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Information Per Serving

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Emerging Trends and Future Drivers

Challenge

Population set to pass 11 billion by 2050

Complications

Limited natural resources

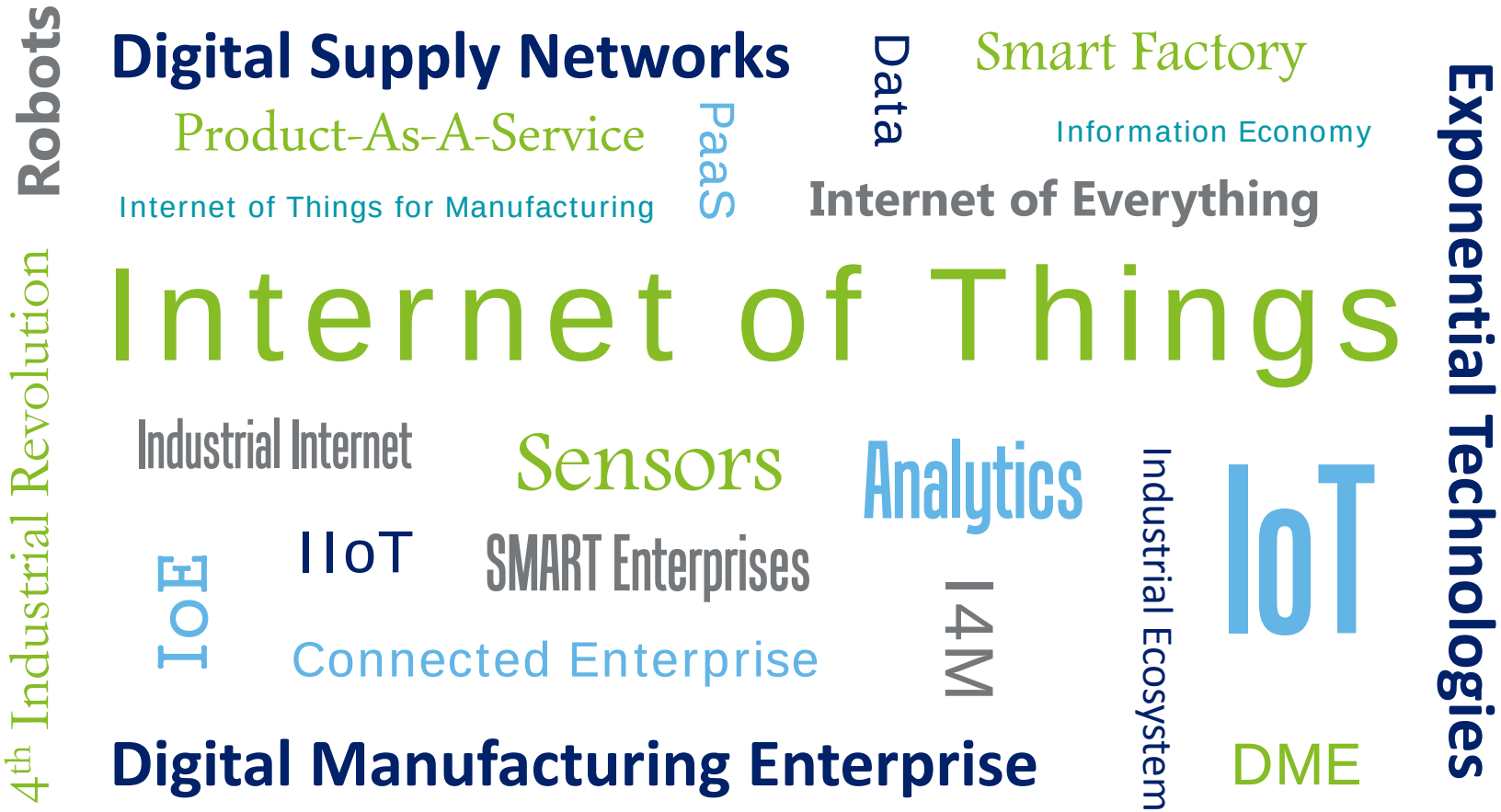
Low margins

Global competition

Solution

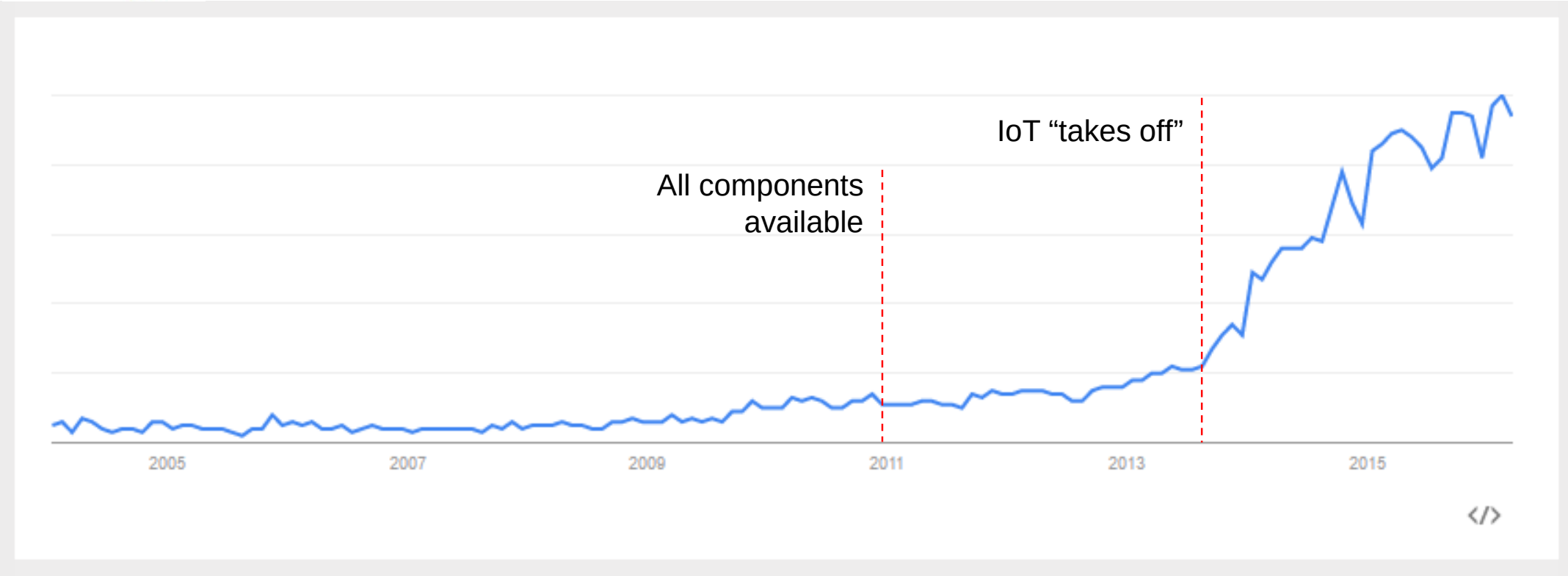
Technology, Internet of Things

A Rose by Any Other Name…

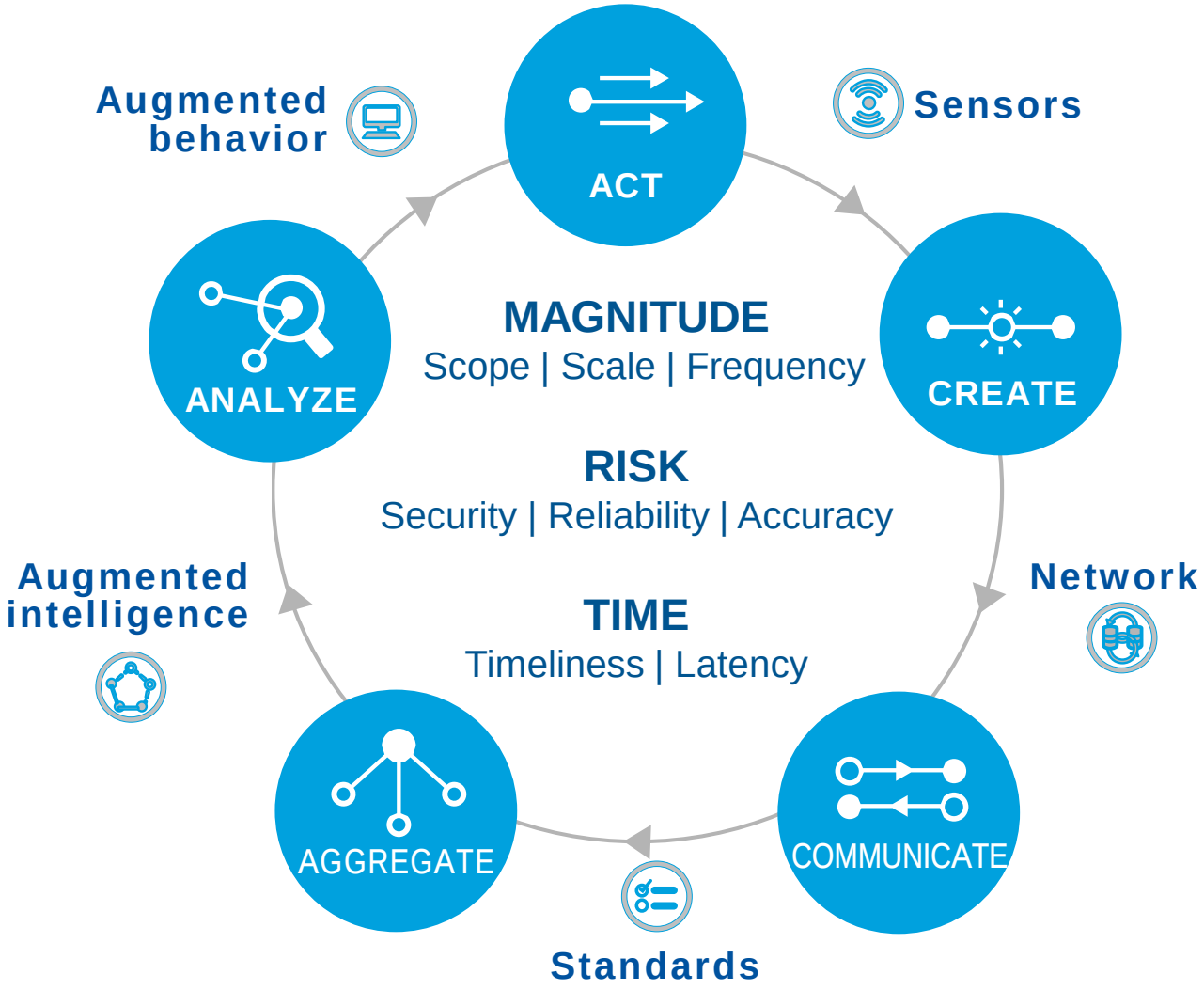


IoT is more than the sum of its parts

Google relative search trends for “Internet of Things”



New architectures create new sources of value



New value yields new opportunities

Along with physical characteristics of price, size, and performance, IoT allows customers to find new value in information

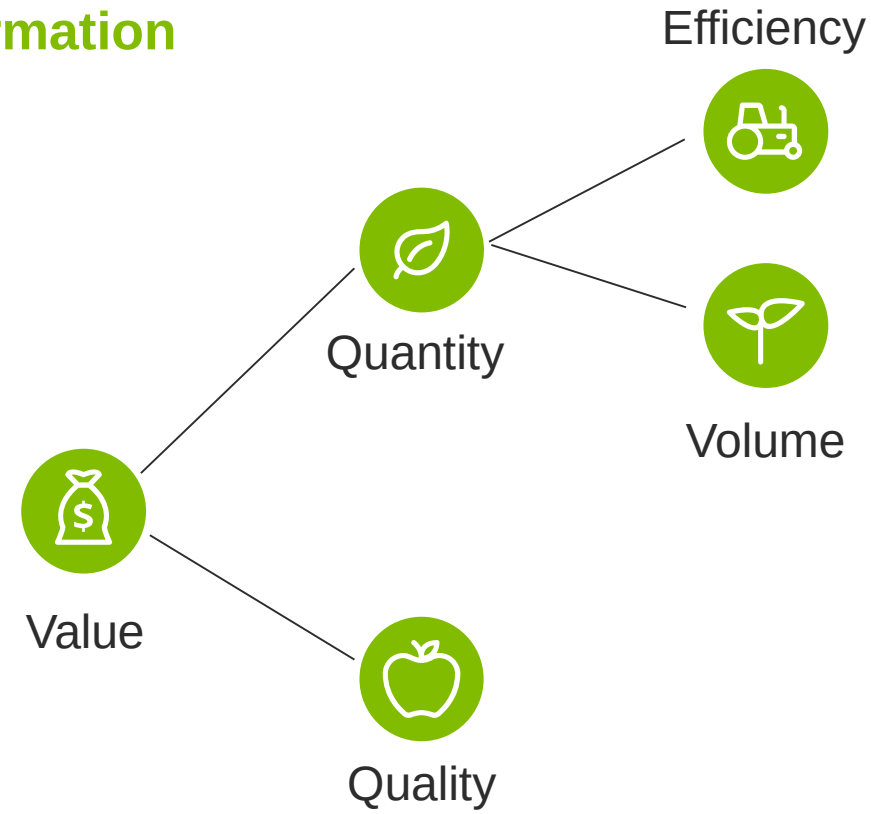
Physical Characteristics

Price

Performance

Size

Information



Grow More - Volume

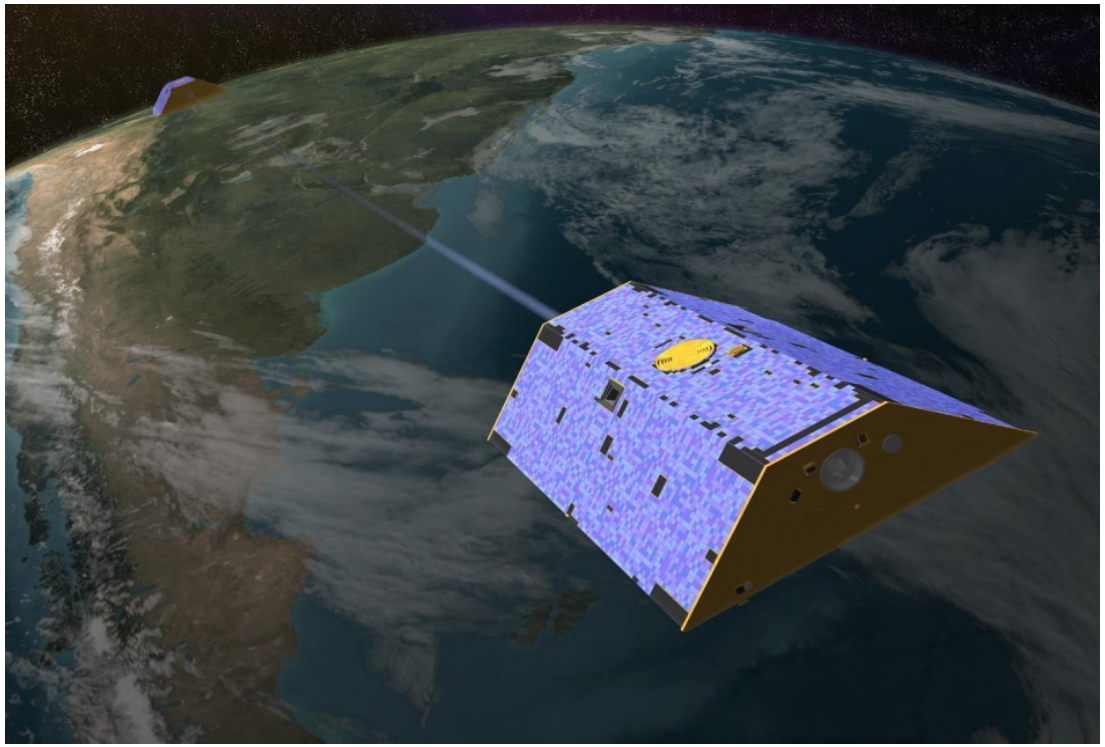
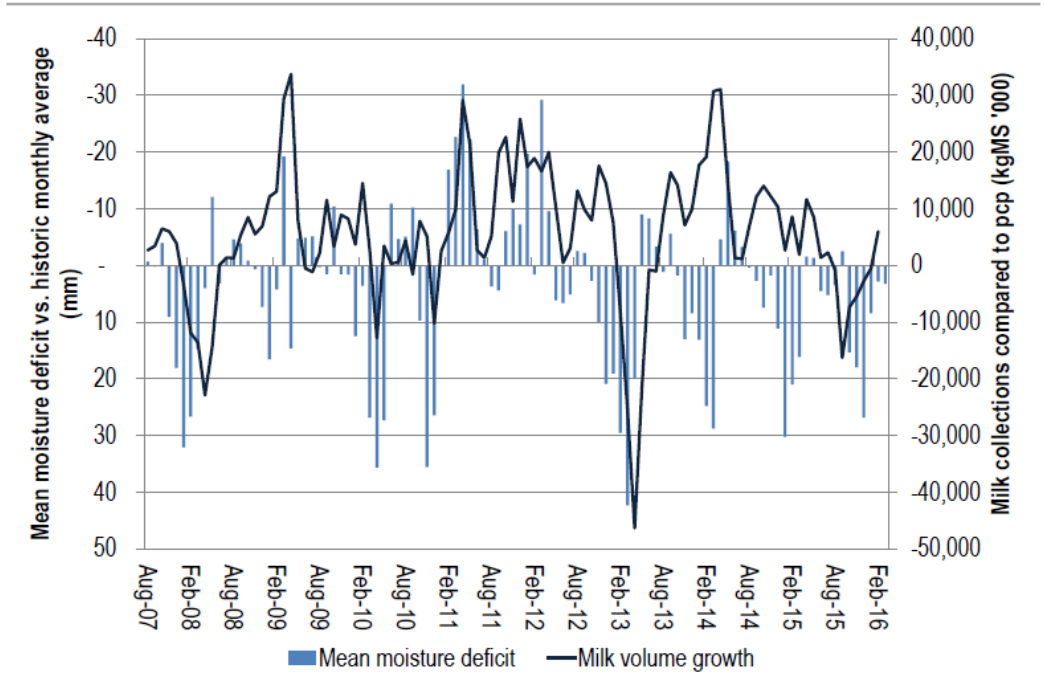


Figure 11. History of national average mean moisture deficit relative to milk production



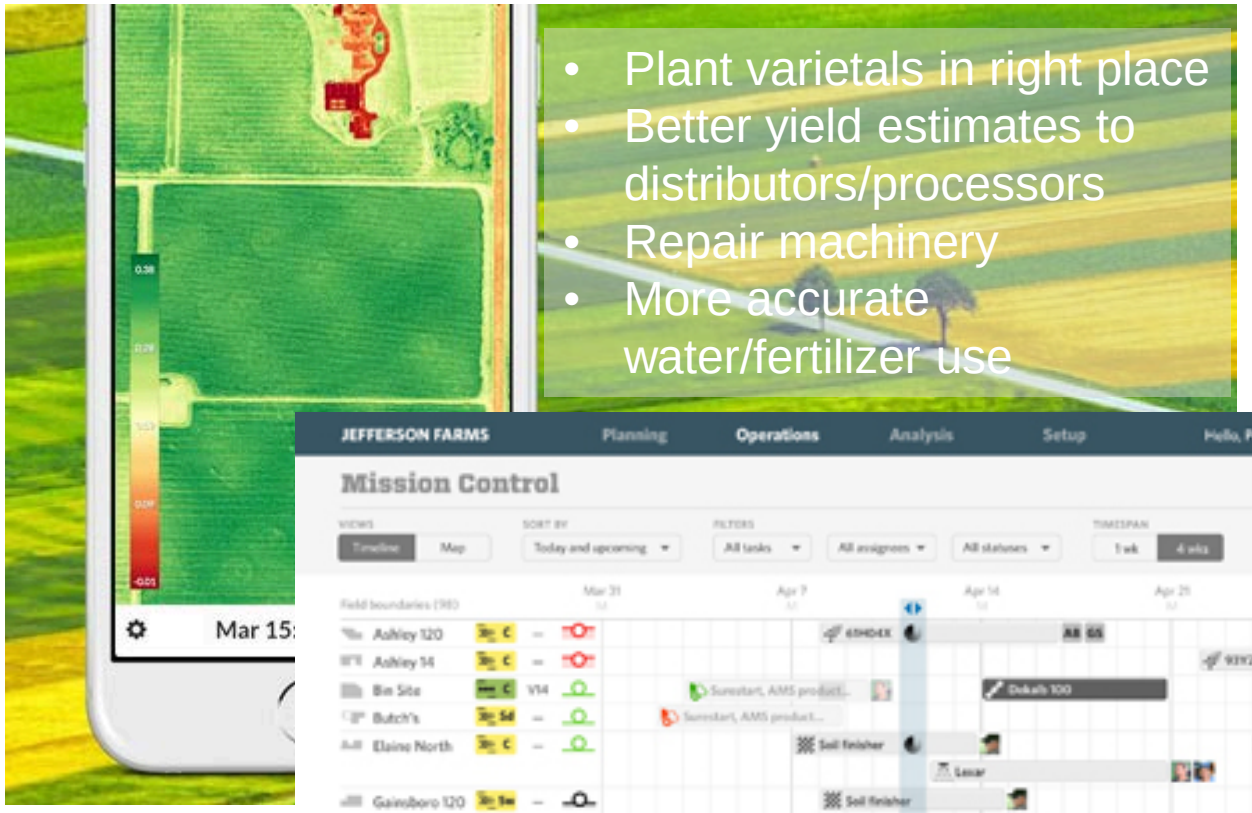
Source: NIWA, DCANZ, Forsyth Barr analysis

Gravitational Sensors can detect groundwater refill, predict drought and flood conditions months in advance

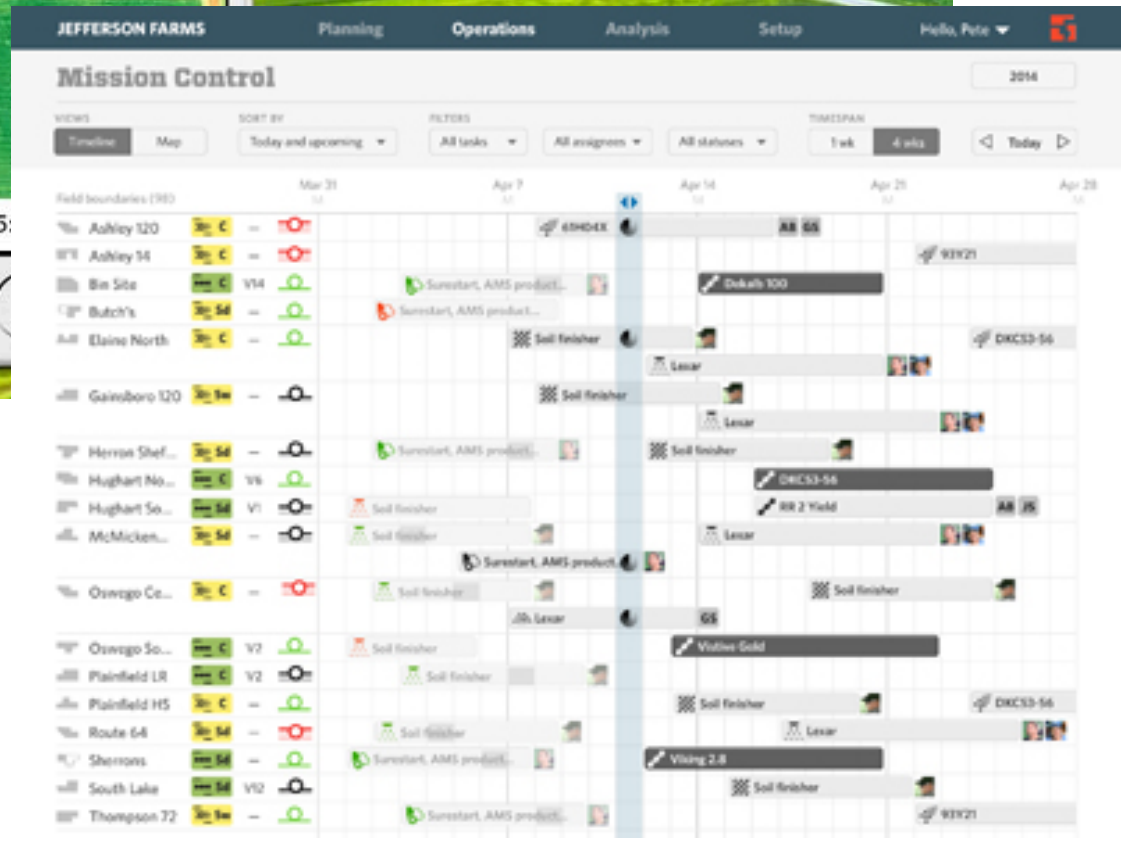
Milk production tied to soil moisture, data may allow herd to move to moister pastures to maximize production

Image Source: NASA

Grow More - Efficiency



- Plant varietals in right place
- Better yield estimates to distributors/processors
- Repair machinery
- More accurate water/fertilizer use



1. Bring together tools to make them useful
2. Bring the data into one place to run a business

Image Source: DroneDeploy, Granular Inc, and Infographic Drones

Grow Better

A New Fire:

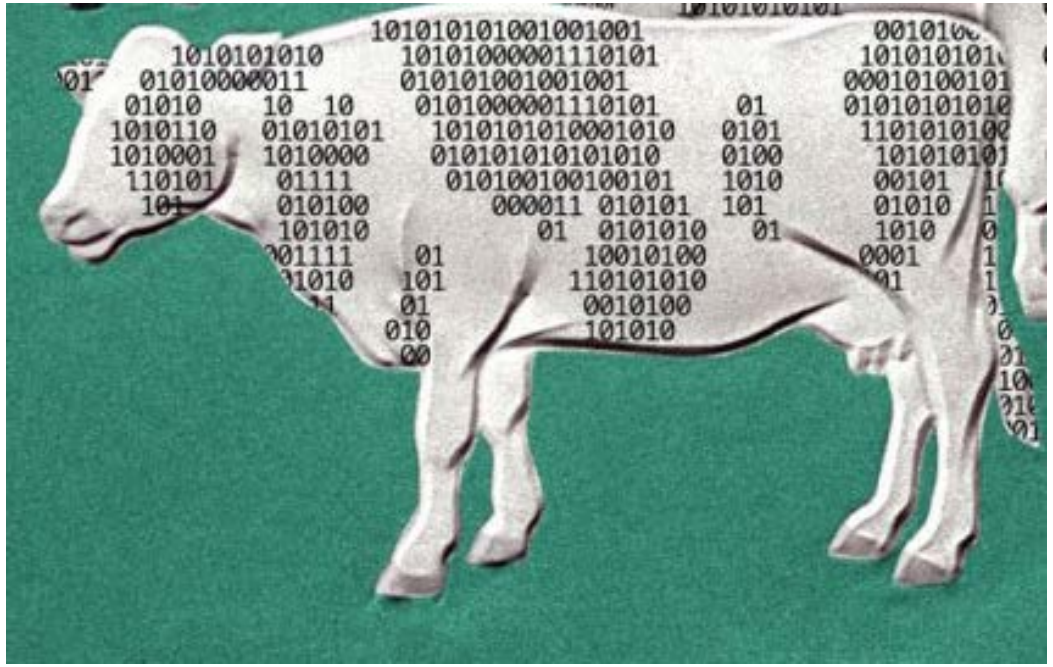
Researchers used sensor feedback to change plant nutritional content

- 80% less potassium in lettuce grown by controlling, temperature, humidity, illumination, fertilizer pH, and CO_2

When Less is More:

Scientists in England geolocate dairy cows to determine sickness:

- More rapid veterinary interventions increases milk production
- Allows targeted antibiotic treatment which can reduce antibiotic resistant bacteria



Numbers are barriers to IoT adoption in agriculture

Adoption of IoT looks to be tough for Primary Industries, where margins are tight and capital expensive

2.63%

Agriculture Net Margin is 2.63% compared to all industry average of 6.11%

But cost of capital is slightly above average at 7.71% vs 7.35%

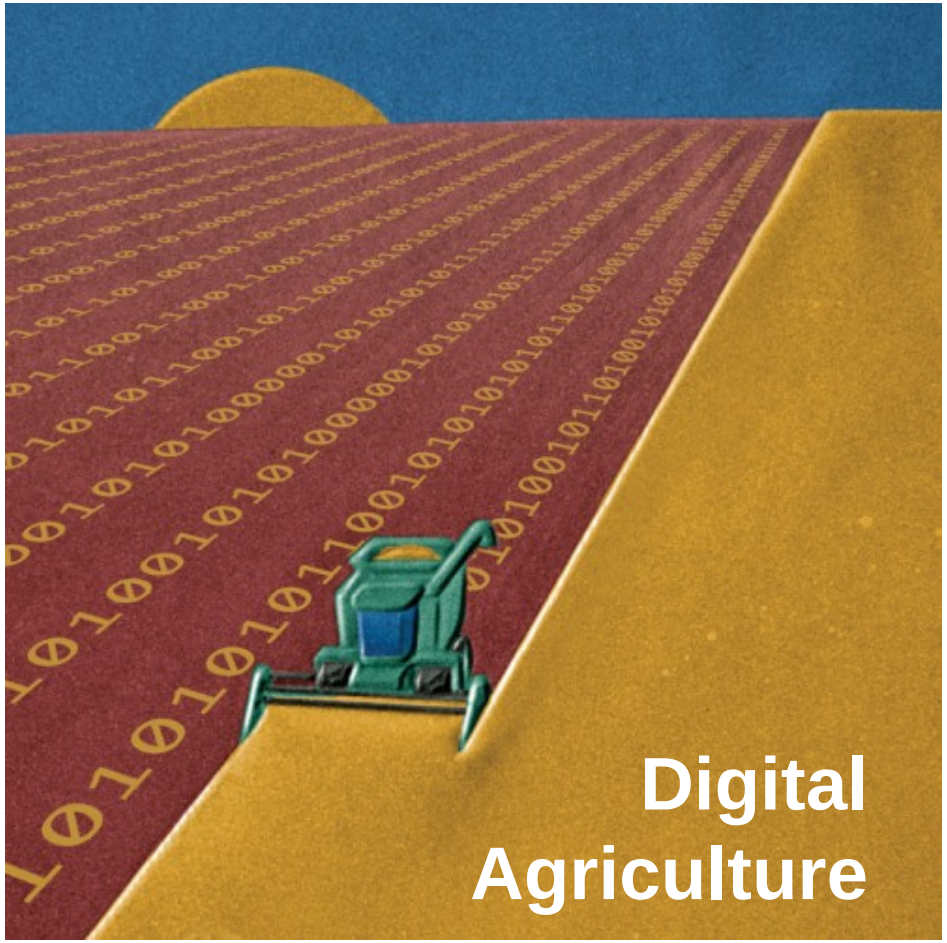
7.71%

= IoT purely for efficiency can be a tough sell

Source: Numbers from analysis of global firms by industry by Aswath Damodaran, Professor at the Stern School, NYU

Adoption of IoT in agriculture depends on delivering value

The promise of a new digital age in agriculture can only be realized if both farmers and consumers benefit



Value to Farmers

Improve efficiency or yield

Improve financial position

- Share capital costs (by service or pooled use)
- Field Rent not by acre, but by actual production
- Inventory in motion as collateral

Value to Supply Chain

Increased visibility, less shrinkage

Value to Consumers

Willing to pay premium for assurance or quality, safety, or responsibility

Chinese market becoming more quality sensitive

- Income elasticity of demand in top segments ~0
- Spending on food increasing as volume remains flat

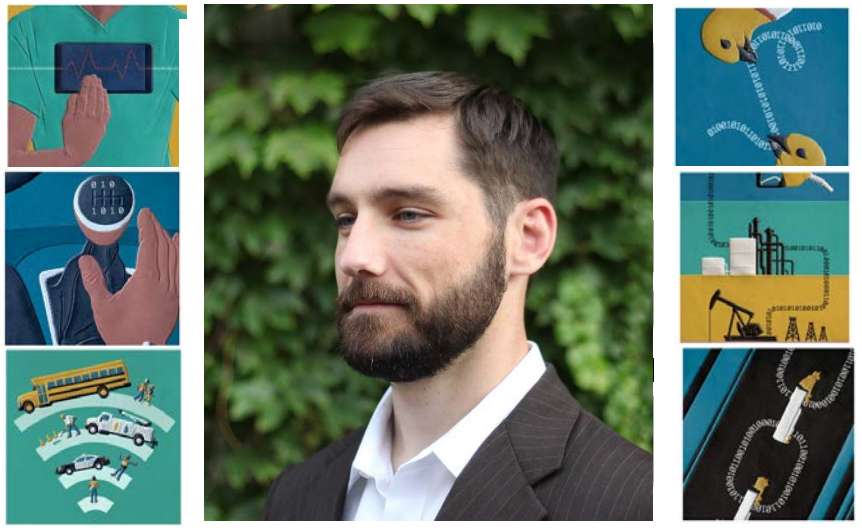
Possible Future – Supply Chain Collaboration

Image Source: Skuchain

Let’s continue the conversation

More that 20 in depth research articles, podcasts, and videos at:

DUPress.com/collection/internet-of-things



Or reach out directly anytime:

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