



IBM Global Business Services

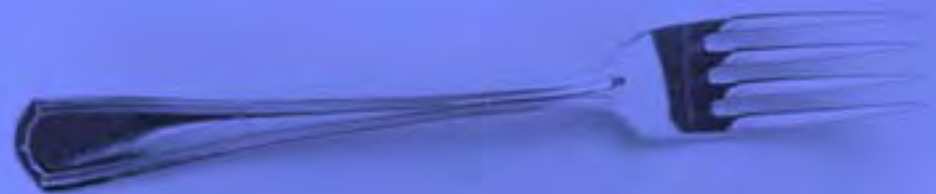
Institute for Business Value

Establishing trust through Traceability:

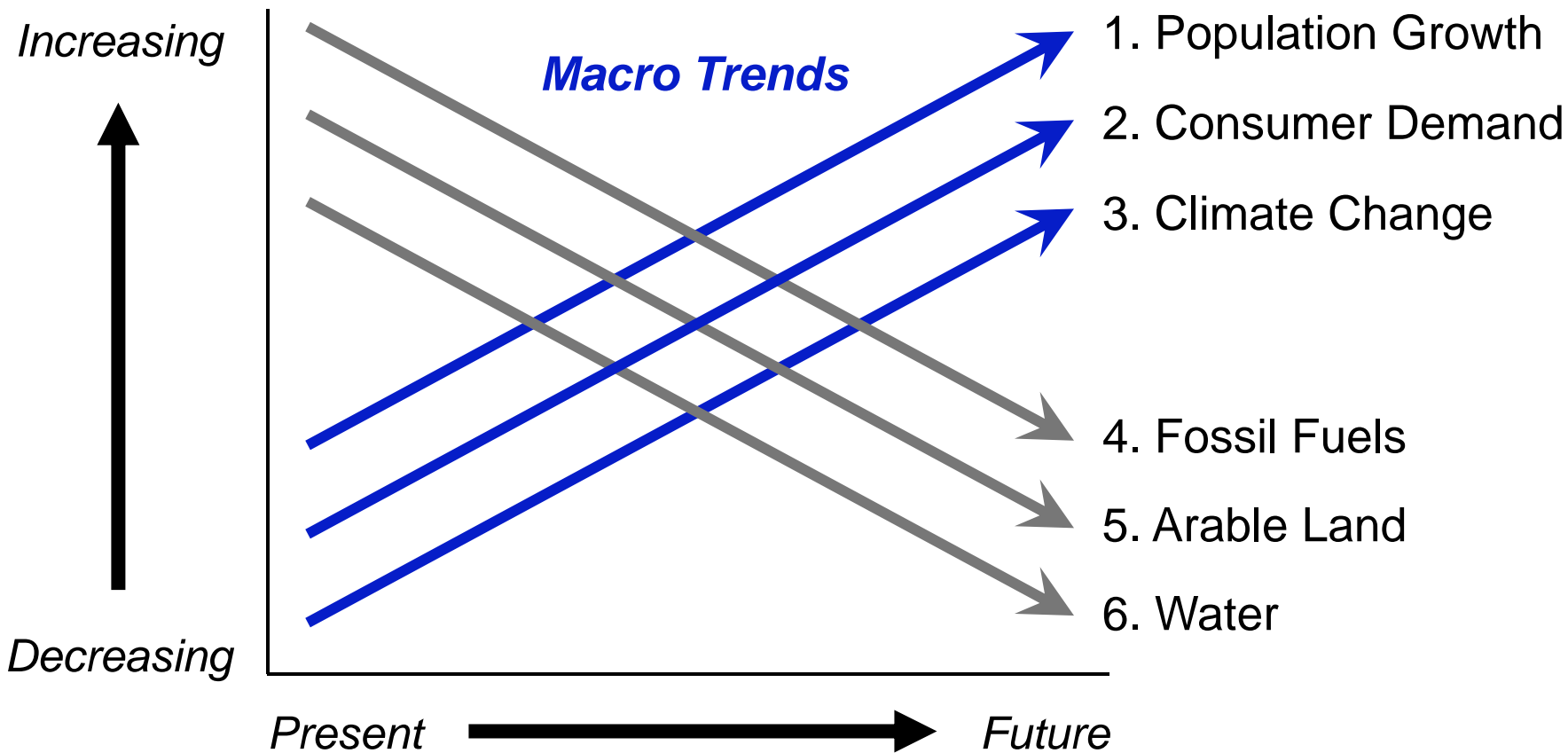
Protect and empower your brand
for today's "Omni Consumer"

ID • INFO
EXPO 2009

NIAA ID Info Expo 2009
Kansas City, MO
August 27th, 2009



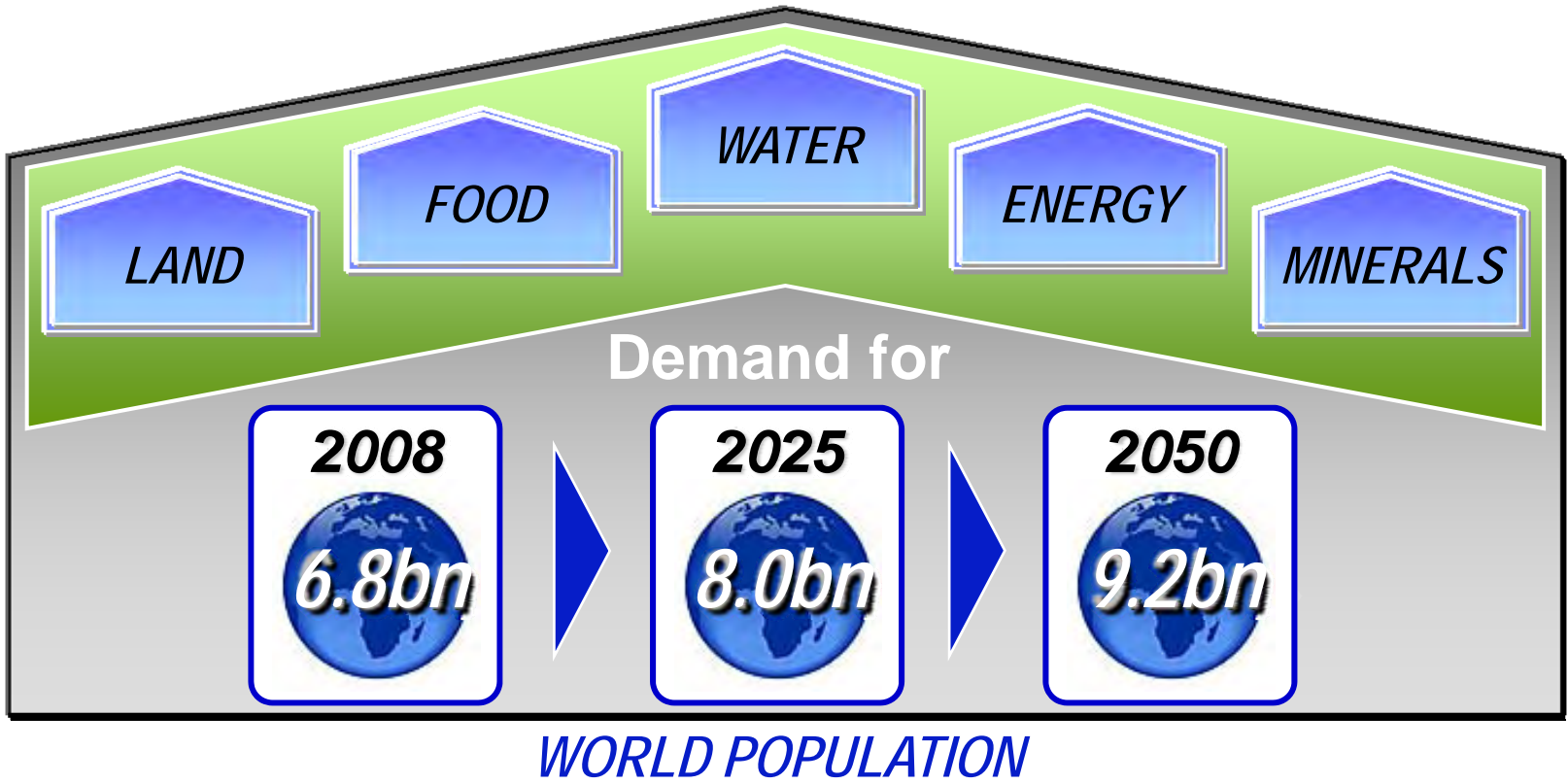
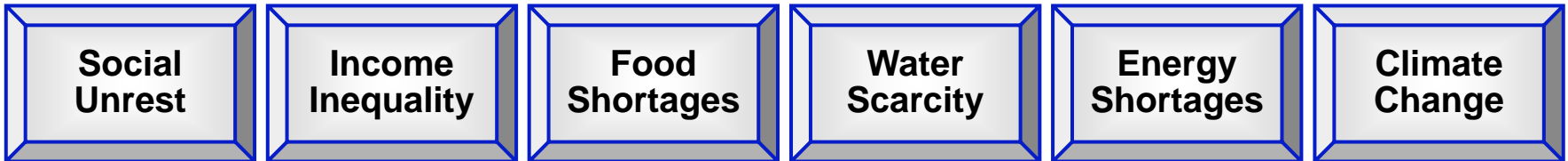
Global forces are driving the need for smarter systems to manage our limited agricultural and food resources



Smarter Planet / Smarter Food (System)

Sources: IBM Institute for Business Value analysis

Continued population growth will drive deep changes across the economic, social and political dimensions of our planet



Source: IBM Institute for Business Value, The World UN Population Assessment 2006

Food companies will have to adjust sourcing and production as raw materials and inputs become increasingly scarce and/or costly

1 kg meat requires
5,000 - 20,000 liters H₂O



1 kg wheat requires
500 - 4,000 liters H₂O




Corn for 1 gallon ethanol
requires 9,400 liters H₂O



Water Usage

- Agriculture is the largest human use of H₂O, 69% of total
- Spoilage and waste in the food chain may equal 50% loss
- Direct H₂O consumption of five top CP companies enough to serve basic water needs of entire global population

	Population	Per Capita Consumption	Total Consumption
1990	1.155 Bn.	19.7 Kg	22.8 M tonnes
2005	1.316 Bn.	37.9 Kg	49.9 M tonnes

- **Increased Chinese pork consumption requires additional 360 million pigs annually**
- **Positive correlation between meat consumption and income exacerbates H₂O pressures**

Sources: IBM Institute for Business Value analysis, "Urban and Slum Trends in the 21st Century," 2006, The UN Chronicle Online Edition; "SIWI Policy Brief: Saving Water: From Field to Fork," IWMI Stockholm Environment Institute; "Coca-Cola and Water – An Unsustainable Relationship," March 7, 2006, CommonDreams.org; Wikipedia, IGD, JP Morgan "Watching Water" 2008; "Our Water Supply, Down the Drain", R Glennon, Washington Post, 8/23/09

Across the food value chain the pace of change continues to accelerate, with many ill prepared for a dynamic new environment

A

Concerned & Empowered Consumers

- Heightened concern about safety of food supply
- Growing distrust of product marketing claims
- Rapid access to vast amounts of information... on their terms

B

Credence Driven Product Innovation

- Premium on “real” innovation and value
- Explosive growth in sales of products with ‘credence’ attributes
- Increasingly complex and engineered products

C

Complex Supply Chain

- Globalization, specialization across the agri-food supply chain
- Proliferating SKUs, high numbers of new product introductions
- Profusion of retail channels and supporting distribution models

D

Critical Data & Information

- Expanding premium on integration of business and technology
- Data standards and synchronization aid collaboration
- Growing retailer and restaurant information demands

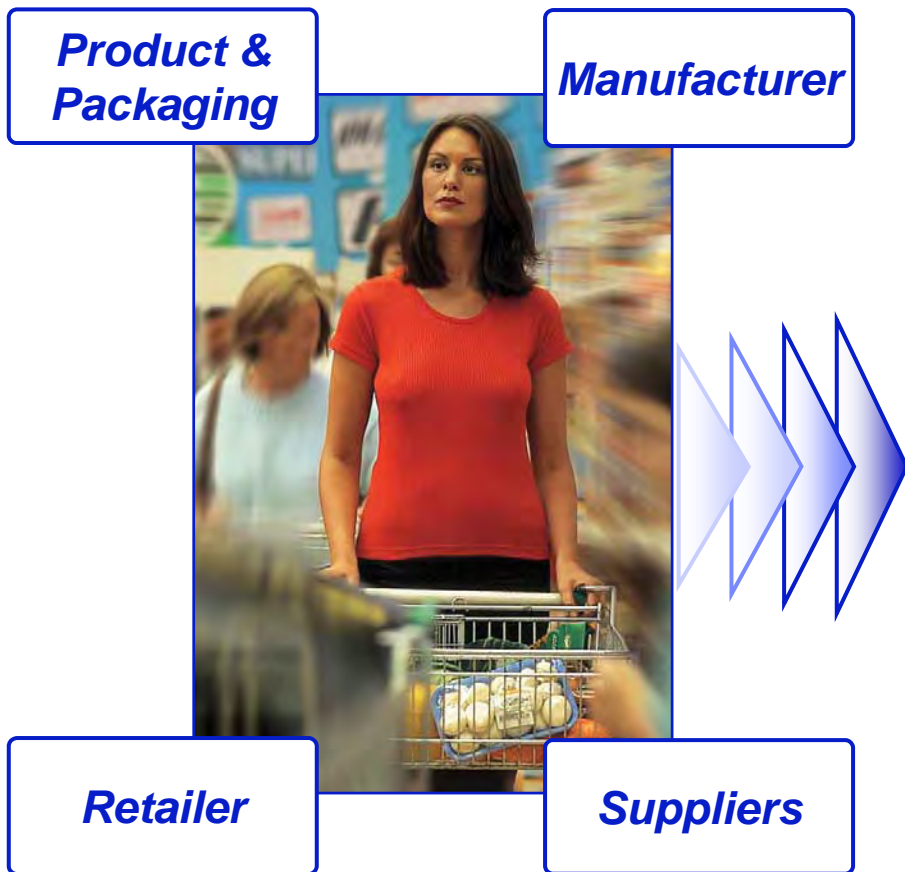
E

Expanded Regulatory Agenda

- Expanding industry regulation
- Country of origin requirements
- Expansion of ‘one step forward, one step back’ traceability

Today's 'Omni Consumer' is a concerned and informed individual, who craves trusted information...

The 'Omni Consumer' ... a.k.a. the 'Information Omnivore'

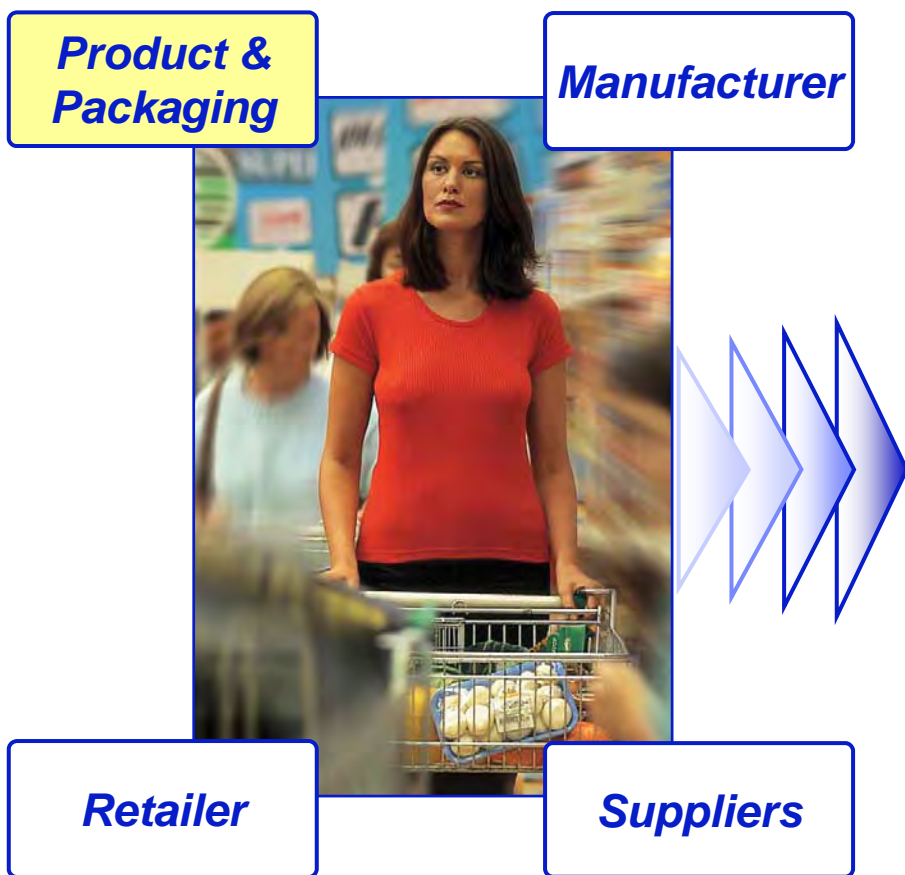


- Omniscient** *Informed, aware and concerned about products*
- Omnipotent** *Actively and passively tune in or out messages*
- Omnipresent** *Purchase products via growing number of channels*
- Omnivorous** *Purchase and consume wider range of products than ever*
- Omnifarious** *Doesn't fit into neat boxes or descriptions*

Sources: IBM Institute for Business Value analysis

Today's 'Omni Consumer' is a concerned and informed individual, who craves trusted information...

The 'Omni Consumer' ... a.k.a. the 'Information Omnivore'

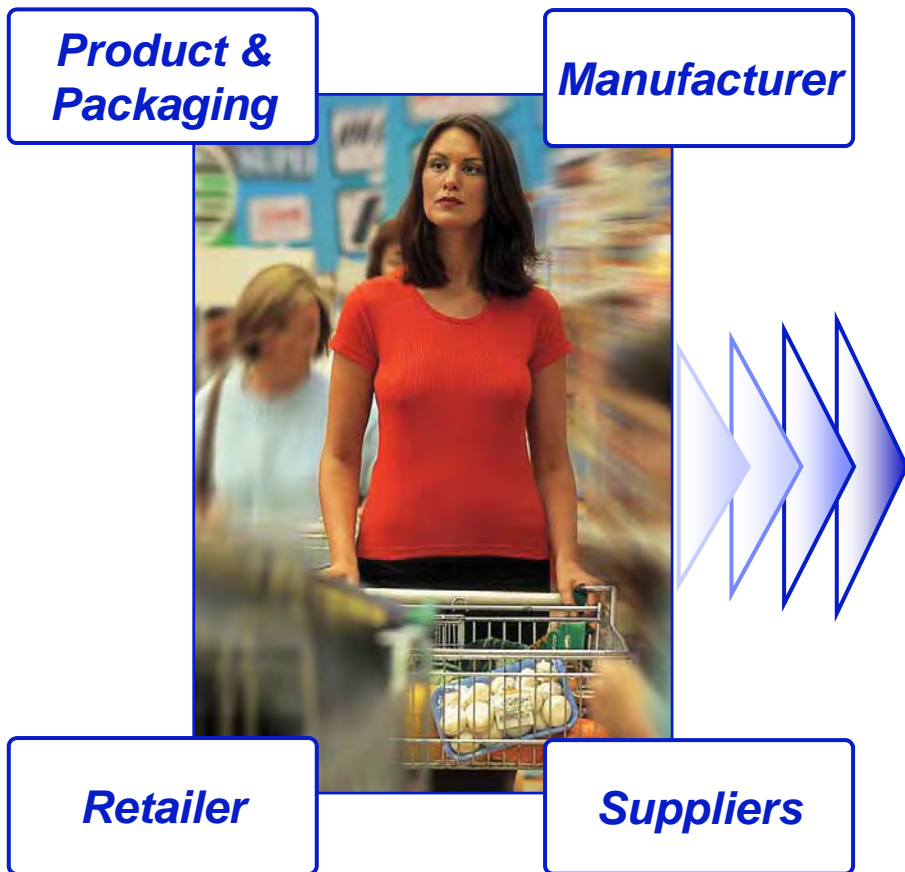


- Omniscient** *Informed, aware and concerned about products*
- Omnipotent** *Actively and passively tune in or out messages*
- Omnipresent** *Purchase products via growing number of channels*
- Omnivorous** *Purchase and consume wider range of products than ever*
- Omnifarious** *Doesn't fit into neat boxes or descriptions*

Sources: IBM Institute for Business Value analysis

... that simplifies their complex purchasing decisions, and who is empowered to drive real change with those decisions

The ‘Omni Consumer’ ... a.k.a. the ‘Information Omnivore’



Confident, Informed, aware and

IBM consumer survey

- 57% more knowledgeable about contents
- 39% more knowledgeable about source
- 70% want more information about both source and contents of food
- 39% of U.S. and UK consumers don't trust CP companies to have their best in mind during a recall

or descriptions

Sources: IBM Institute for Business Value analysis

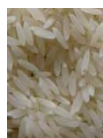
Continued contaminations and recalls have eroded consumer trust and changed perceptions and purchasing behaviors



consumer survey

- 42% of consumers buy different brands today vs. 2 years ago... because of safety concerns
- 47% more concerned today about food safety than 2 years ago

FORTUNE Wal-Mart: the new FDA



Rice
GMO



Lettuce
E. Coli



Chocolate
Salmonella



Chicken
Bird Flu



Chicken
Listeria



Gr. Beef
E. Coli



Toothpaste
Diethylene Glycol



Spinach
E. Coli



Chocolate
Nuts



Onions
E. Coli



Peanut Butter
Salmonella



Baby Food
Botulism



Pet Food
Melamine?



Canned Chili
Botulism



Snacks
Salmonella



Dog treats
Melamine



Tomatoes
Salmonella



Jalapeños
Salmonella



Cantaloupe
Salmonella



Toys
Lead



Pork
Listeria



Gr. Beef
E. Coli



Beef
E. Coli



Milk
Melamine



Peanut Butter
Salmonella



Cookie Dough
E. Coli



Chicken
Bird Flu



Gr. Beef
Salmonella

2006

2007

2008

2009

Source: IBM research, IBM survey of U.S. and UK consumers; Fortune, July 16, 2008; <http://www.environmental-expert.com/resultEachPressRelease.aspx?cid=21001&codi=60507&lr=1>

A proliferation of corporate responsibility claims is only adding to the confusion and fostering distrust



Carbon Footprint
Crisps



Carbon
Neutral Beer



Socially
Responsible
H₂O

BRANDWEEK

- ▶ 40% of consumers are negative or ambivalent about media attention regarding our impact on environment
- ▶ Only 13% of consumers believe companies adopt environmentally friendly practices because they care about the environment

FINANCIAL TIMES

'Fair' coffee workers paid below minimum wage

"Ethical" coffee is being produced in Peru, the world's top exporter of Fairtrade coffee, by labourers paid less than the legal minimum wage.

FINANCIAL TIMES

Food groups check 'illegal' coffee claims

WWF alleges tens of thousands of hectares of rainforest in Indonesian National Parks cleared to grow coffee



Wal-Mart accused of 'organic fraud'

Advocacy group claims retailer is misleading its customers by labeling non-organic foods as 'organic'

Around the globe consumers are already connecting online and sharing opinions of products and brands

facebook

3.5 million fans of...



淘宝网

P&G

With more than 50 million users, sales volume on TaoBao of \$14Bn exceeds sales of Wal-Mart and Carrefour... P&G recently opened online store on TaoBao.com



100,000+ visitors each month... growing 20%

Health, environment and social impact information on 75,000 products



Input the lot code... locate the family farms that grew the grain to create your flour.



40+ million people print online coupons, up 20% vs. 2008... 6 million never clip from newspaper only download



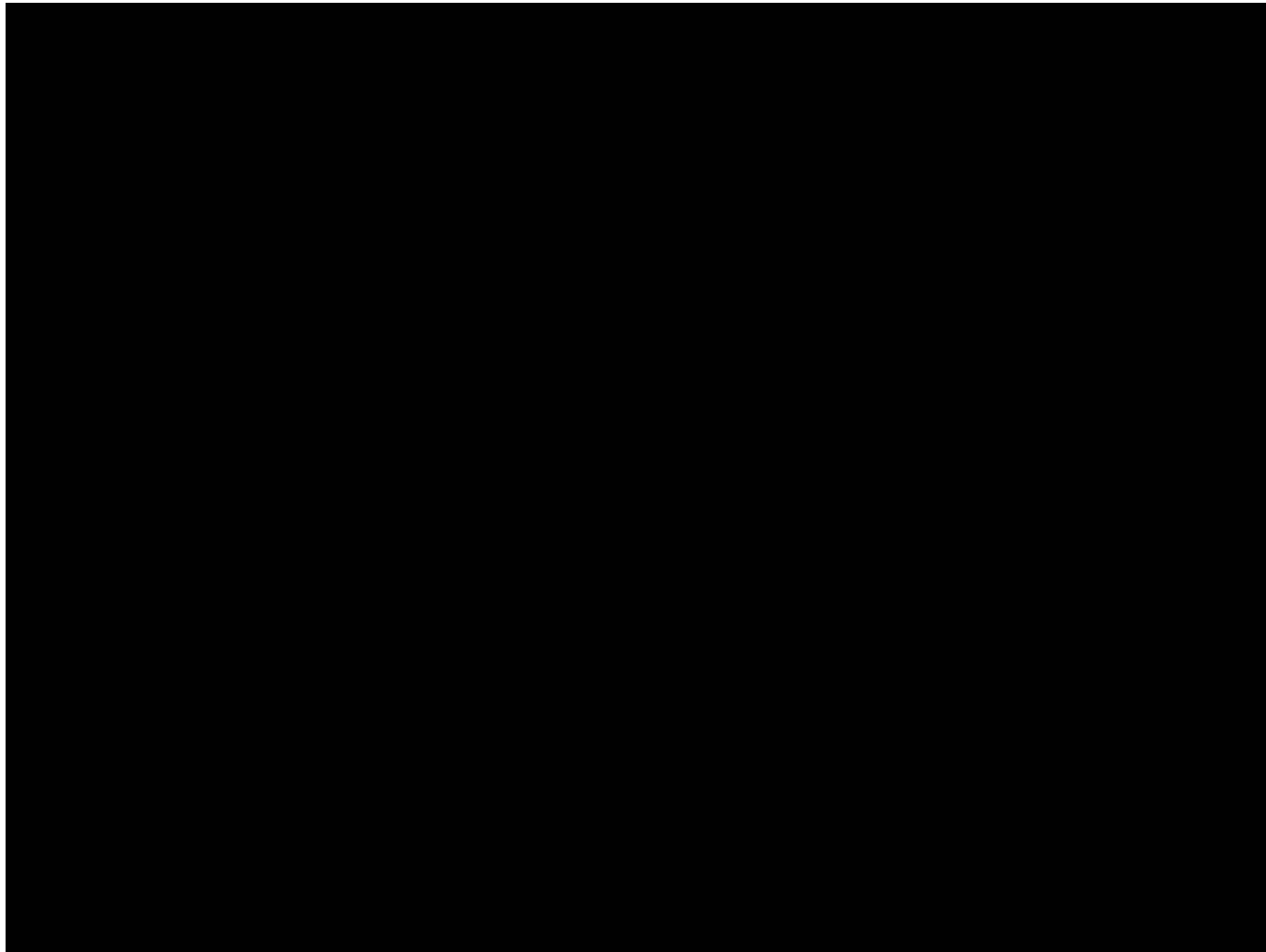
6.6 million unfiltered product reviews... "go to" site for young Japanese women



Provides detailed product ingredient information and building online network of ingredient "detectives" to create transparency

Source: IBM Institute for Business Value analysis, www.facebook.com; www.couponsinc.com; "Eater, Meet Your Farmer and Say Hello", 3/28/09, NY Times; "On Web and iPhone, a Tool to Aid Careful Shopping", 06/15/09, NY Times

At least one well known quick service restaurant is emphasizing traceability directly to consumers to build trust



[Link to Video](#)

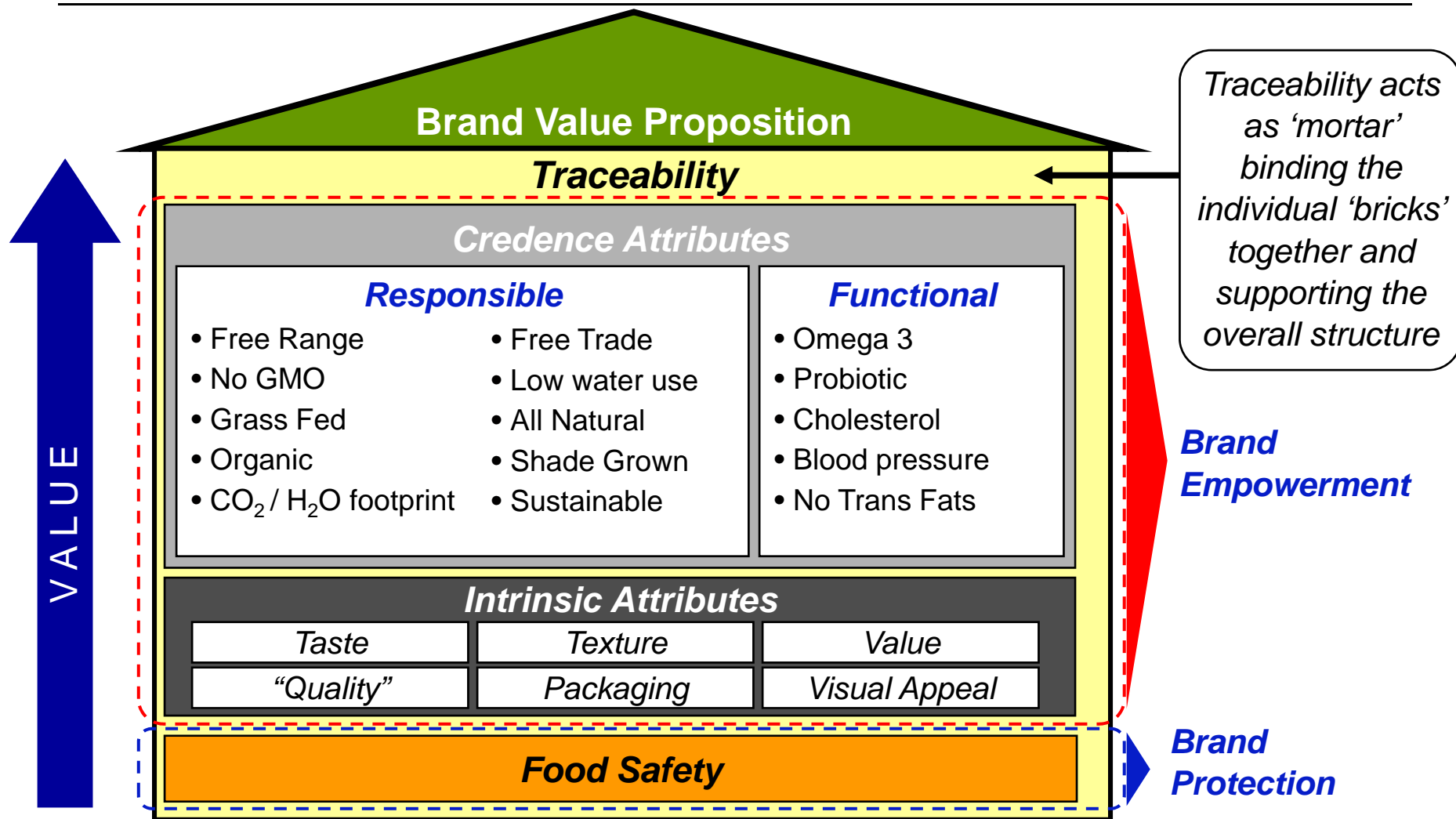
By contrast, traceability systems and communication in the U.S. is _____



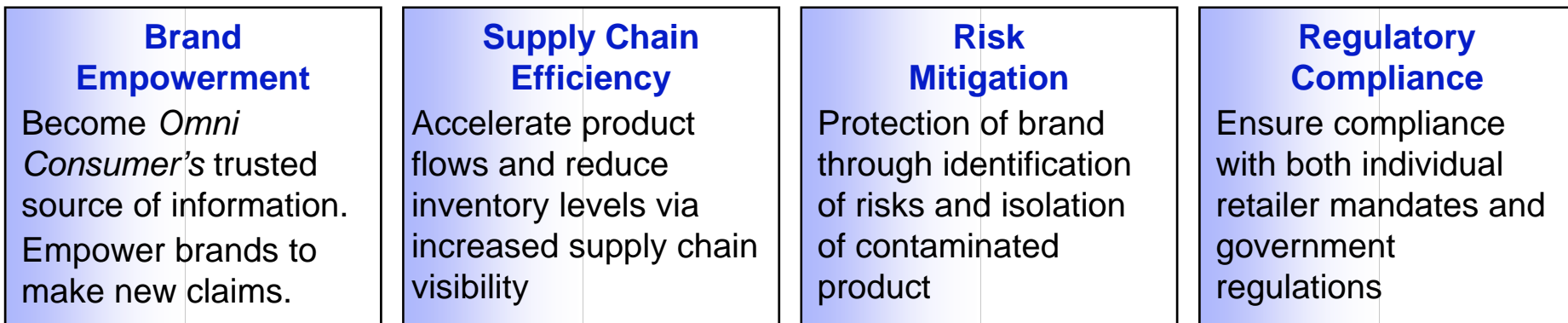
Nicole Bengiveno/The New York Times

Source: <http://www.nytimes.com/2007/10/23/business/23meat.html?pagewanted=1>

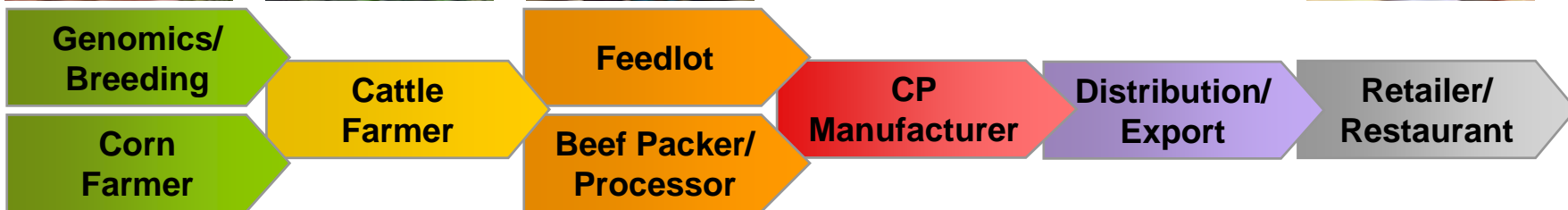
Traceability plays a critical role creating the transparency to mitigate recalls and support product marketing claims



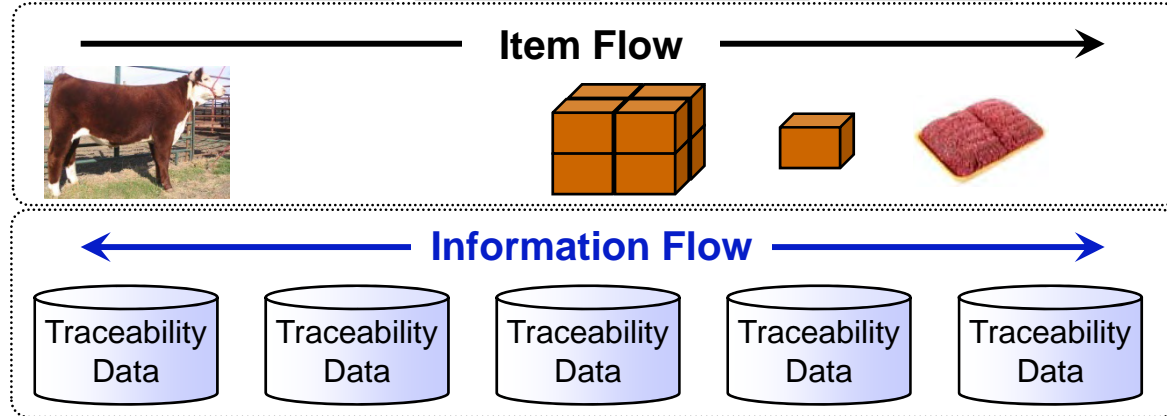
As a trusted source of updated information, traceability also allows companies to access a range of benefits



TRUSTED INFORMATION



Agri-food traceability requires identification of premises, products and recording of movements



Traceability dimensions:

1. Premises
2. Product attributes
3. Movements

OBJECTIVE: to record relevant “**Property or Attribute Information**” associated with the physical goods, or “**Traceable Entities**”, as they flow through the value chain, **and** to make the traceability information available to achieve specific **Business Objectives**.

The critical element is **timing** - the ability to make traceability information available as needed anywhere across the value chain.

Agri-food traceability can work like other standardized systems, which securely share data on a permission basis

Postal Service



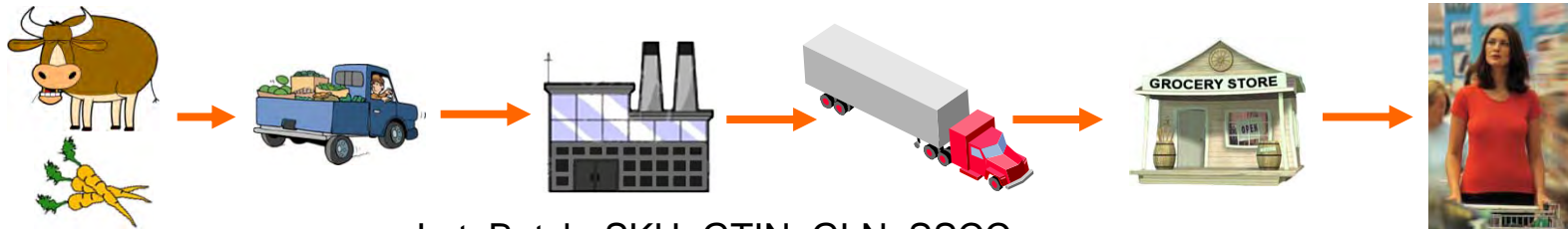
Mailing addresses, zip codes, postage stamps

ATM Transaction



ABA routing numbers, account numbers, PIN codes, currency

Food Value Chain



Lot, Batch, SKU, GTIN, GLN, SSCC

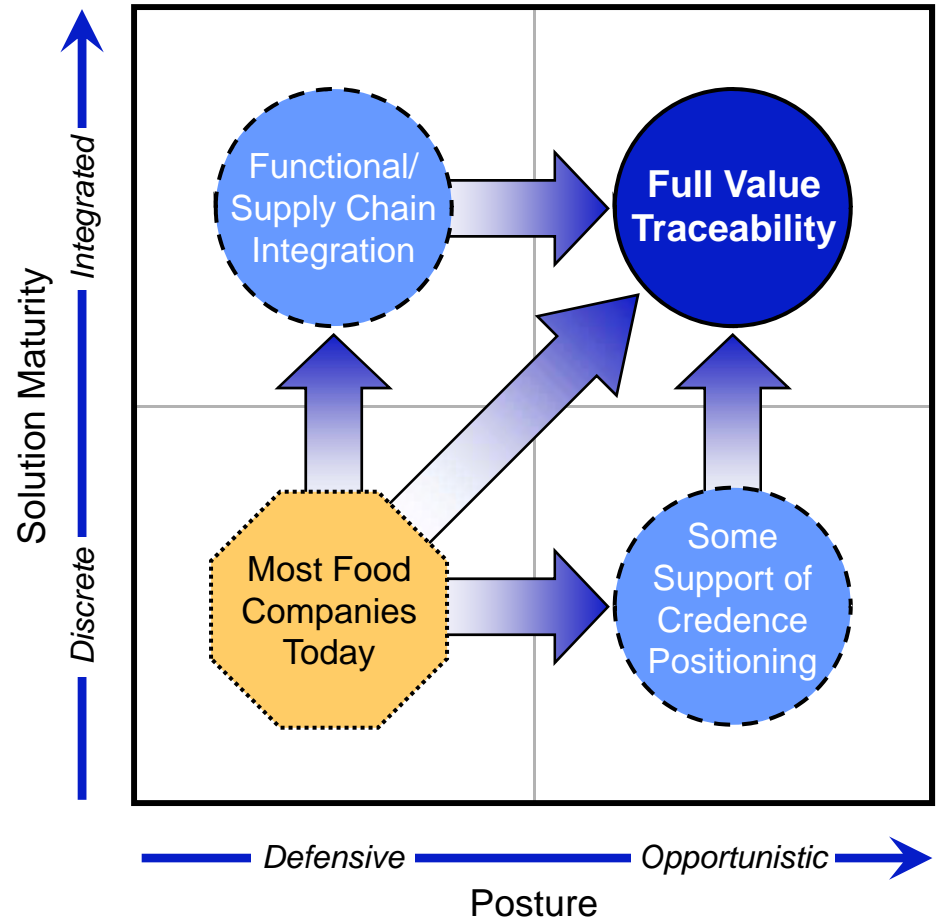
Traceability Network



While the path to Full Value Traceability is a complex, the journey will deliver benefits across the full chain

Full Value Traceability:

- A journey, not a destination
- Requires collaboration and engagement across the whole supply chain
- Is a moving target: the goal posts will keep moving as new technologies and consumer preferences emerge
- Has many influencers to optimize the path taken:
 - Product and brand risk factors
 - Importance of credence attributes, as identified in first imperative
 - Applicable government regulations and retailer mandates



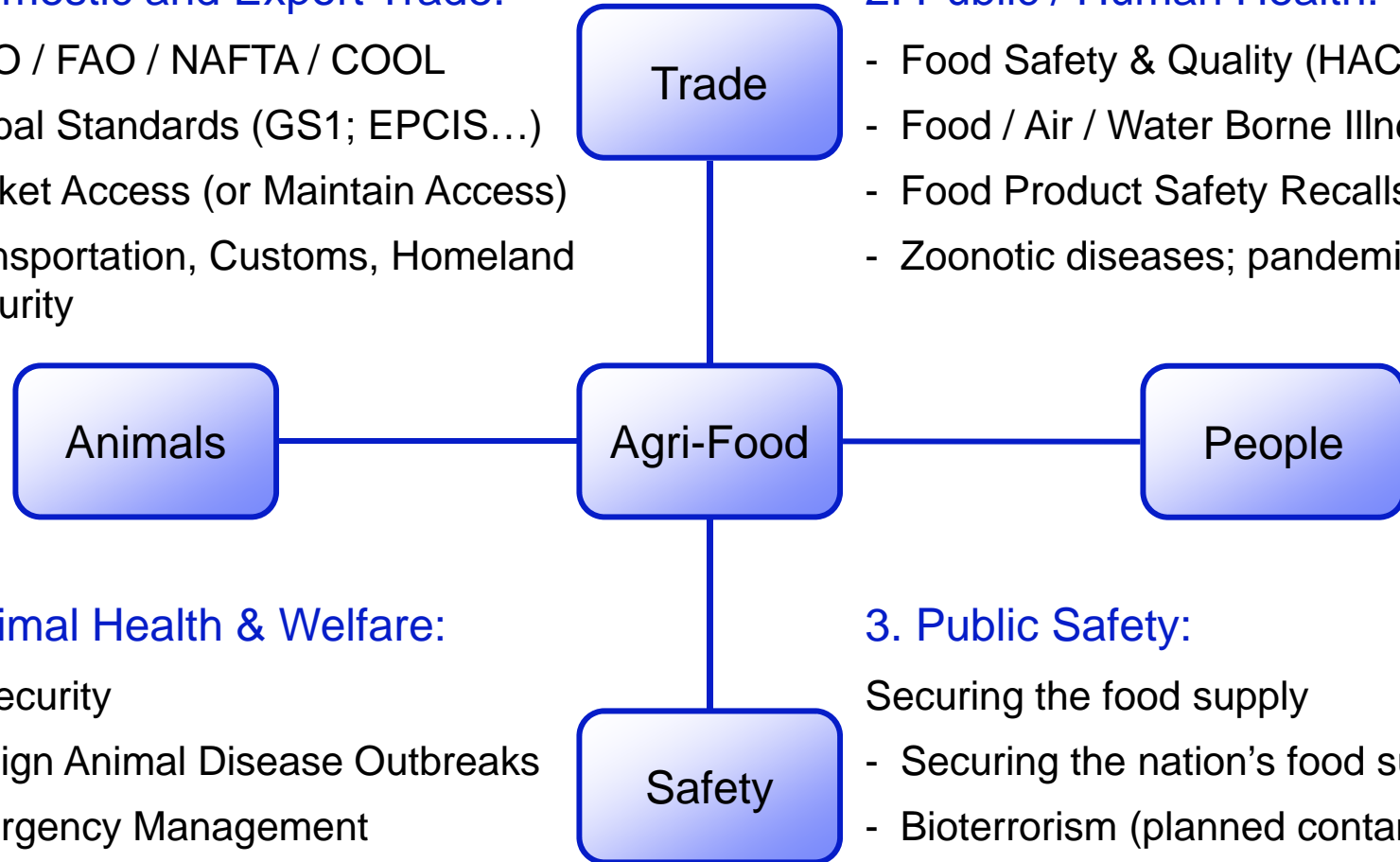
Agri-food is part of a complex value chain, driving the need for a cross disciplinary approach to policy and planning

1. Domestic and Export Trade:

- WTO / FAO / NAFTA / COOL
- Global Standards (GS1; EPCIS...)
- Market Access (or Maintain Access)
- Transportation, Customs, Homeland Security

2. Public / Human Health:

- Food Safety & Quality (HACCP)
- Food / Air / Water Borne Illnesses
- Food Product Safety Recalls
- Zoonotic diseases; pandemic planning



4. Animal Health & Welfare:

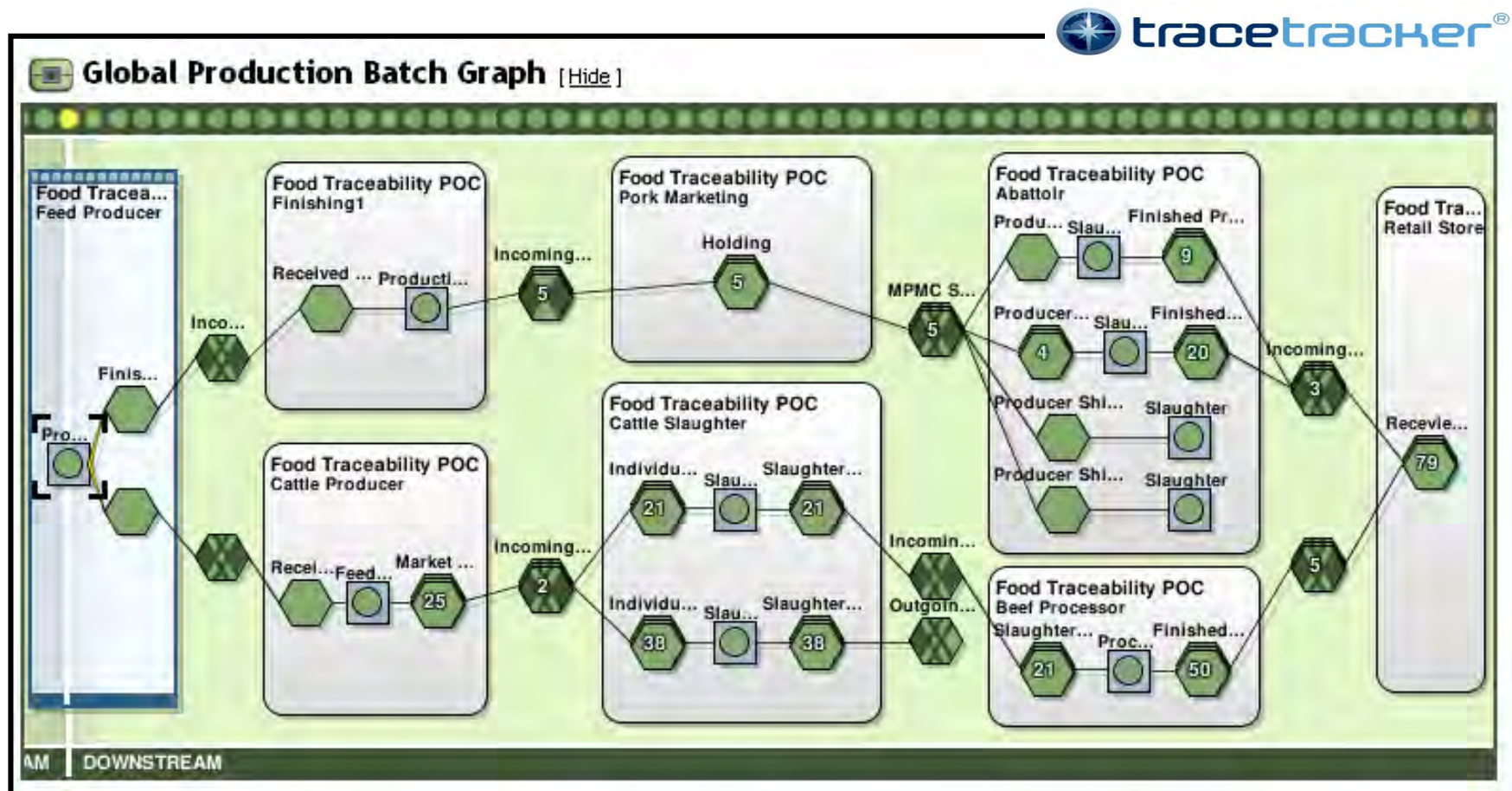
- Biosecurity
- Foreign Animal Disease Outbreaks
- Emergency Management

3. Public Safety:

- Securing the food supply
- Securing the nation's food supply
 - Bioterrorism (planned contaminants)
 - National Defense

A Canadian proof-of-concept demonstrated the viability of an electronic “farm-to-fork”, multi-species traceability solution

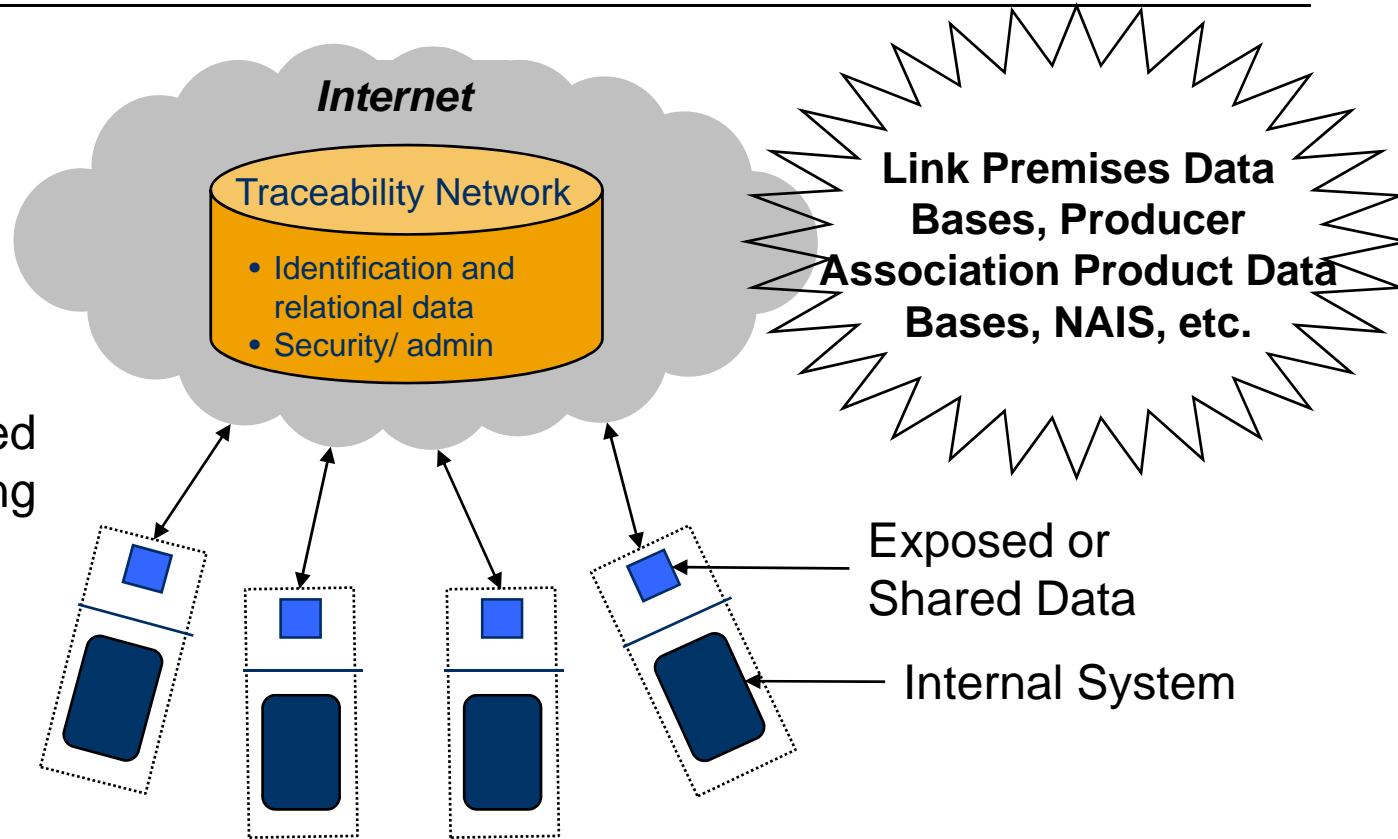
Beef and pork value chain data linked for emergency management and product / market growth.



IBM experience with large data management projects indicates that a "Distributed" architecture is most effective

Centralized vs. Point to Point infrastructure?

Permission-based data sharing



Distributed Architecture: each company collects and stores data behind their own firewall and makes a subset of the data available to a network that contains identification and relational information only

Participants can link to the traceability infostructure through a variety of communication and systems integration methods

Aggregators, such as producer groups, can provide information updates and access services on behalf of their members.

Participants who have their own systems infrastructure and can meet service and policy requirements can connect directly to the infostructure.

Integration methods include flat-file exchange, system-to-system messaging, and Web services.

