

Digital Strategy Forum

**What does Digital Agriculture mean?
What are the big picture opportunities for
the red meat industry?**

Steve Sonka

October 6, 2016

Agenda

- Perspectives of digital ag innovation ←
- Decisions – not digits
- Digital data are/is different
- Digital Ag opportunities

What Do I Mean by Digital Ag?

- Employing sensors and technologies to capture data in digital form

**Digital Ag Innovation:
Where Should We Look?**

- Using tools and techniques to:
 - » Summarize/Analyze/Synthesize digital and other information
 - » Communicate information to improve decision making

Digital and Beef

WSJ Tagging on Ranch_20160923.pdf - Adobe Reader


File Edit View Window Help

Open [Icons] 1 / 1 139% [Icons]

Tools Fill & Sign Comment


The Wall Street Journal - 09/23/2016 Page : B001

High-Tech Tagging Comes to the Ranch



Lean Beef
Cattlemen test electronic ear-tags to monitor animal health and halt years of losses.

Average annual returns to cattle feeders, per head
\$100



Estimate

8.50 x 11.00 in

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The Digital Dilemma !!!

Mckinsey & Co., August, 2016

“There’s a lot of data being generated:
A), not all of it is being captured,

B), of what’s captured, a fraction is
being used.”

Geo-Spatial in Rwanda

The screenshot shows a web browser window displaying the Milan InnoVincY website. The browser's address bar shows a local file path: `file:///C:/Users/ssonka/Pictures/Music/Documents/CAB Purdue/Big Data/Milan InnoVincY - Creating Winning Eco Systems.htm`. The website header features the logo "INNOVINCY" with the tagline "CREATING WINNING ECOSYSTEMS" and the slogan "Creating Winning Eco Systems". The navigation menu includes "Our Services", "Engagements", "Partners", "About Us", and "Contact Us". The main content area has a background image of a sunset over a field with the text "Our promise" and a button labeled "Mission & Vision". A news announcement states: "Agrilift has been accepted as a member of the Clinton Global Initiative". Below this, it says: "Milan InnoVincY is proud to announce that our Rwandan subsidiary, Agrilift, has been accepted as a member of (CGI)". A circular logo with a stylized plant is visible in the bottom right corner of the website content.

6.2 Million Data Sets

Business & Finance News -... x Results for Milan Innovincy x Milan InnoVincY - Creatin... x Milan InnoVincY - Creating Wi... x Results for gro-intelligence x Corporate Strategy x +

https://www.gro-intelligence.com/use-cases/corporate-strategy

Most Visited Suggested Sites Web Slice Gallery (1) Web Slice Gallery Email

GI Gro Intelligence

Clews About Resources Use Cases Contact Log In Request Access

Corporate Strategy

Companies with any level of agricultural exposure will be able to monitor and manage that exposure more effectively.

USE CASES

- Trading
- Policymaking

In an increasingly complex world, strategic business decisions require a growing scope of data from start to finish. As the number of corporate stakeholders has expanded, corporations must not only factor in financial considerations during the business-making process, but also incorporate a global trend analysis to...

Food Retailing Embraces Big Data



Walmart is Making Big Data Part of Its DNA



How Coca-Cola Takes a Refreshing Approach on Big Data



How Nestlé Understands Brand Sentiment of 2,000 Brands in Real-time



From Big Data to Big Mac; How McDonalds Leverages Big Data




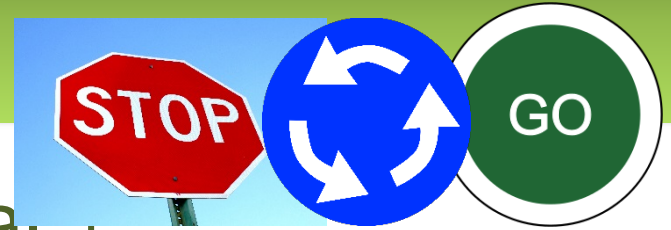
Whole Foods CIO Invests to Satisfy Shopper Data Cravings

Perspectives of Digital Ag Innovation

- (Hyper)Rapid change
- Lessons from outside food/ag
- Outside of production ag in Australia
 - Global uses
 - Global sources
 - Developing as well as developed ag
 - Downstream & upstream

Agenda

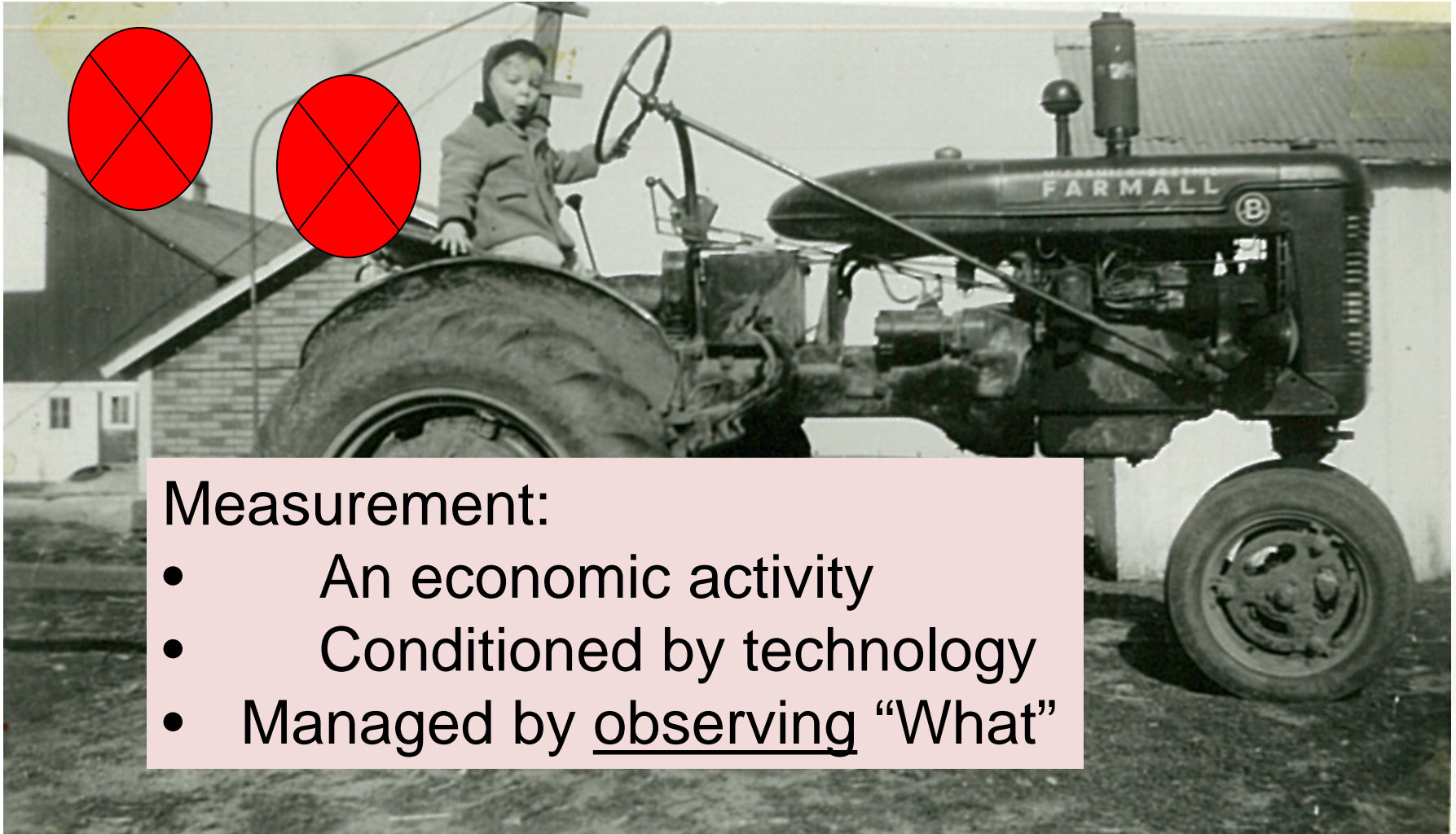
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Management in Ag

From “Observation” Ag
To “Why-Based” Ag
To “Precision” Ag

Observation Ag – About 1952

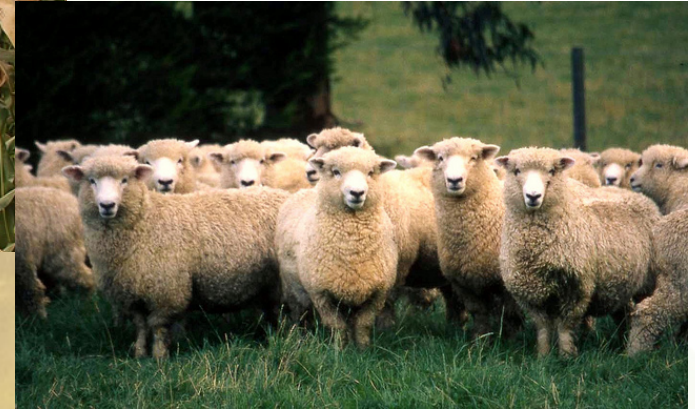


Measurement:

- An economic activity
- Conditioned by technology
- Managed by observing "What"

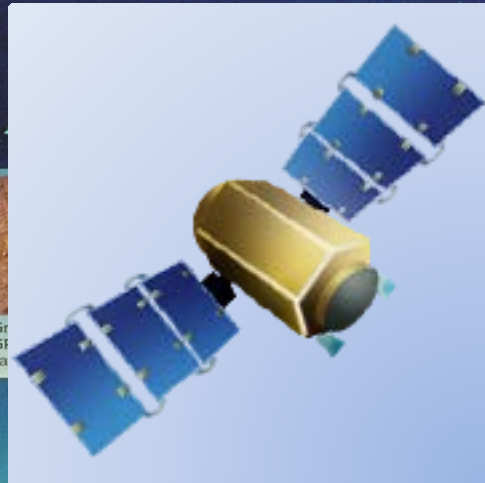
Why-Based Ag – 20th Century

External



Precision Agriculture Circa 1996

HIGH-TECH TOOLS FOR SITE-SPECIFIC CROP NUTRIENT MANAGEMENT



Variable rate seeding, variety changes and starter can adjust for soil properties and productivity.



Crop scouting with new technology improves field records.



On-the-go yield monitors can quickly track variability in the field.

PAST YEARS' YIELDS

SOIL TEST (K)


SOIL TEST (P)

SOIL MAP

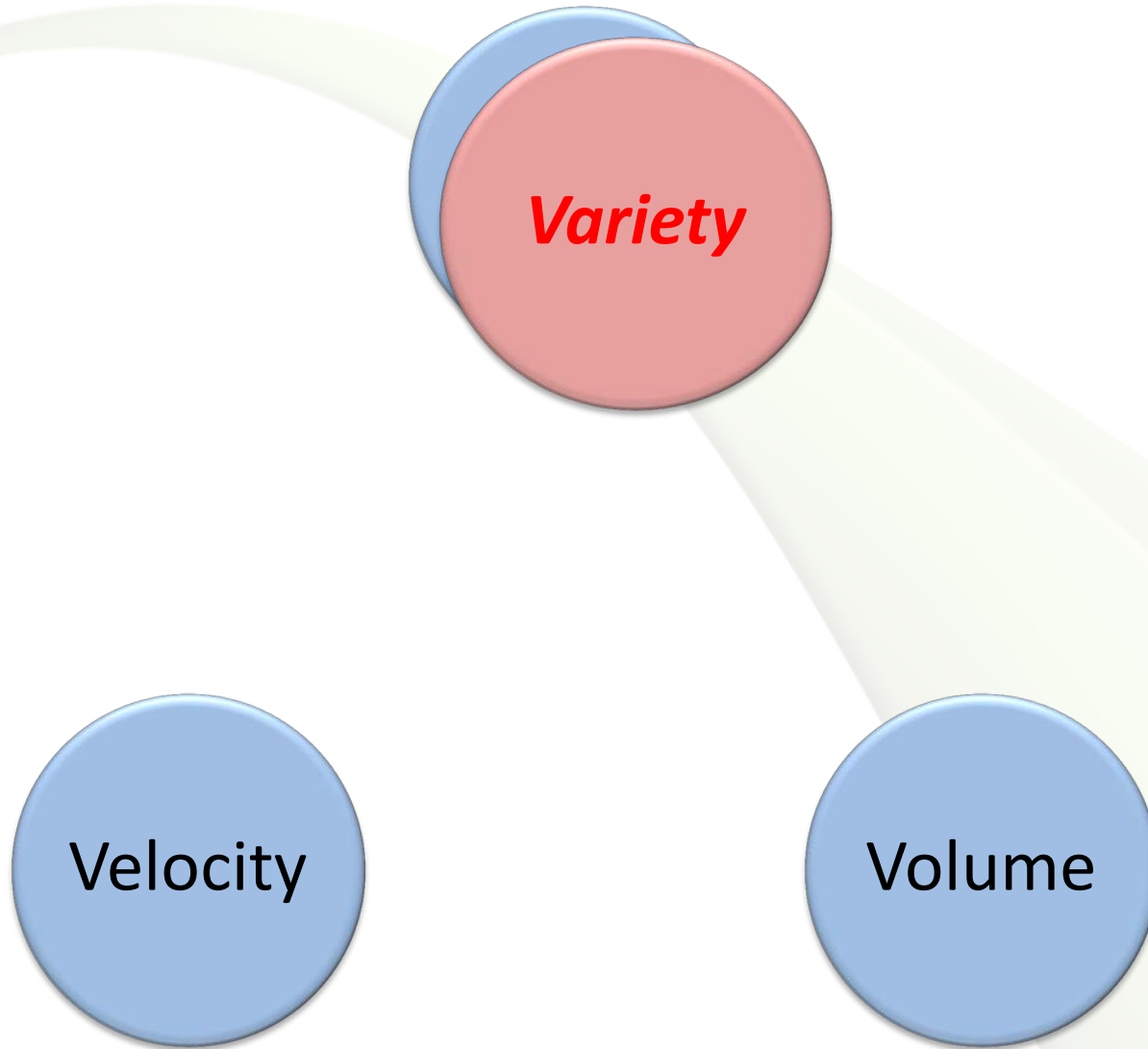
Insights for Digital Ag

- Producers need more than summarization
- Value proposition is segmenting
 - Precision ag: large non-adopter segment
- Producer's decision purpose hasn't changed
 - Digital ag alters economic capabilities

Agenda

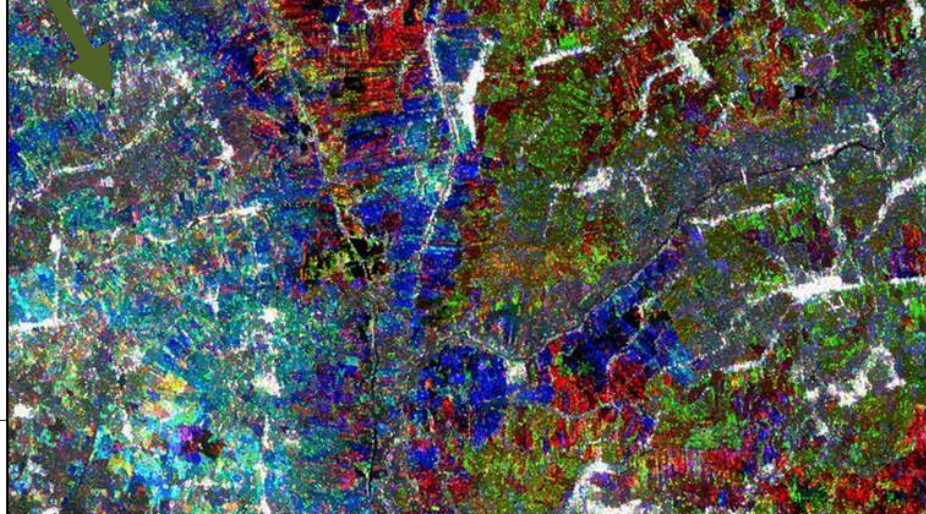
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Dimensions of Digital Data: 3 Vs and an A



Data Sources – Today !

	A	B	C	D	E	F	G
1	Region	Type	Sum	Avg	PHU	Loss Amount	Consumption %
2	Europe	Cereal	19,306,769	3%	162,873,704	25%	112,326,692
3	Europe	Fish & Seafood	15,940,550	2%	4,224,246	11%	1,753,460
4	Europe	Fruits & Veggies	273,320,737	2%	98,395,465	3%	51,930,940
5	Europe	Meat	56,820,963	1%	11,761,939	1%	6,250,306
6	Europe	Milk	216,895,073	9%	19,954,347	7%	15,182,655
7	Europe	Oilseeds & Pulses	72,660,866	1%	7,992,695	4%	2,906,435
8	Europe	Roots & Tubers	122,558,596	48%	58,828,126	17%	20,834,961
9	Industrialized Asia	Cereal	516,699,643	37%	192,470,617	20%	103,339,929
10	Industrialized Asia	Fish & Seafood	71,771,115	27%	19,378,201	8%	5,741,689
11	Industrialized Asia	Fruits & Veggies	1,256,874,564	33%	414,768,606	15%	188,531,185
12	Industrialized Asia	Meat	85,280,291	20%	16,714,937	8%	6,822,423
13	Industrialized Asia	Milk	50,888,051	14%	6,971,669	5%	2,544,405
14	Industrialized Asia	Oilseeds & Pulses	87,073,111	13%	11,319,506	4%	3,482,925
15	Industrialized Asia	Roots & Tubers	167,571,311	41%	68,704,251	10%	7,757,135
16	Latin America	Cereal	184,445,111	23%	41,500,214	10%	18,044,540
17	Latin America	Fish & Seafood	17,568,110	28%	4,919,278	4%	2,176,754
18	Latin America	Fruits & Veggies	193,659,166	52%	100,702,870	10%	19,361,117
19	Latin America	Meat	45,618,132	17%	7,800,837	6%	2,737,111
20	Latin America	Milk	78,351,119	20%	15,671,844	4%	3,134,361
21	Latin America	Oilseeds & Pulses	162,151,407	15%	24,329,161	2%	3,243,888
22	Latin America	Roots & Tubers	55,311,940	33%	18,274,720	4%	2,215,118
23	North Africa, West & Central Asia	Cereal	115,511,929	29%	32,922,610	12%	13,862,151
24	North Africa, West & Central Asia	Fish & Seafood	31,133,365	28%	1,099,942	4%	157,135



Data Sources

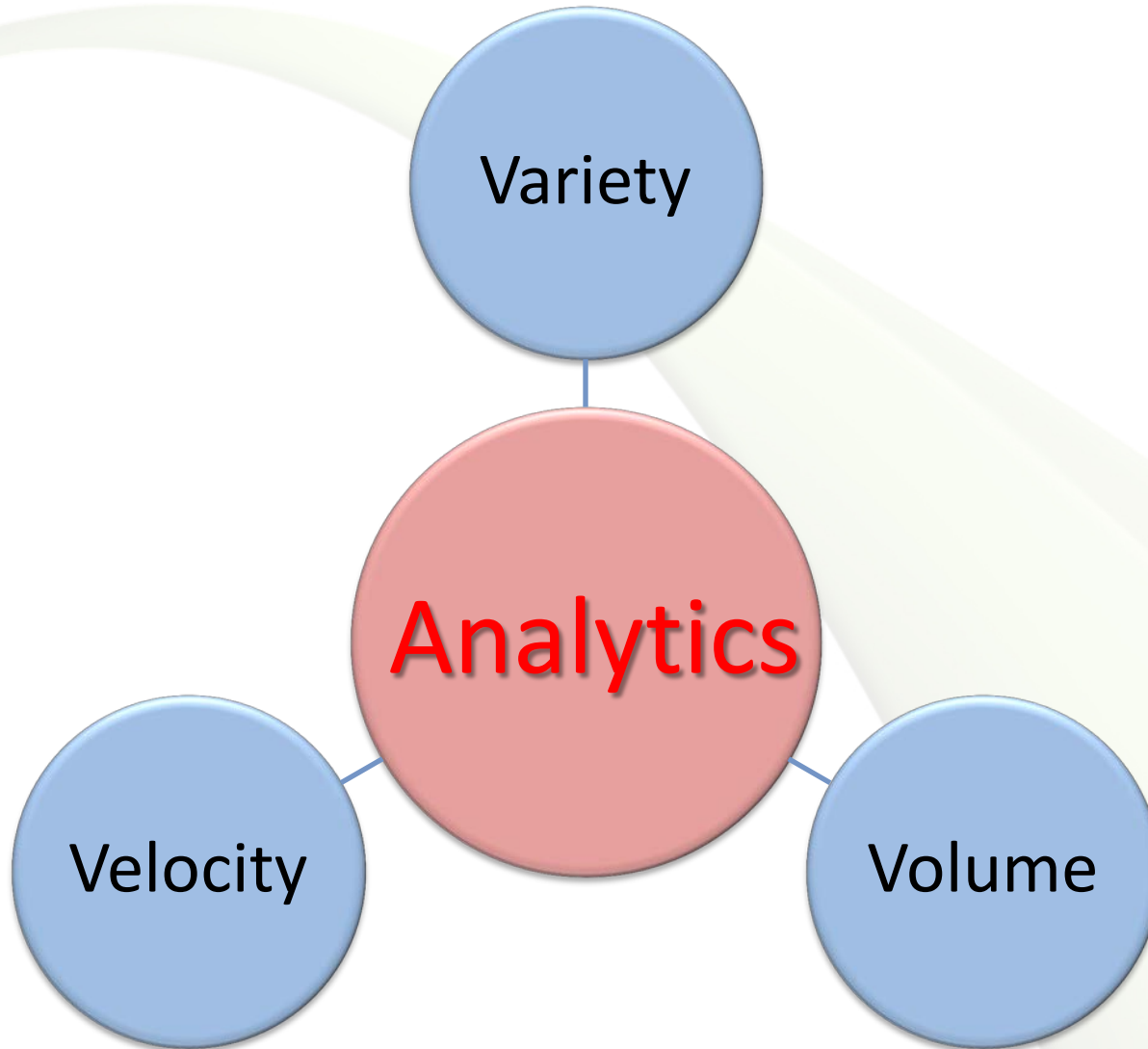
	A	B
1	Region	Type
2	Europe	Cereal
3	Europe	Fish & Seafo
4	Europe	Fruits & Ve
5	Europe	Meat
6	Europe	Milk
7	Europe	Oilseer
8	Europe	Roots
9	Industrialized Asia	Cere
10	Industrialized Asia	Fis
11	Industrialized Asia	Fr
12	Industrialized Asia	M
13	Industrialized Asia	
14	Industrialized Asia	
15	Industrialized Asia	
16	Latin America	
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20		
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Low-Cost Data
Sensors
Cellular

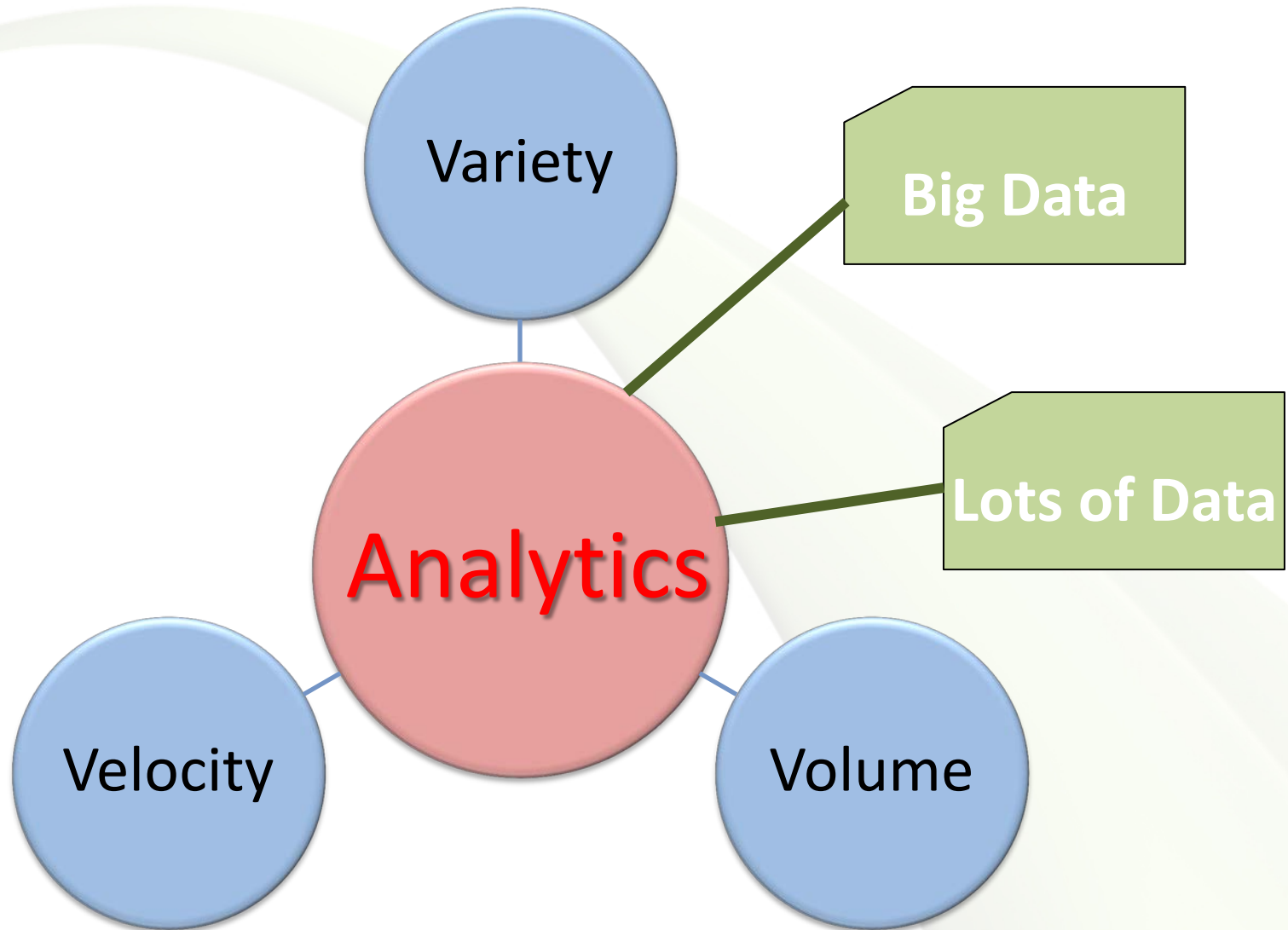
This is THE change factor
in Digital agriculture



Dimensions of Digital Data: 3 Vs and an A



Dimensions of Digital Data: 3 Vs and an A



Digital Ag is About Knowing What;

Digital Ag is About Knowing What; Is It Enough to Know WHAT?

Society will need to shed some of its obsession for causality in exchange for simple correlations:

*not knowing **why** but only **what**.*

The Truth about Nutrition

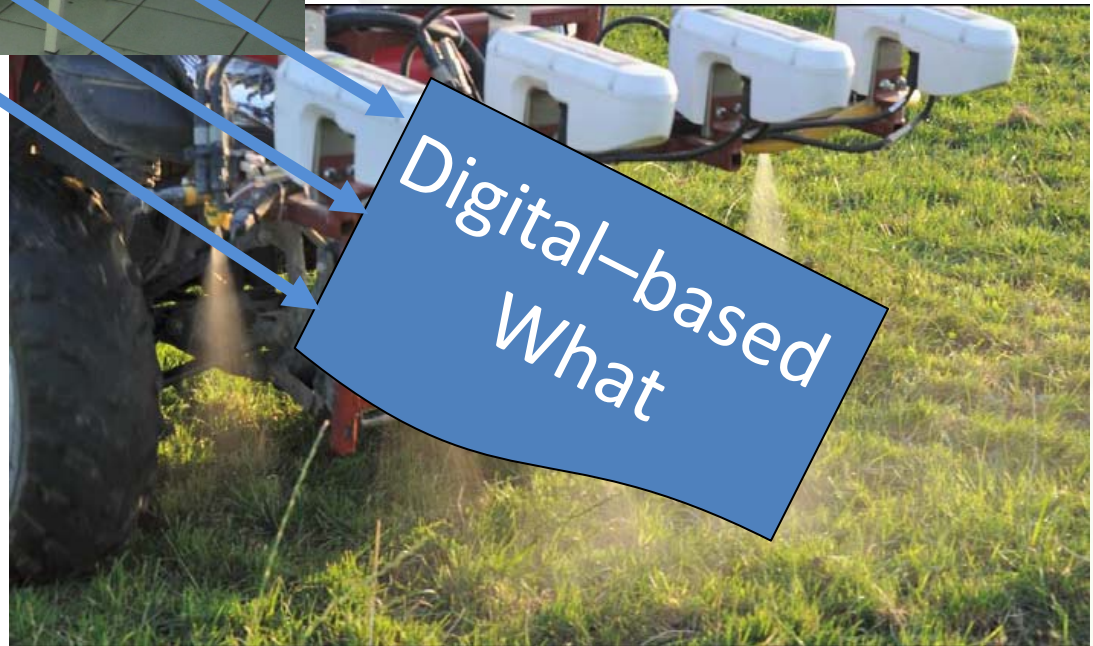
- The Japanese eat very little fat
 - *suffer fewer heart attacks than do the British or Americans*
- The French eat a lot of fat
 - *suffer fewer heart attacks than do the British or Americans*
- The Italians drink excessive amounts of red wine
 - *suffer fewer heart attacks than do the British or Americans*
- The Japanese drink very little red wine
 - *suffer fewer heart attacks than do the British or Americans*
- The Germans drink a lot of beer and eat lots of sausages
 - *suffer fewer heart attacks than do the British or Americans*

The Truth about Nutrition

SO.....

EAT what you want,
Apparently it's
SPEAKING ENGLISH
that kills you!

Full Success for Digital Ag: Combining Why and What!



Insights for Digital Ag

- Everything (almost!) can be data
- Digital tools need to support producers
 - Inform not tell
 - Gap for large (but not BIG) data sets
- Linking Why with What is essential

Agenda

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The Food System & Big Data/Digital Ag



\$ £ € \$ £ € \$ £ €

Strategy for Digital Ag

Summary Thoughts

- Domain is dynamic & complex
- Producers need access to analysis
- Data has changed & “why” matters
- Pressures for adoption
 - Producer efficiency & profitability
 - Food system downstream & upstream
 - Responding to regulation