

How data will protect your brand & consumers

Ken Moynihan - Chief Technology Officer
Asia Fruit Logistica 2016



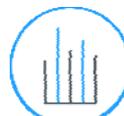
Infeed & Treatment



Sorting & Grading



Packing



Data & Analytics



Materials Handling



Service & Support



Quality and Consistency

The very nature of fresh produce means that the promise of quality and consistency is hard to keep



Food Safety

Increasing food recalls driving consumer awareness

- USA food recalls doubled from 2002 to 2015 ¹
- 52% of recalls cost more than US\$10M ¹
- Fruits and Vegetables are the second most recalled category (15%)
- 2011 saw a huge increase in global awareness:
 - Germany: fenugreek sprouts infected with e.coli: 3 950 infections, 53 dead.²
 - USA: cantaloupes infected with listeria: 146 infections and 33 dead.¹
 - China: tainted milk caused 300 000 injuries and 6 infant deaths
- Jan-Mar 2016:
 - Recall of packaged salads from Dole facility in Ohio
19 people hospitalized for listeriosis, 1 dead as of 31 March³

1. Food Safety in a Globalized World, Swiss Re, 15 July 2015
 2. E.coli: Rapid response in a crisis, EFSA, 11 July 2012, <http://www.efsa.europa.eu/en/press/news/120711>
 3. <http://www.cdc.gov/listeria/outbreaks/bagged-salads-01-16/index.html>



Chipotle Fresh meets Food Safety



WHAT IS FOOD WITH INTEGRITY?

FOOD WITH INTEGRITY IS OUR COMMITMENT TO FINDING THE VERY BEST INGREDIENTS RAISED WITH RESPECT FOR THE ANIMALS, THE ENVIRONMENT AND THE FARMERS.

-\$11^{bn}

you have to introduce problems
- Melinda Wilkins, Michigan State University

“The system they have is not able to solve the problem
It’s not granular enough,”
“traceability from the farm to the point of service” should
throughout the food industry

- Ian Williams, Chief of the Outbreak Response and Prevention Branch, CDC



Availability

Most fresh produce has a seasonal geographic availability
Brands must be available to win shelf space and customer share.

All methods of extending the season
have the potential to compromise
quality and therefore brand promise.

Availability is extended by:

- Varying cultivars
- Storage technology
- Multi-geo sourcing.



2016 Driscoll's produce calendar - Blueberries
http://www.driscoll.com/~/media/default/files/2016_Driscoll's_Product_Calendar_0.pdf



The Fresh Produce Environment

The fresh brand promise

- Quality and consistency
- Food safety
- Availability

and increased demand

- Demographic change and population growth
- Consumer preference for fresh

requires new innovations in the marketing and supply of fresh produce

- De-commoditization of the commodities
- 365 availability



Increasing demand

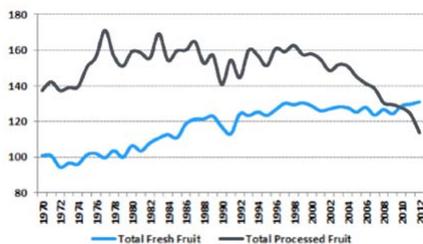


Figure 23: U.S. Fruit Per Capita Availability (lbs)
Source: USDA, Webbush Securities, Inc.

	Loblaws	Krogers	IGA	Aldi	Overall
Quality of fresh food	#1	#1	#1	#2	#1

Source: Solutions Marketing & Consulting, UBS

80% of consumers are willing to pay more for Natural Food

- Neilson Global Health and Wellness report 2015



Decommoditizing the commodity



Then:

Commodity market

- Green-grocer / consumers required to do final sort
- Retailer curates consumer experience
- Consumer chooses by retailer

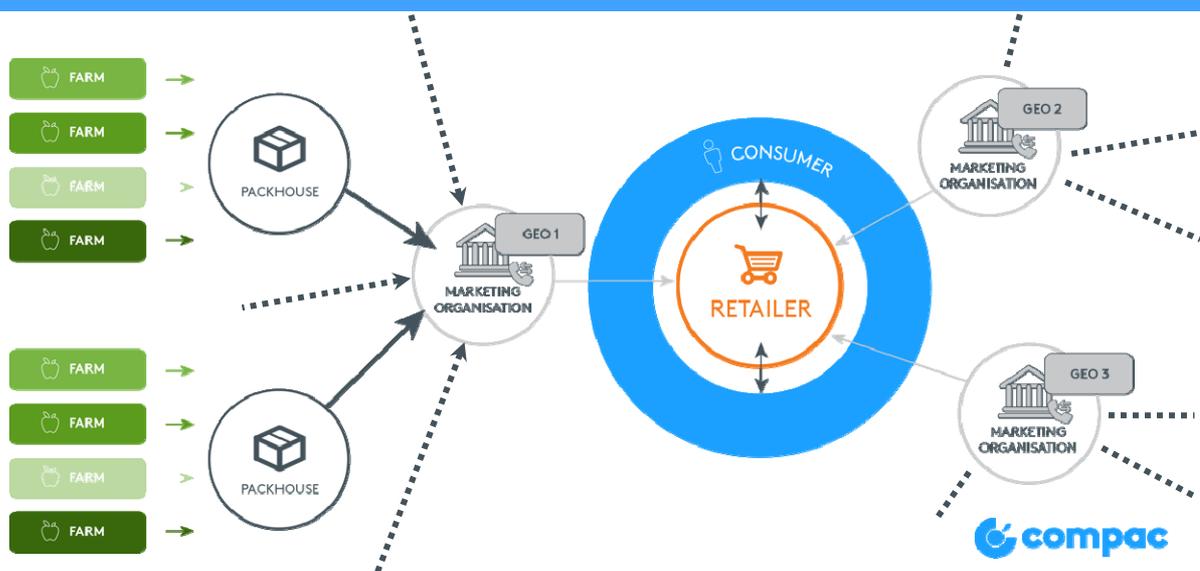
Now:

Consumer Brands

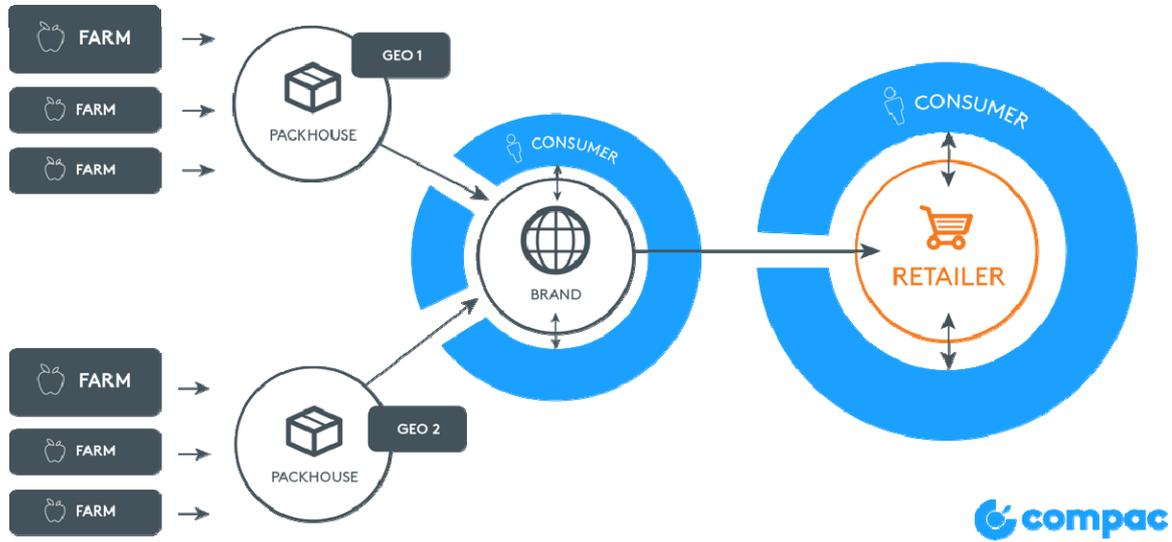
- Packaging for identification
- Direct connection to consumer
- Focus on eating experience
- Consumer chooses by brand



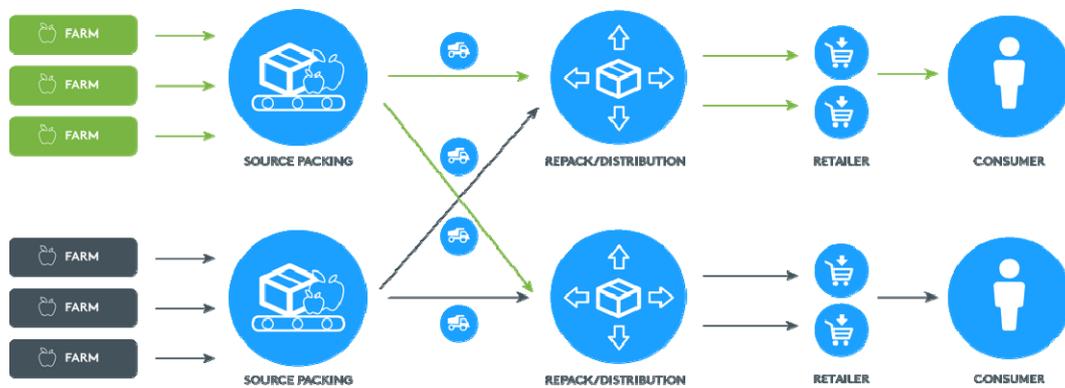
Commodity Supply Chain



Branded and Integrated Supply Chain



The decentralized fresh supply chain



The Fresh Produce Environment

The fresh brand promise

- **Quality and consistency**
 - Fresh produce is hard
- **Food safety**
 - Brand protection is more than regulatory compliance
- **Availability**
 - Shelf space & consumer mind share is highly competitive

and increased demand

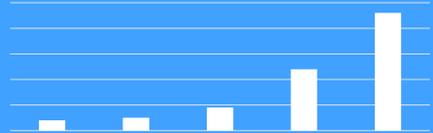
- **Demographic change and population growth**
 - Increased demand
- **Consumer preference for fresh**
 - Category growth and increased focus on quality

requires new innovations in the marketing and supply of fresh produce

- **De-commoditization of the commodities**
 - Direct connection with consumer
- **365 availability**
 - Globally integrated, decentralized supply chain



The AgTech Revolution



FARM



SOURCE
PACKING



STORAGE +
TRANSPORT



REPACK OR DISTRIBUTION



RETAIL



CONSUMER



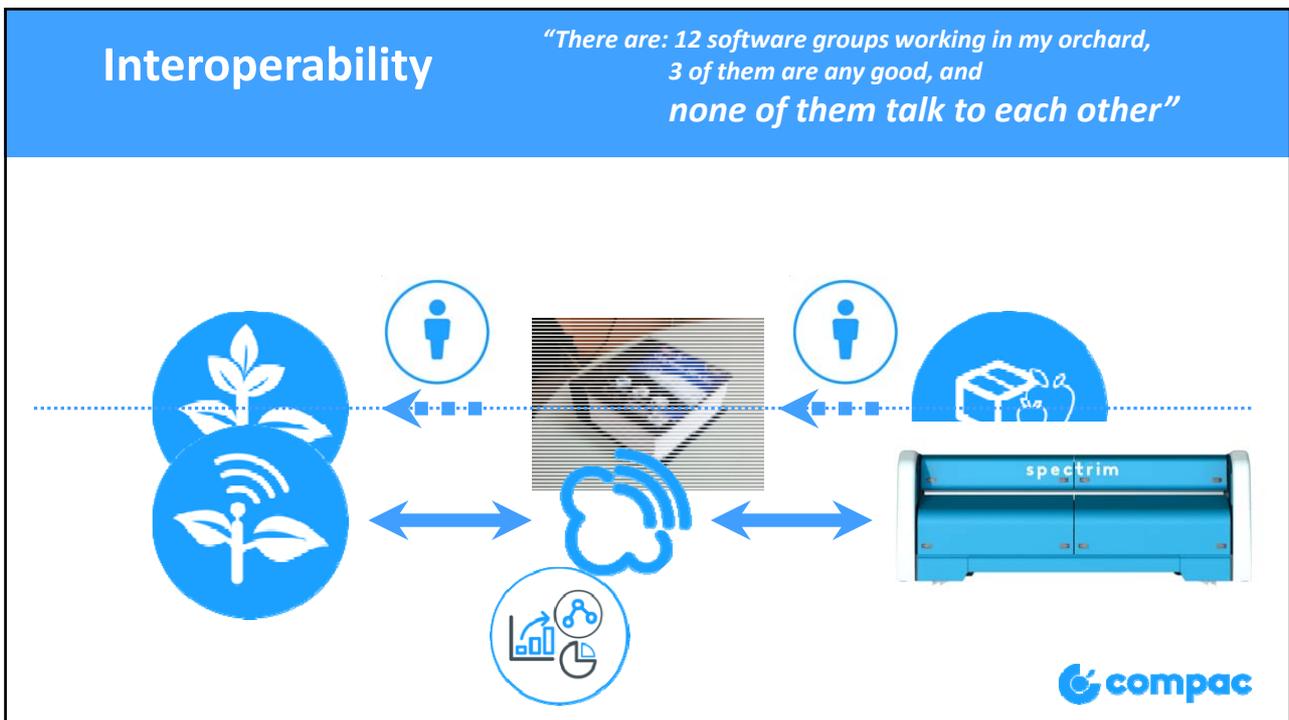
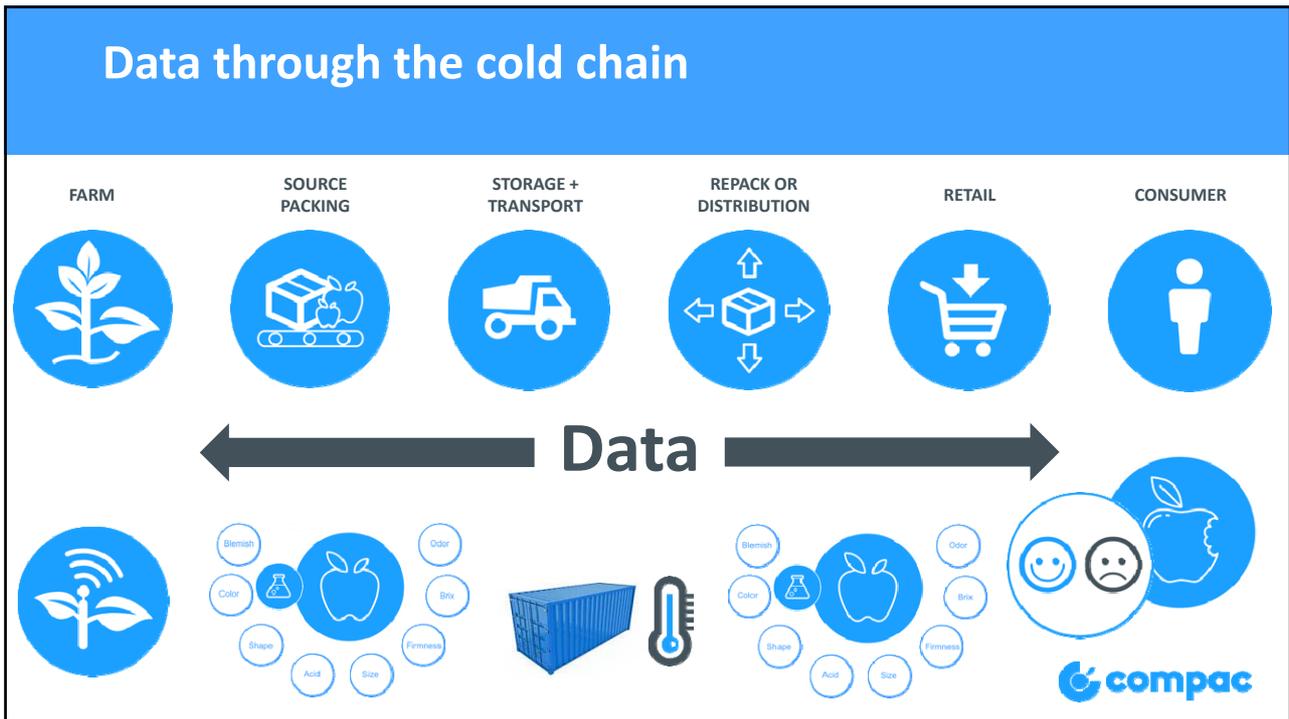
"It makes sense for John Deere to set up shop someday in Silicon Valley"

- Samuel Allen, CEO John Deere

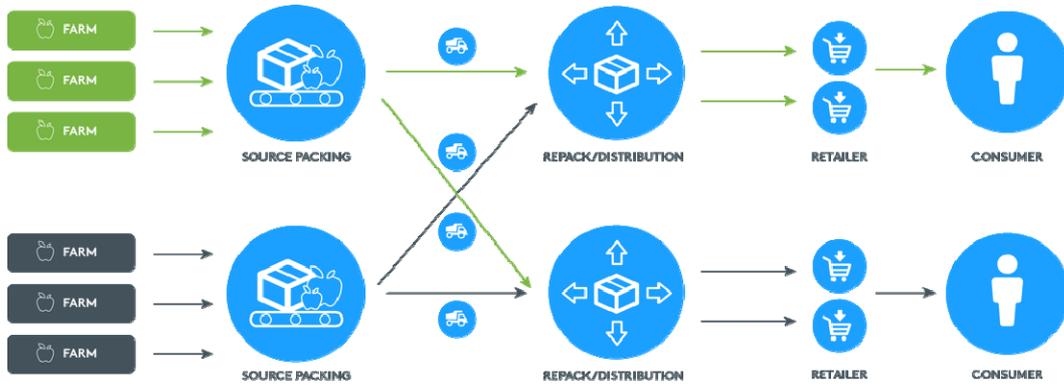
"I could easily see us in the next five or 10 years being an information technology company"

- Robb Fraley, CTO Monsanto

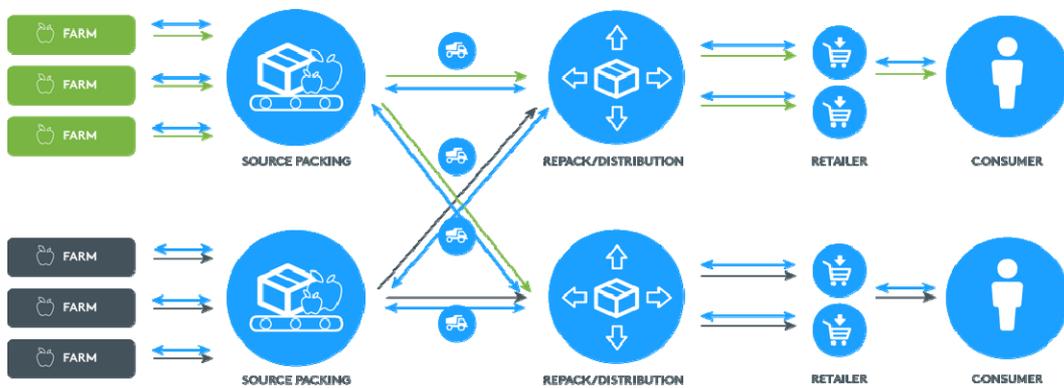




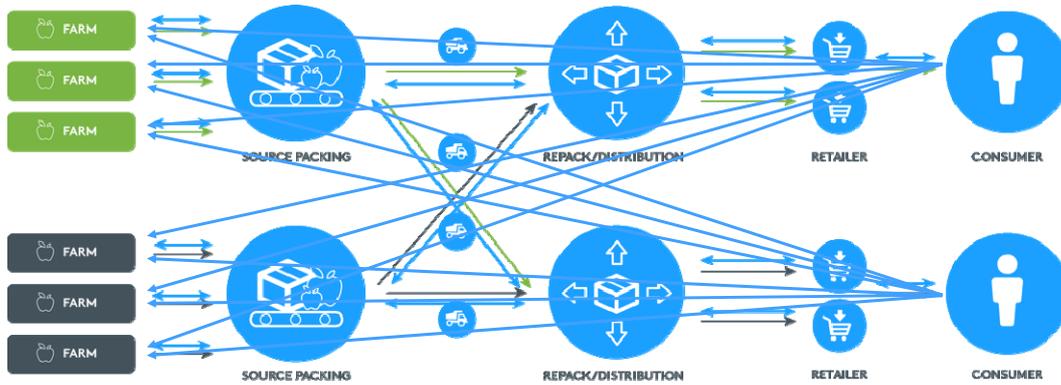
Integration of decentralized supply chain



Integration of decentralized supply chain



Integration of decentralized supply chain



The Fourth Industrial Revolution Speed – Connectivity – Change

Consumer Experience

- Big data consumer insights will drive new product innovations

Customization

- JIT e-commerce enables dynamic pricing

Think Global, Act Local

- Global standards & Provenance

Internet of Things

- Integration of all aspects of production, logistics and retail

Remote Control

- Virtualization of control and decentralization of supply chains

“As digital data increasingly becomes a critical source of innovation and value, business boundaries are being redrawn.”

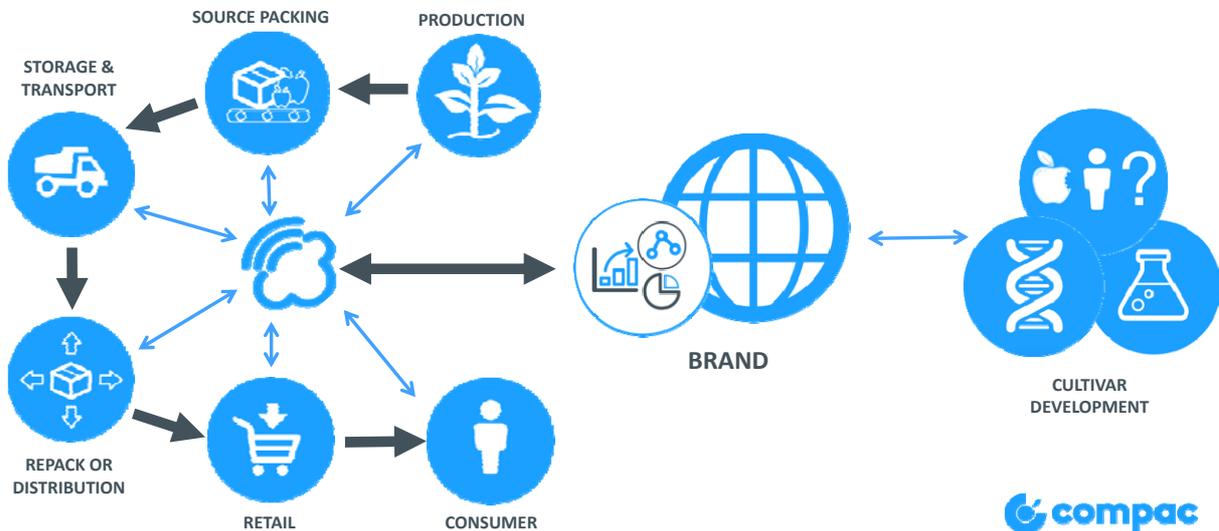
- Alan Marcus, Senior Director and Head of IT and Telecommunications Industries, World Economic Forum

“The Machine to Machine space is expected to grow to 30 billion connections in the next five to seven years”

- Ken Dixon, CMO, Verizon Wireless



Integrated fresh supply chain



What is possible with integrated data?

Fulfillment of Brand Promise

- Consistent quality through instrumentation
- Food that is safe, scientific, traceable
- Decentralized supply chain with 365 availability

Decision Support

- Farm GIS systems with detailed production history
- Real-time logistics optimization from product condition

Direct connection with consumers

- E-commerce – enable online review of perishable products
- Connect eating experience with measurable parameters
- Allow buyers to customize their order with dynamic pricing
- Consumer-friendly traceability (provenance)

Production Optimization

- Order matching with automated fulfilment
- Dynamic storage responding to product and market conditions
- Pre-harvest forecasting to reduce stock on hand
- Instantaneous integration of pre- and post-harvest data to enhance harvest operations

Real-time Sales and Marketing

- Feed-forward from production sales desk to speed reaction to market
- Enable marketers to create new products with available produce

... and much more we haven't yet thought of



How Data Will Protect Your Brand And Consumer



Brands that can master data will be the winners

The fresh brand promise

- Quality and consistency
- Safety
- Availability

Fresh supply chains are complex

- Brand promise demands deep integration
- Data is at the heart of this integration

Single vendor proprietary solutions don't scale

- Integrate the best in class elements
- Interoperability requires data sharing

