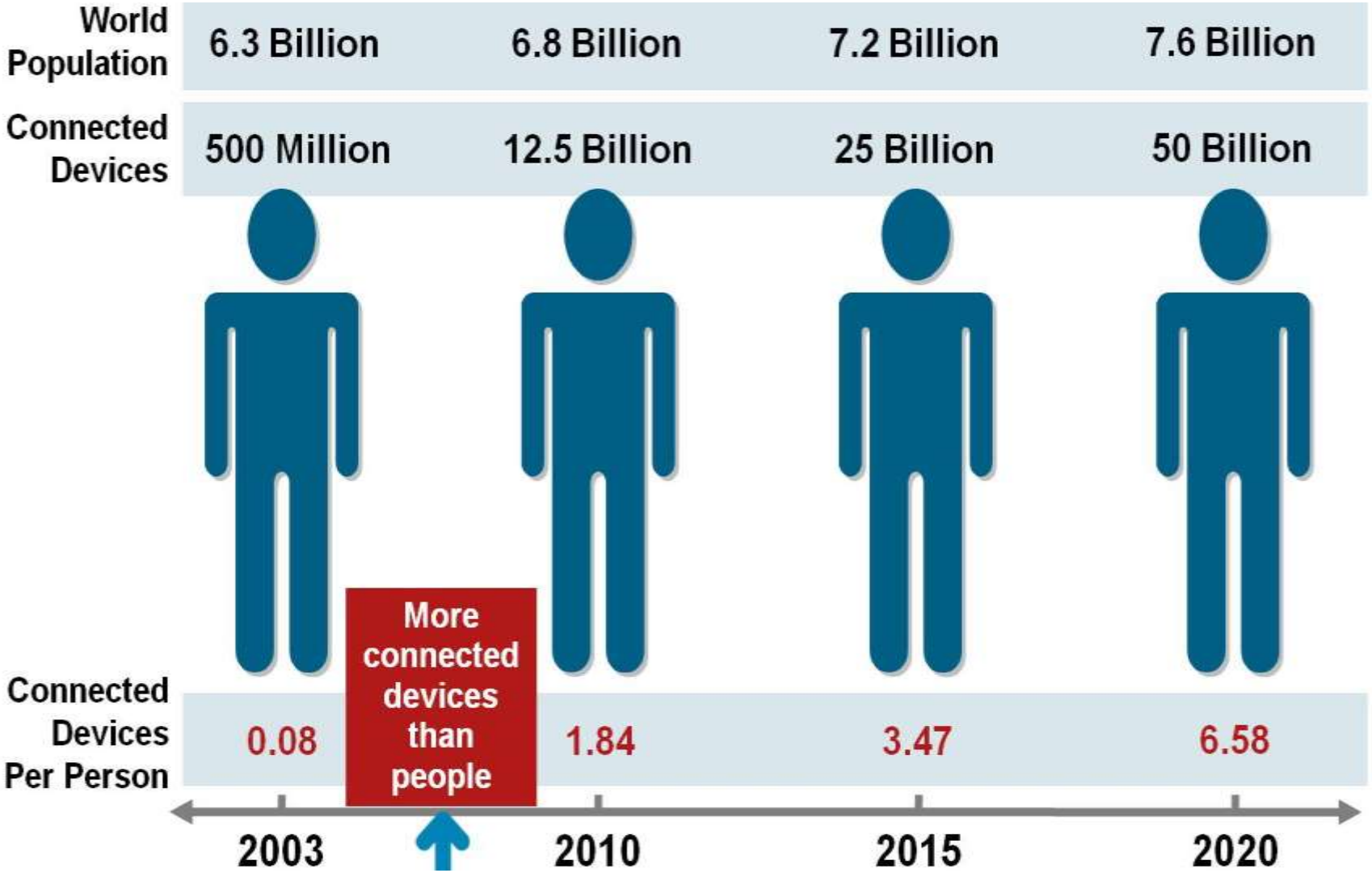
transforming the way the world works

Sensors to Artificial Intelligence Shaping the Smarter World

The “Intelligent” Machine

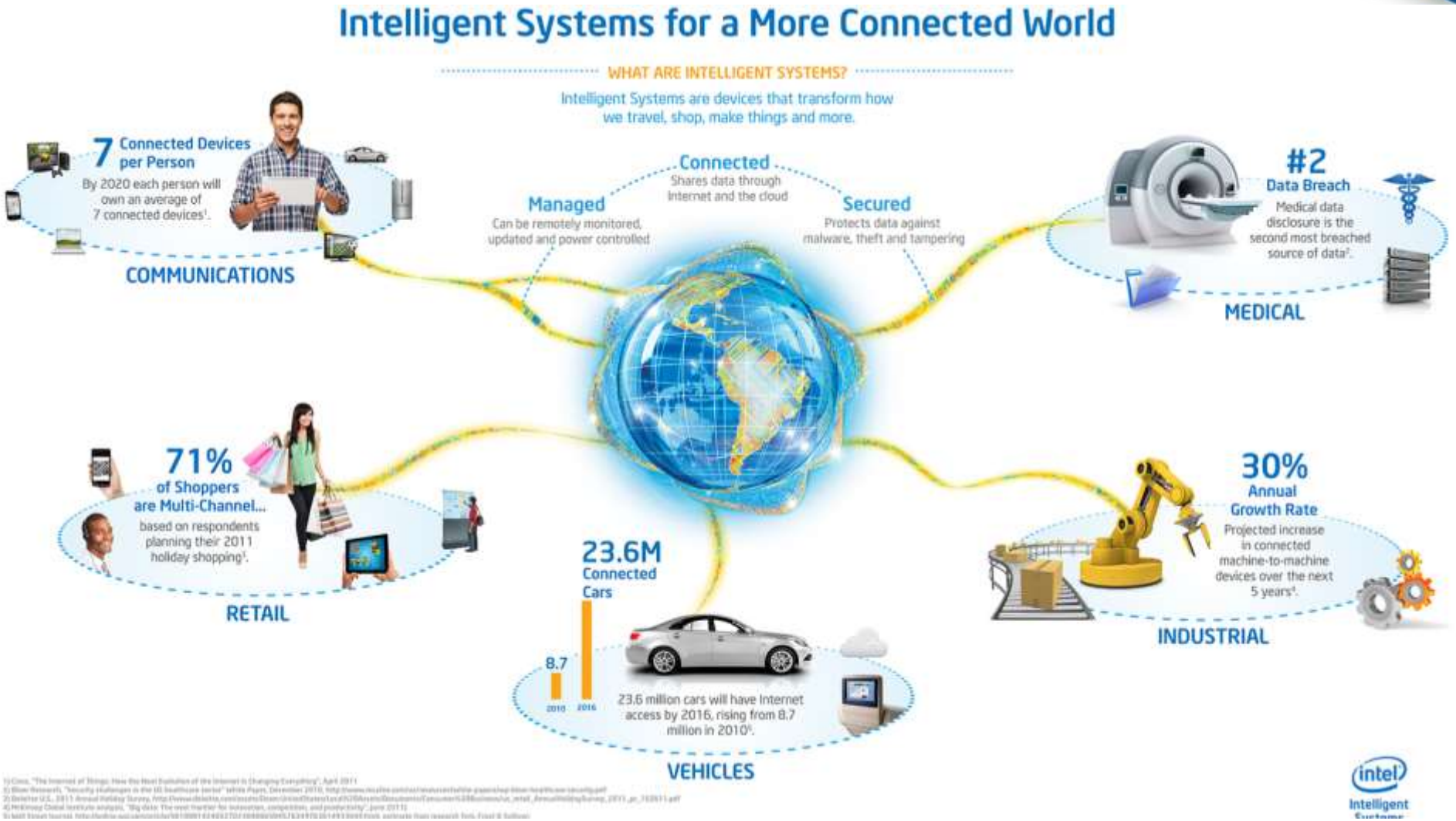
A flexible rational agent that perceives its environment and takes actions that maximize its chance of success at some goal

Growth of Connected Devices



Source : CUSCO IBSG , April 2011

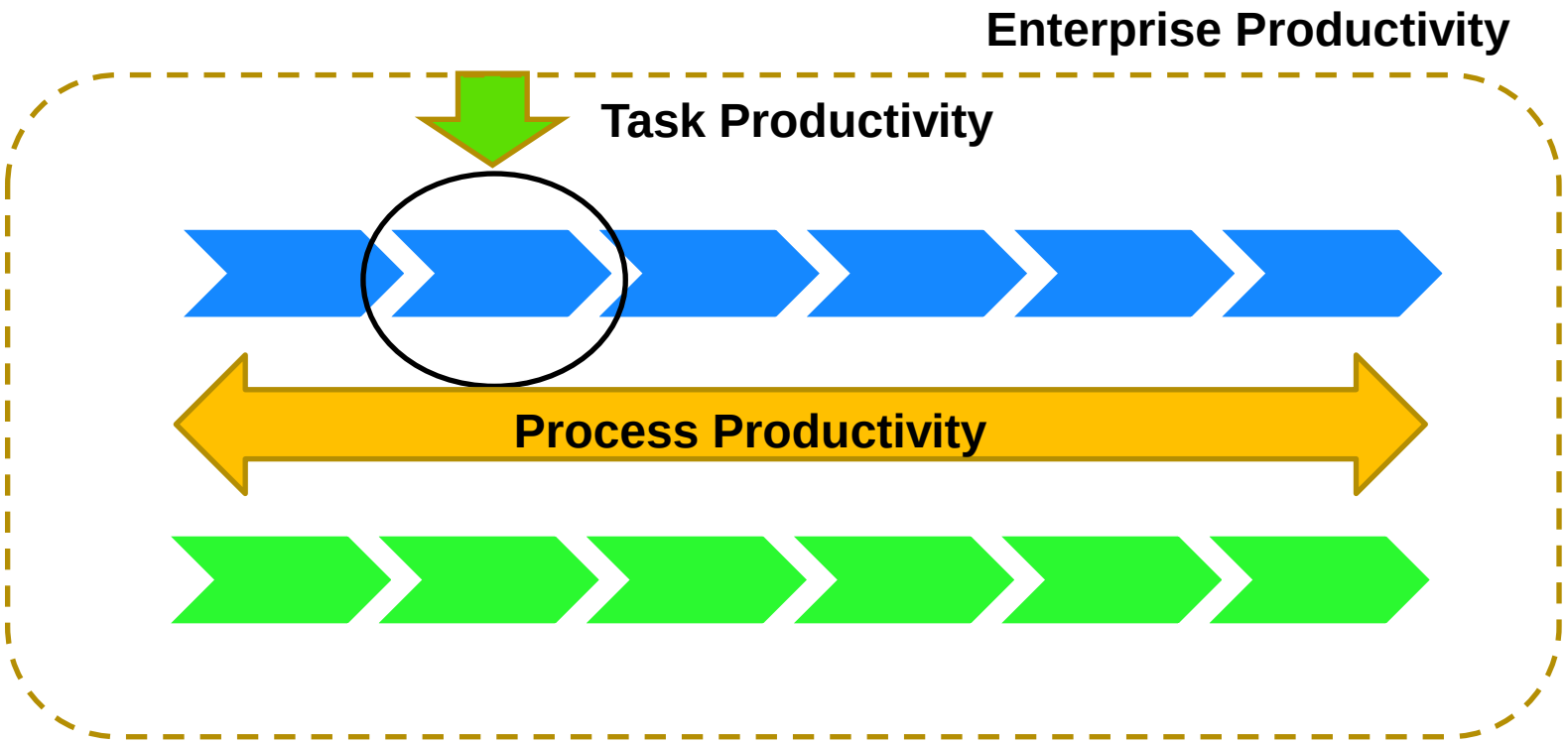
Market Opportunity



The Evolution of Sensors and AI

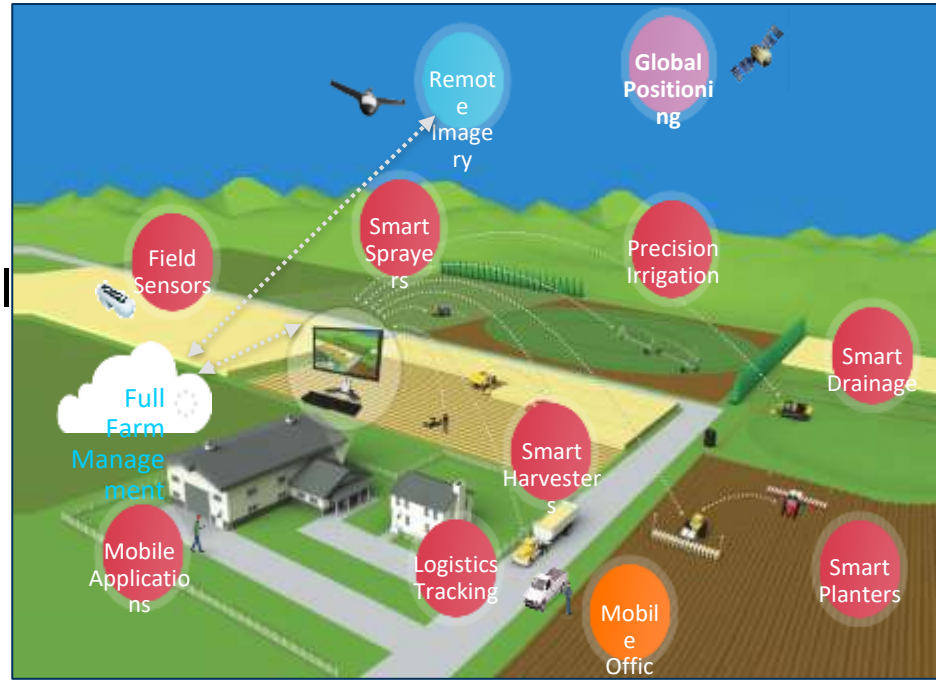
- AI Golden Era: 1956-1974
  - Early breakthroughs in reasoning as search, natural language, machine vision
  - Evolution of LISP and rules based expert systems
- Inherent early constraints - computing power and data
- IoT and Cloud – a perfect storm for general purpose AI
- Significant inertia - 2020 a smartphone likely to be smarter than today's super computer.
- AI unlocks the potential of sensor data generated by the IoT devices.

Transforming the Productivity of the Task, the Work Process and the Enterprise by Leveraging the IoT



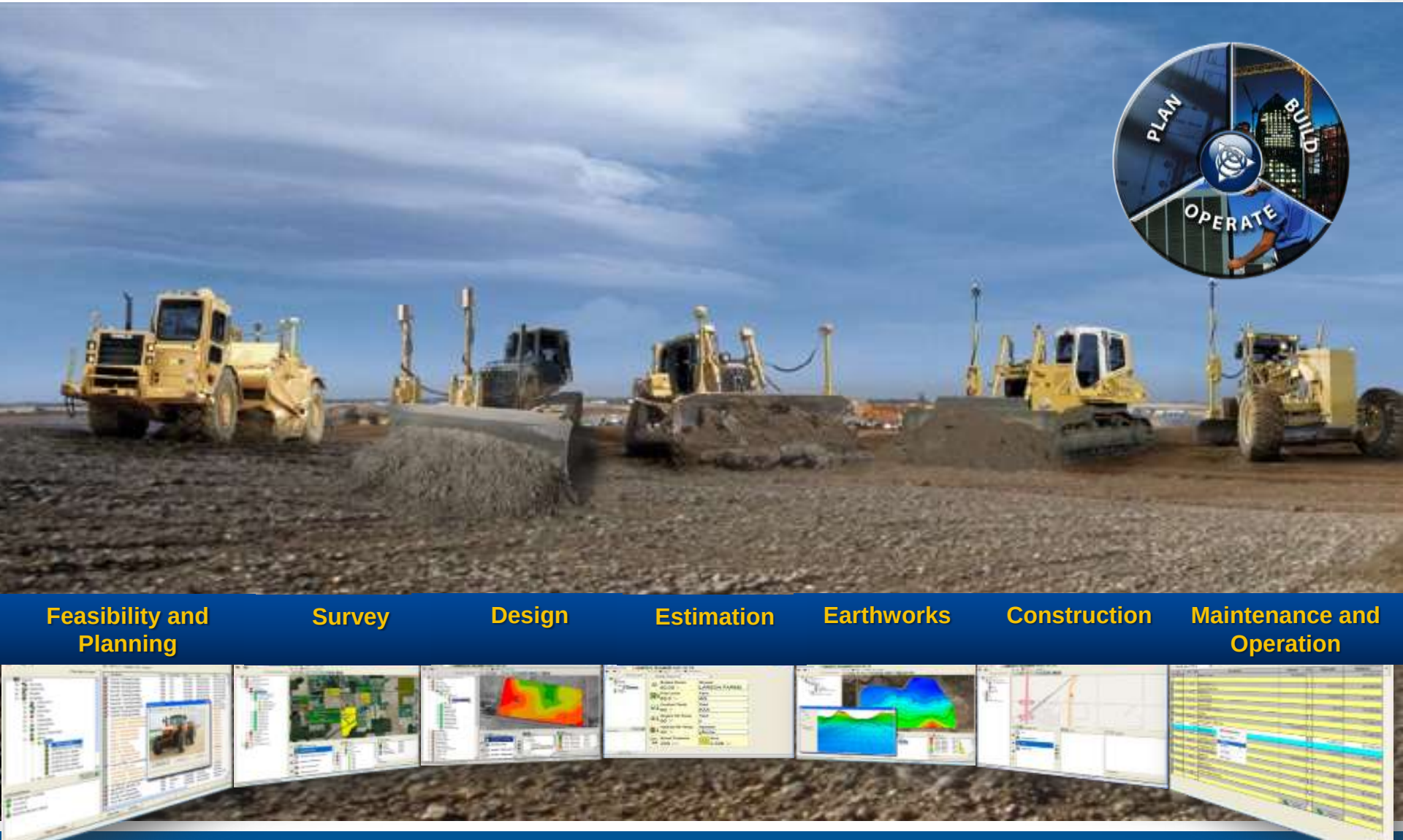
Sensors & AI Accelerate Precision Farming

- Maintaining the field → maintaining the plant
- Monitoring crop conditions - water, nutrient, plant population, soil moisture content etc.
- Disease prediction
- Automated variable rate irrigation
- Drone delivery
- Autonomous tilling and harvesting.
- Unique plant profile + yield prediction



Sensors & AI – Heavy Civil Construction

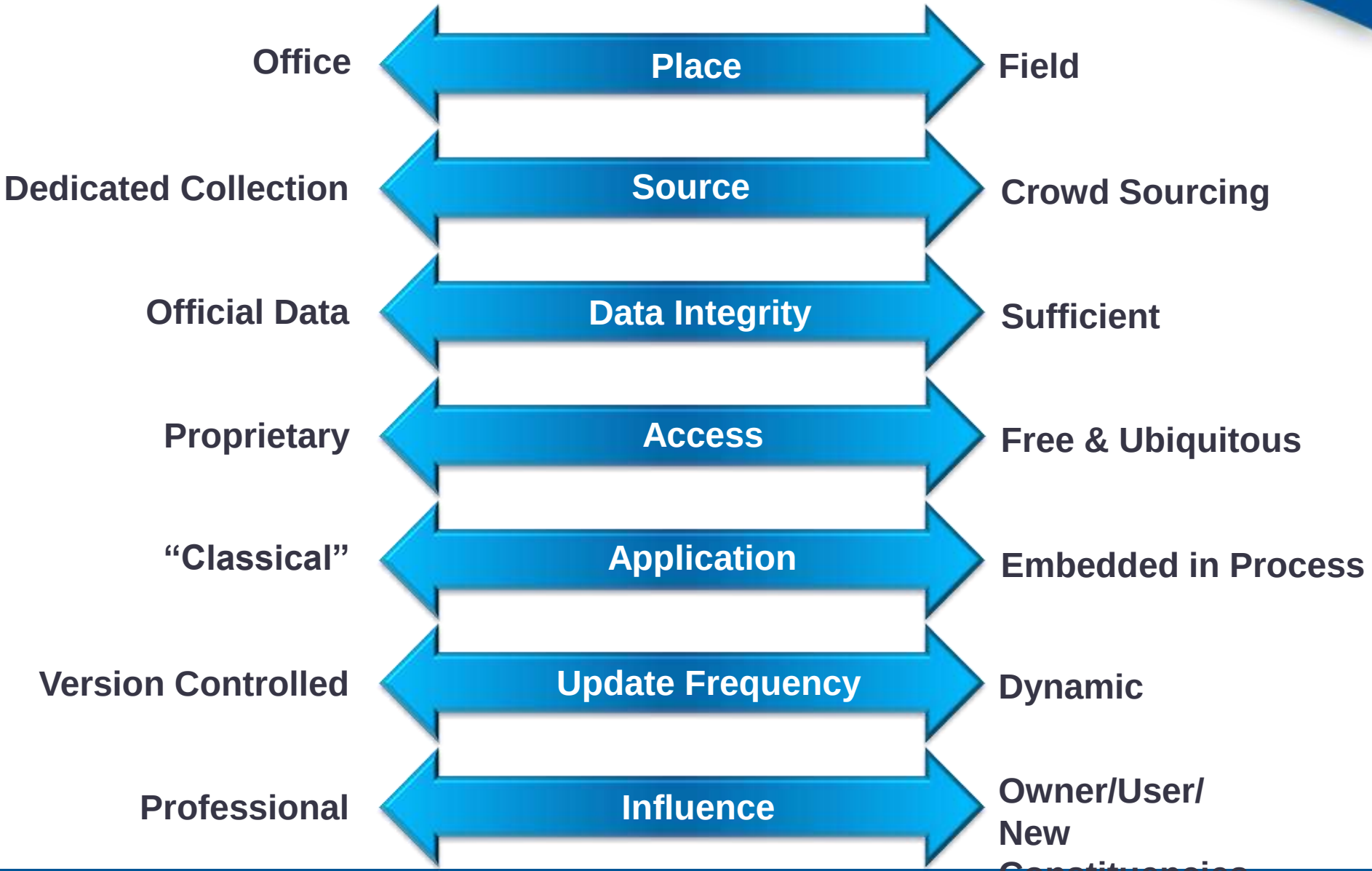
PLANNING, DESIGNING, BUILDING, OPERATING



Sensor and AI integration - Transportation

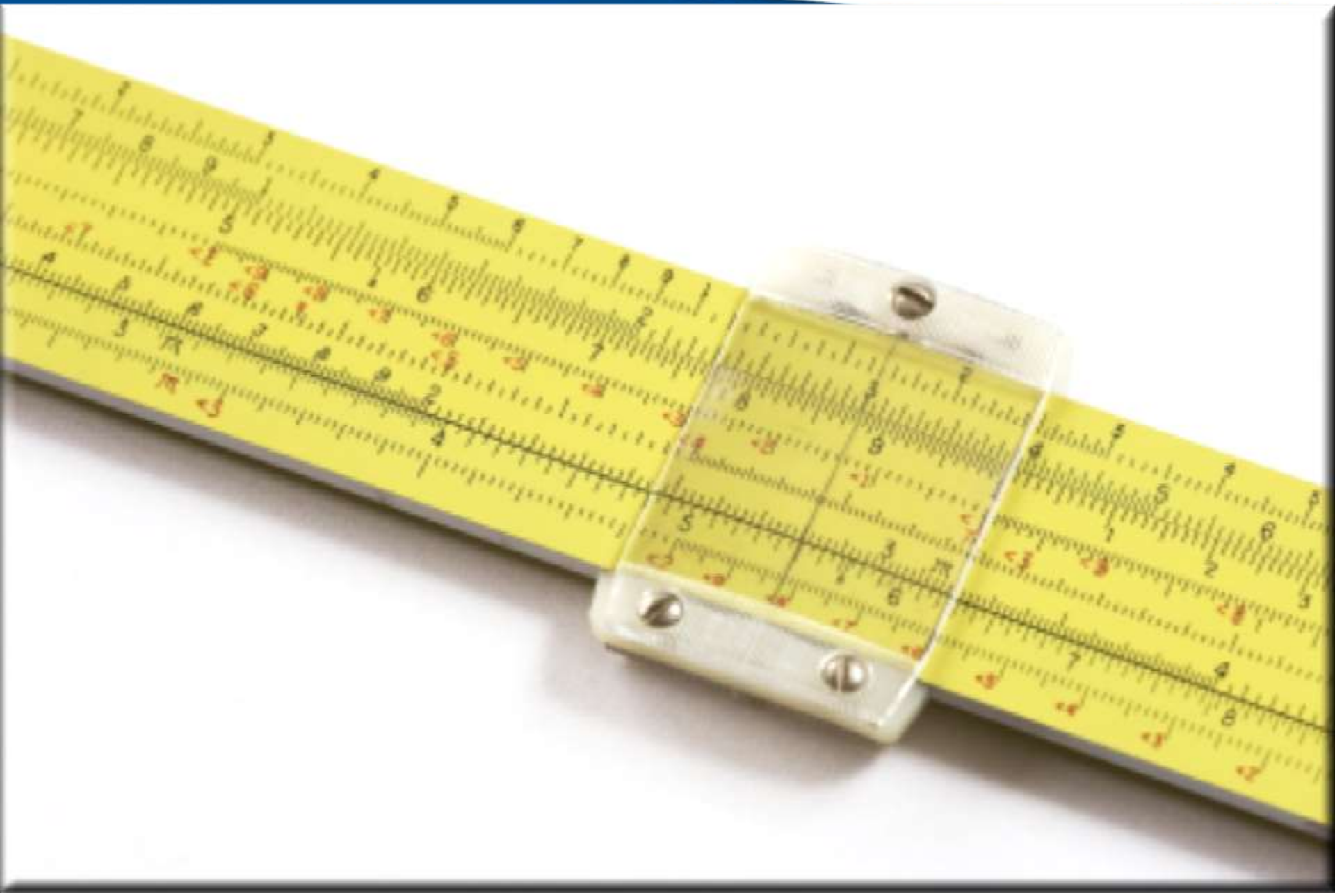
- Computer vision and big data to predict road conditions and transportation demand
- Sensor integrated telematics systems for optimal fleet deployment
- Preventive maintenance through machine learning data intelligence
- Integration of smart infrastructure with smart vehicles provides significant opportunities

Changes in Information Process Pose A Continuum of Existential Questions



Considerations & Implications

- Organizational design – span of control, accountabilities, etc.
- Monetization and the potential diminishing returns of information
- Commodization of high value business models
- Combining a proliferation of varying quality data sources into quality decisions
- Consequences of mission critical failures
  - System complexity
  - Security
  - Human/system handoffs



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