



Supply Chain Traceability & Anti-Counterfeiting

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Supply Chain Traceability

The ability to obtain and verify the location, status and history of an item.



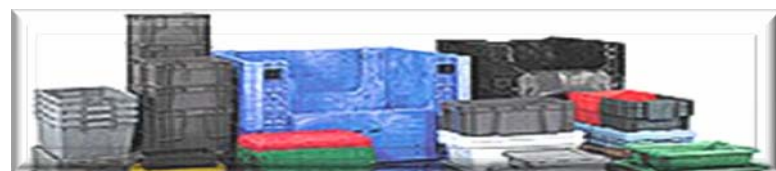
Pharmaceuticals: Can I be sure my prescription drugs are not counterfeit?



Parts: Which parts were assembled in my car and are they authentic?



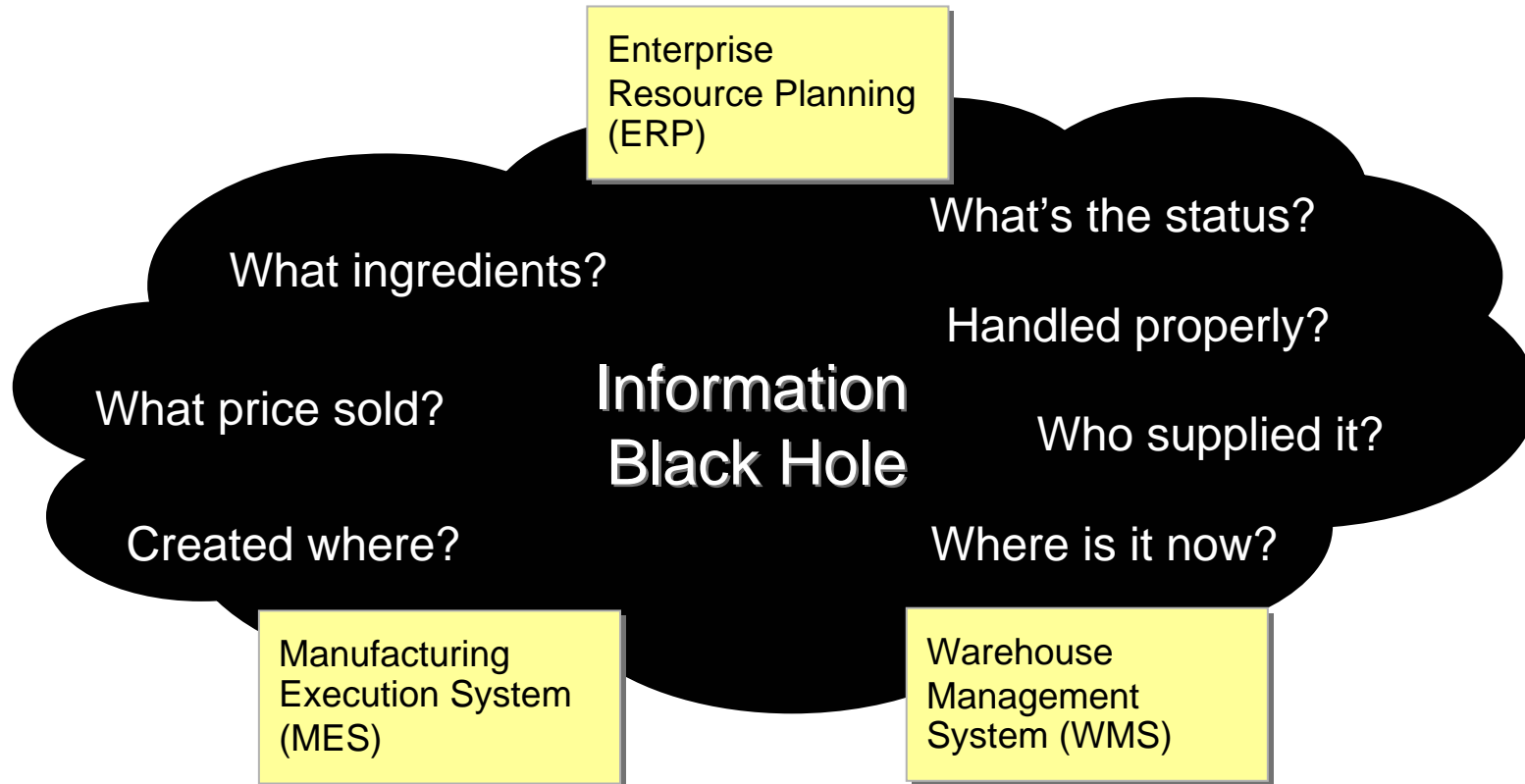
Food: Where does my food come from?



Returnable Containers: Do my suppliers have enough containers to meet my production needs?

The IBM Supply Chain Visibility solution is enabling customers in multiple industries to answer these questions today.

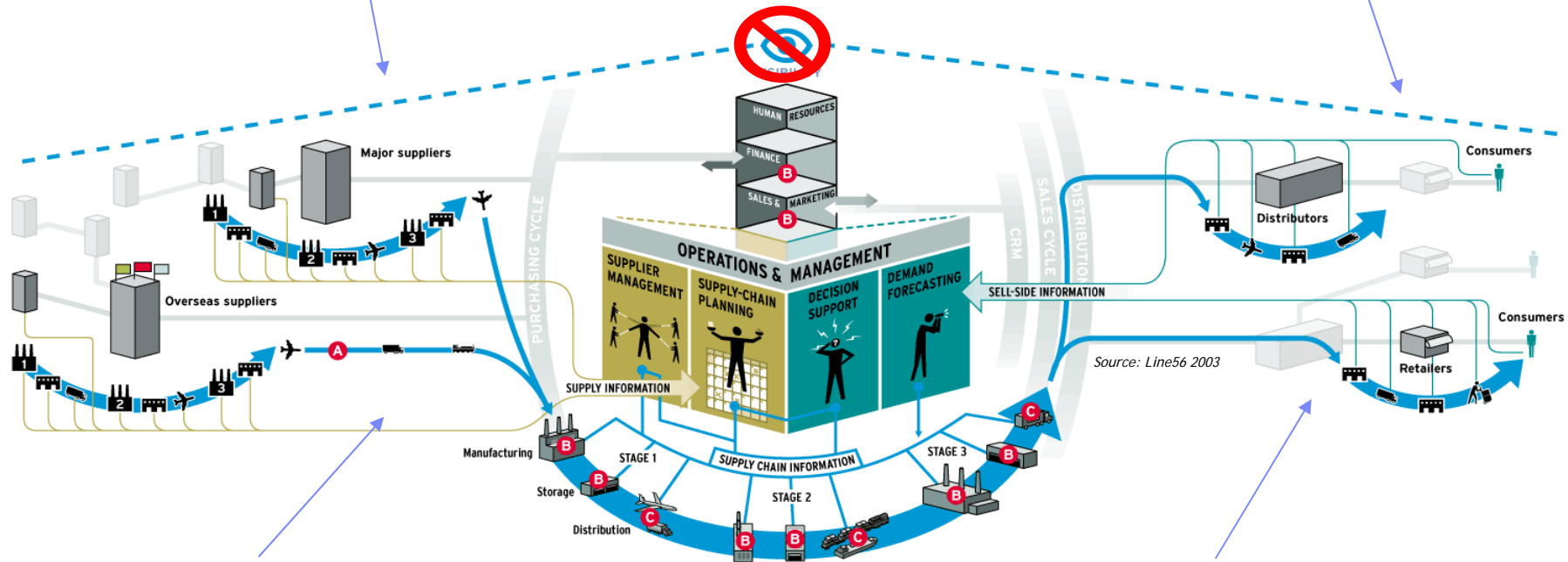
Information Silos Across the Supply Chain



Supply Chain Blind Spots

Lack of visibility into supplier inventory leads to stock outs, late/expedited shipments, quality issues, etc.

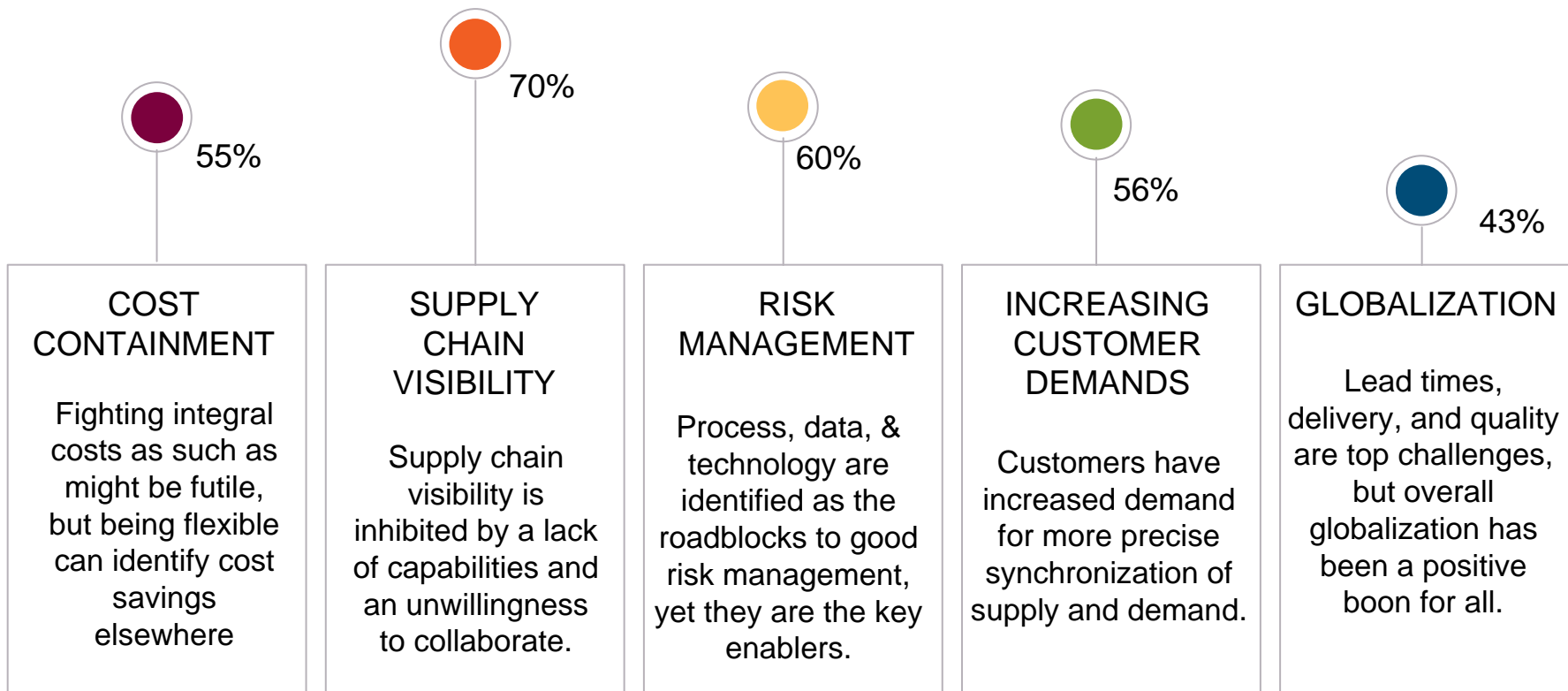
Constant reactionary state results in missed market opportunities, poor promotion planning, competitive disadvantage



Supply chain delays lengthen the cash-to-cash cycle

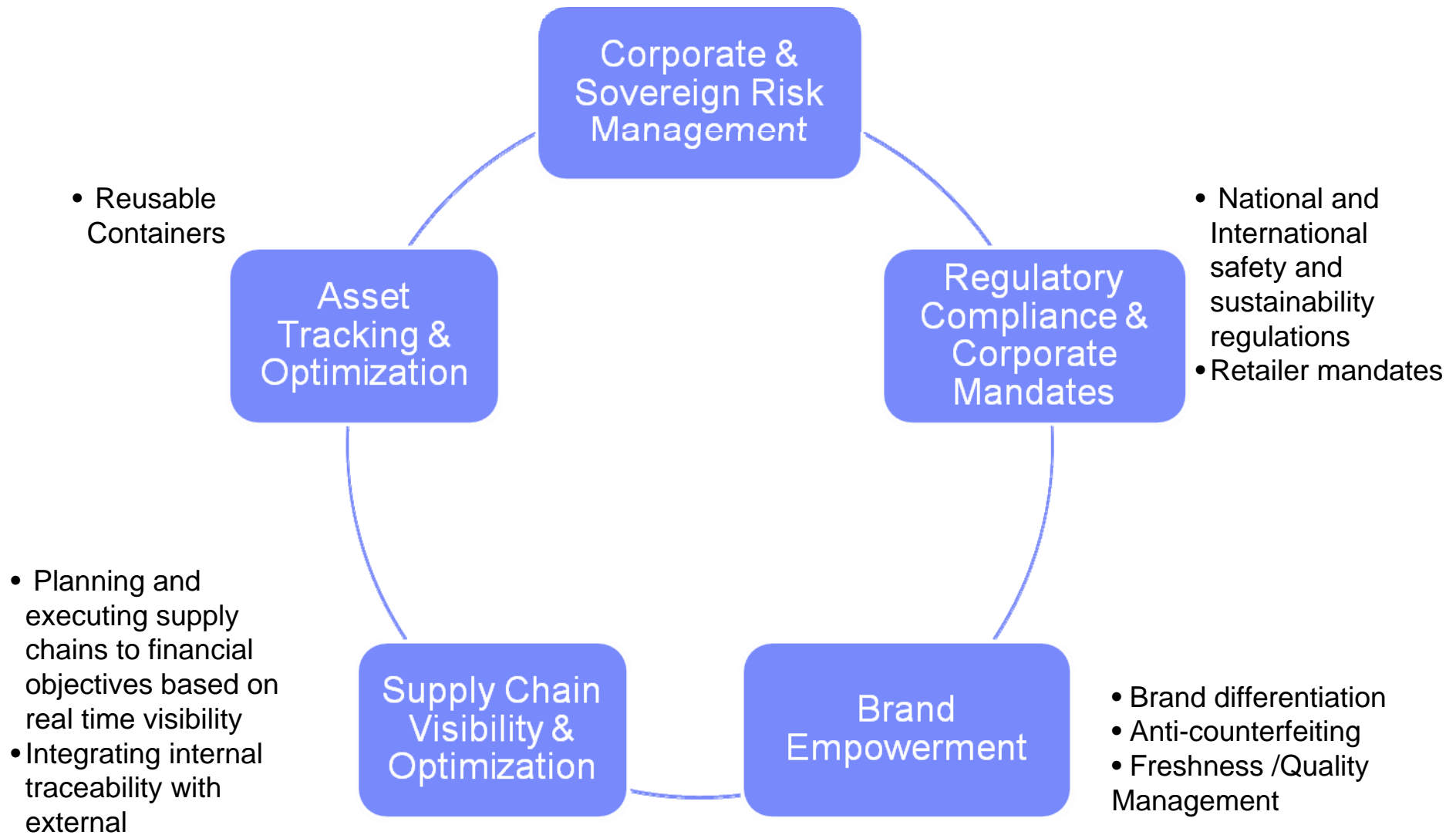
Inability to receive timely, accurate demand signals leads to stock outs, excess/obsolete inventory, poor customer satisfaction, etc.

The collective insights from 400 Supply Chain Executives identify five major challenges

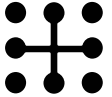


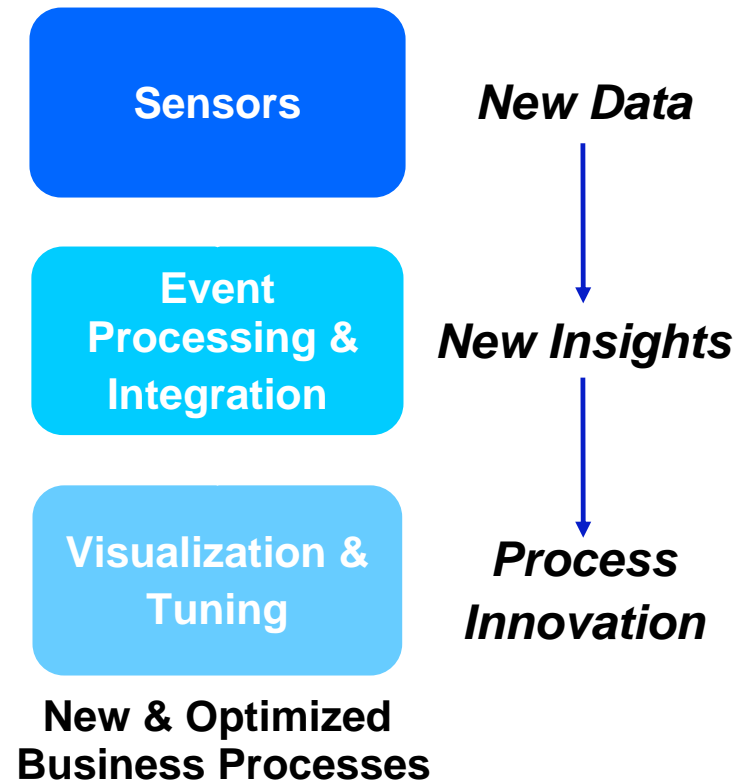
Based on IBM's Chief Supply Chain Officer Study, 2009"

What Is Driving Supply Chain Traceability Solutions Today?



Building a Smarter Supply Chain

- 
INSTRUMENTED
- 
INTERCONNECTED
- 
INTELLIGENT



Leaders today are benefiting from new sensor data when combined with IBM's business process management, event processing & business optimization capabilities

Types of Data

WHAT

Manufacturing Data

- Lot/Batch
- Expiration

Environment Data

- Temperature

Transactional Data

- PO
- Invoice

WHY

Business Process

- Receipt
- Ship



WHERE

Location

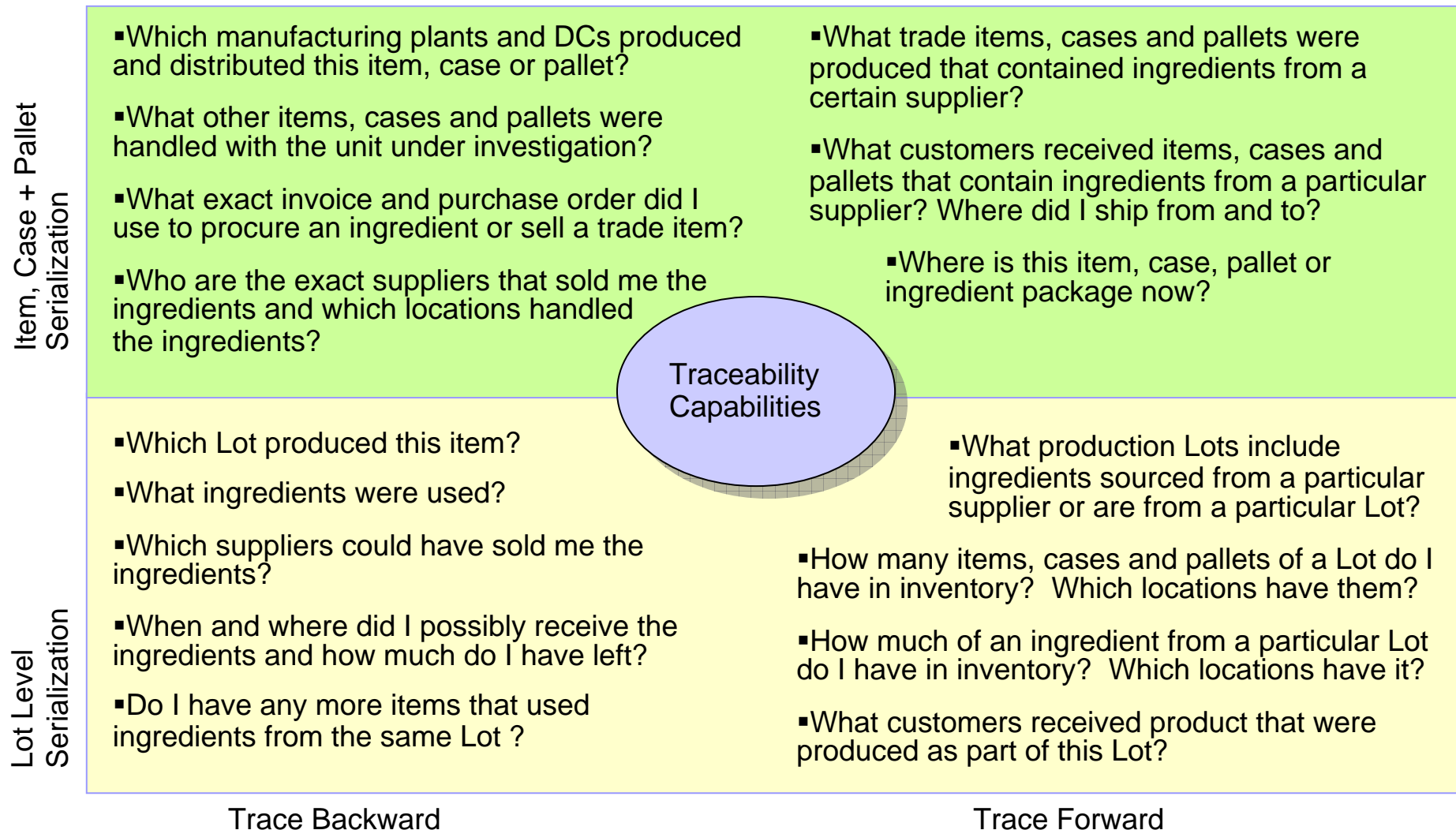
- City/State
- Country/Region
- Store #
- Dock #
- Port #

WHEN

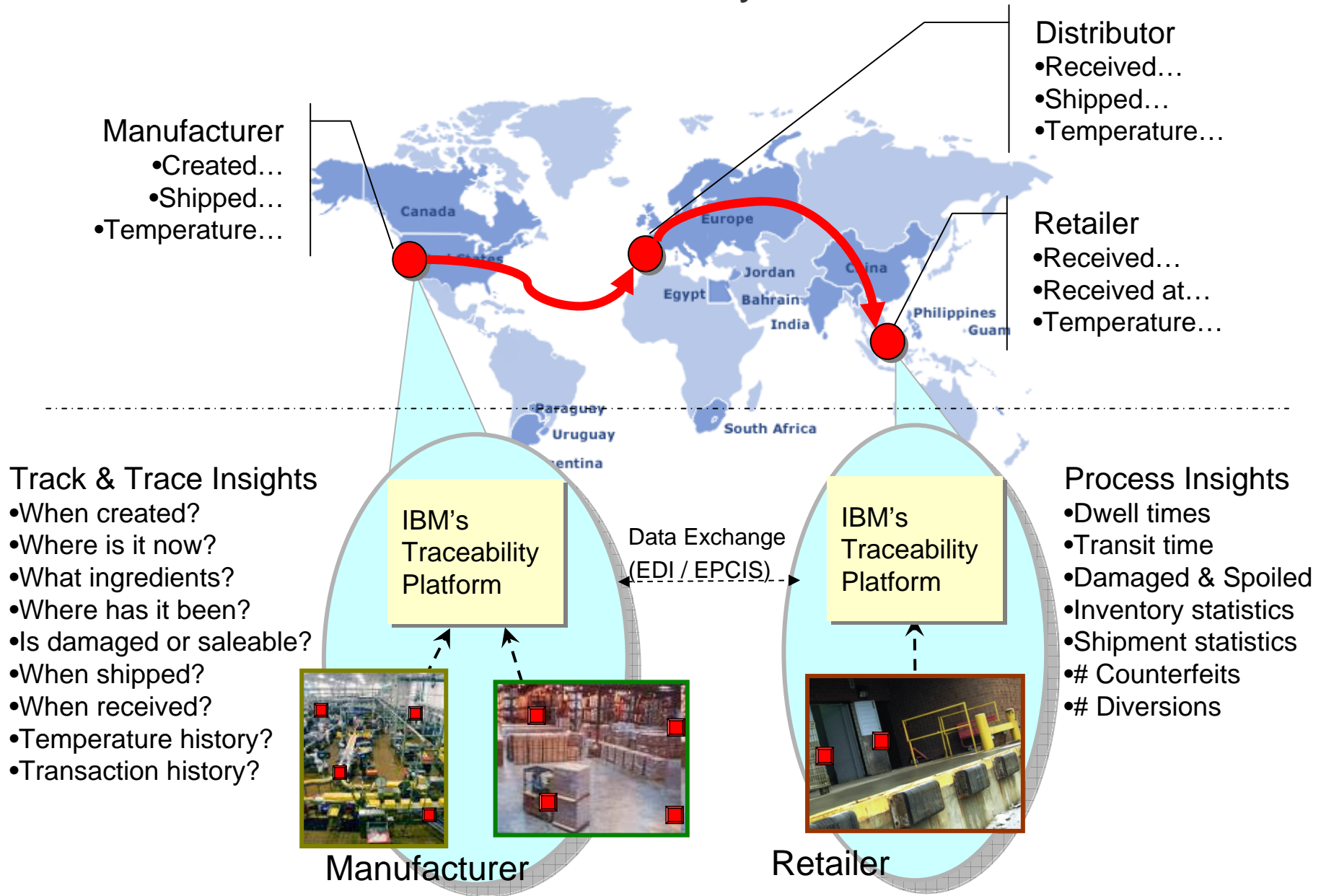
Timestamp

Overview of Traceability Concepts

Visibility Increases with Granular Serialization

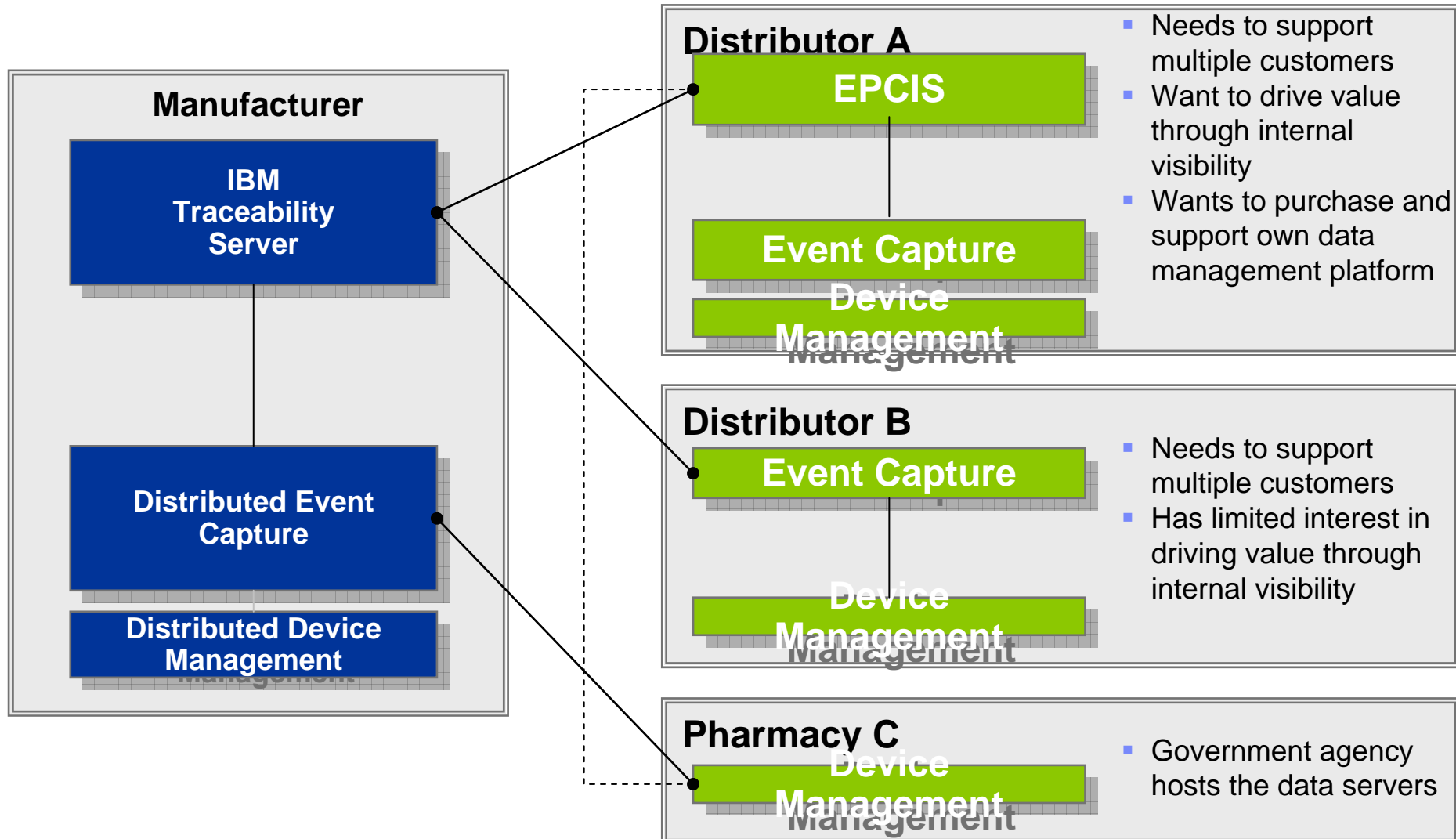


IBM's Full Value Chain Traceability Vision



How is Data Captured?

From large to small enterprises



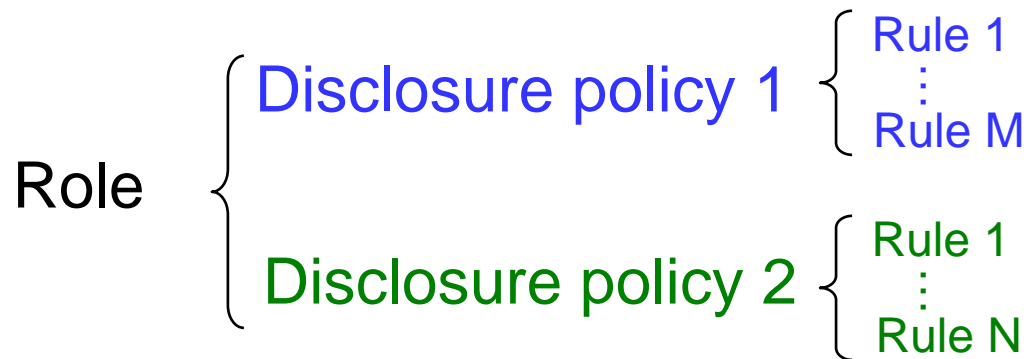
How Data is Shared?

Secure and granular access

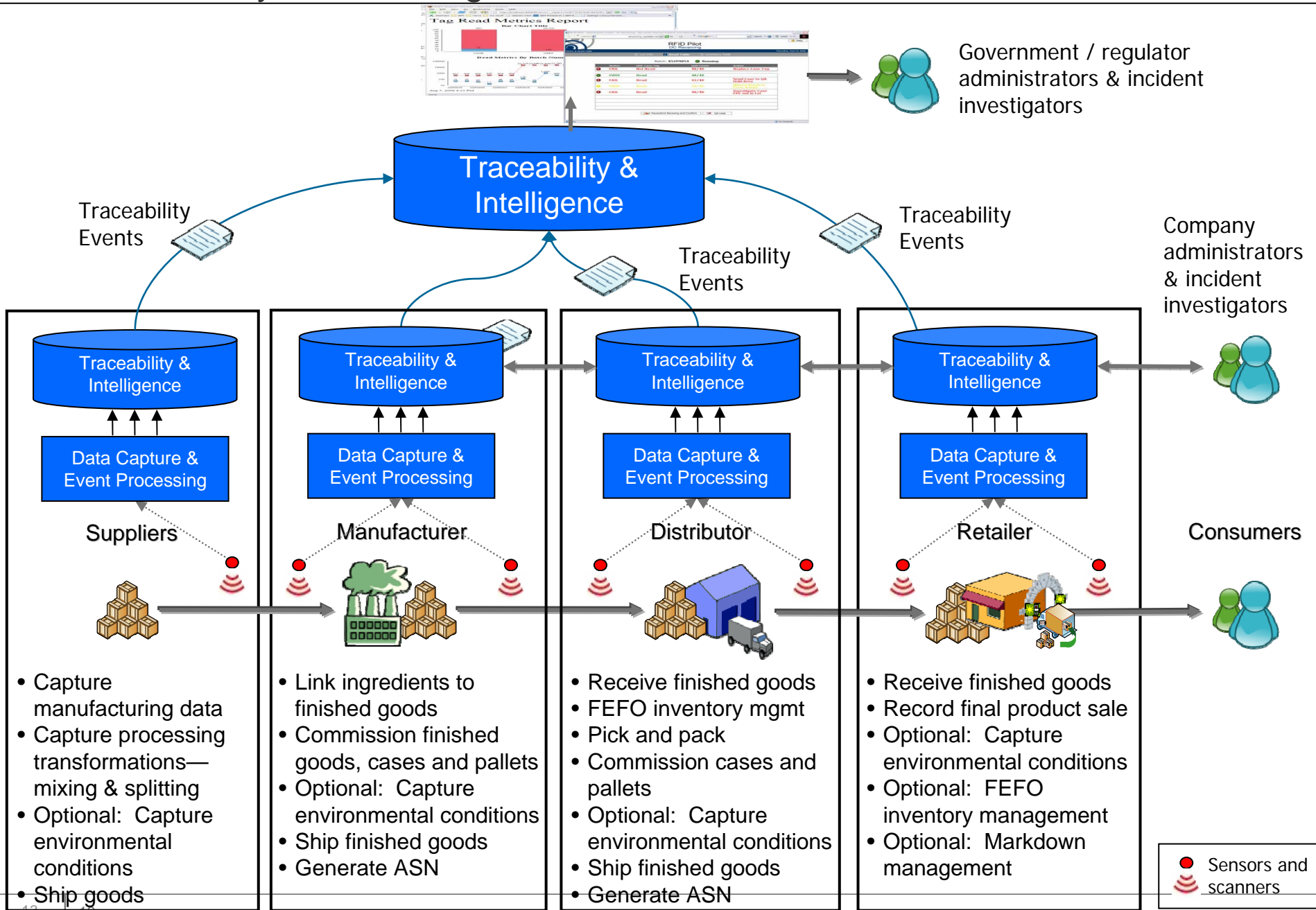
<i>event_id</i>	<i>type</i>	<i>timestamp</i>	<i>action</i>	<i>readpoint</i>	<i>bizlocation</i>	<i>bizstep</i>	<i>disposition</i>	...

visible (text inside a blue-bordered area in the table)

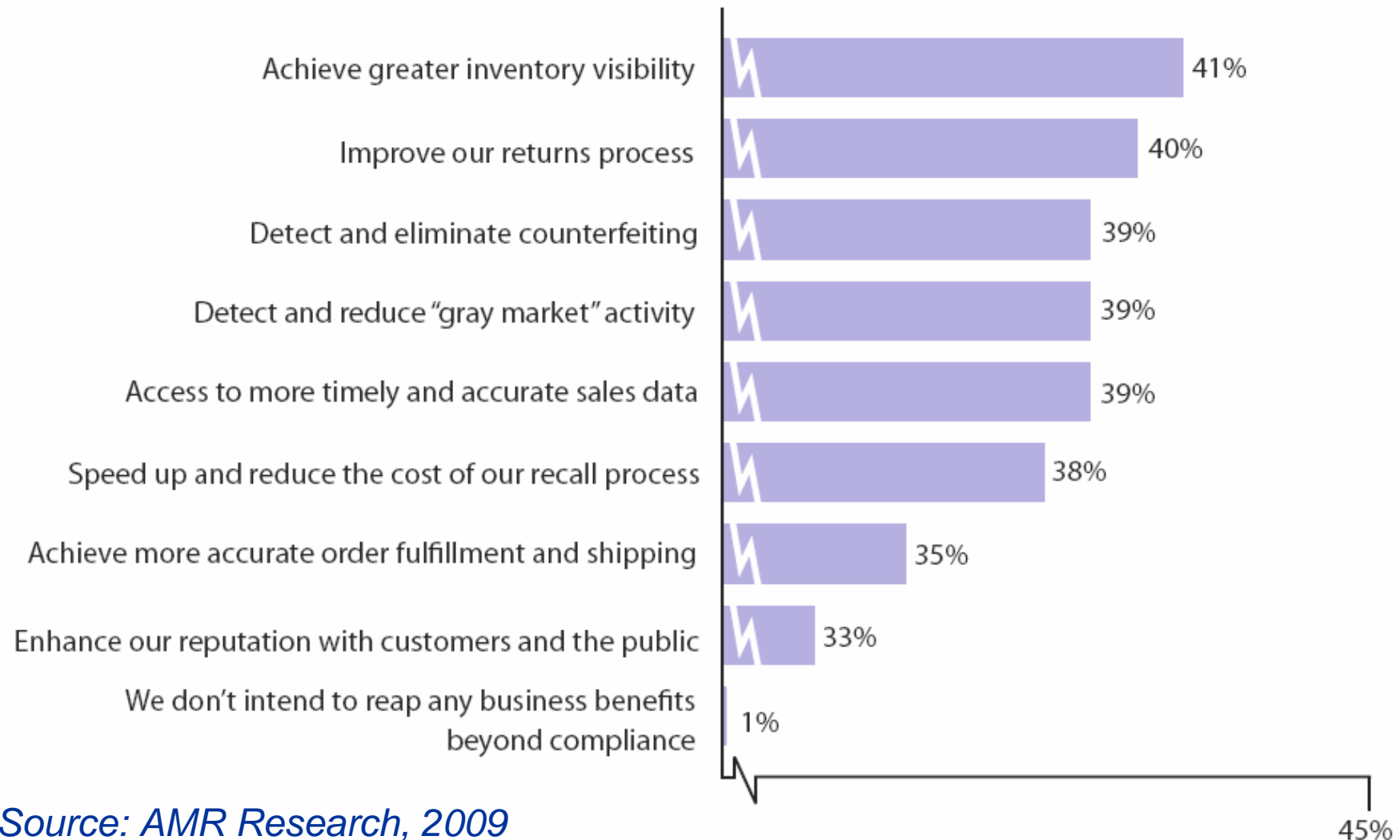
suppressed (text inside a grey-bordered area in the table)



IBM Traceability Solution High Level Overview



Expected Business Benefits from Track and Trace



Source: AMR Research, 2009

Risk Management: Product Authentication & Diversion Detection



Challenges

- High risk of product counterfeit and diversion
- High theft
- Protecting brand identity
- Increased inventory stock

Benefits

- Minimize lost revenue due to counterfeits
- Minimize lost revenue due to diversions
- Increase patient and consumer safety
- Brand protection and risk mitigation

- WHO estimates counterfeit drug sales between **\$35 and 40 billion** per year
- Between **8 and 10%** of the **worldwide drug supply** is estimated to be counterfeit
- By 2010, more than **\$75 billion of sales** will be lost per year



Companies can identify counterfeit or stolen product entering their supply chain

Risk Management: Targeted Recall



Challenges

- Inability to execute a targeted recall
- Time, cost and effort to recall product
- Lost revenue
- Risk to brand identity

Benefits

- Execute a targeted recall quickly and efficiently
- Enable a targeted recall over a full recall
- Track progress of recall



Companies can quickly identify where product has been shipped and efficiently execute a targeted recall

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Operational / Performance Inefficiencies: Supply Chain Visibility



Challenges

- Lack of supply chain collaboration
- Lack of interoperable systems
- Insufficient traceability
- IDC notes the pharmaceutical industry loses **4.5% of revenue**⁶

Benefits

- Increased shipment accuracies
- Reduce handling cost for discrepancies
- Reduce working capital requirements
- Ensure inventory levels are maintained to meet market demands
- Reduce spoilage
- Better forecasting
- Increased operational efficiency

IDC notes the pharmaceutical industry loses **4.5% of revenue*** due to supply chain inefficiencies



Companies can optimize their business processes driving operational efficiency and reducing costs

* "IDC Home: The Premier Global Market Intelligence Firm. 11 February 2009.

Operational / Performance Inefficiencies: Cold Chain Management



Manufacturer



Wholesaler



Retailer



Challenges

- High spoilage
- Lack of compliance validation

Benefits

- Improved product efficacy and safety
- Reduced spoilage
- Proof of SOP – regulatory
- Track temperature and shelf-life data

- IMS Health reports worldwide sales of biologic medications, which require temperature-controlled storage and shipping conditions, **increased by 12.5% in 2007 → \$75 billion**
- Nearly **double** the **6.4% increase in sales of traditional pharmaceuticals**



Companies can increase product safety and prevent spoilage due to inefficient processes

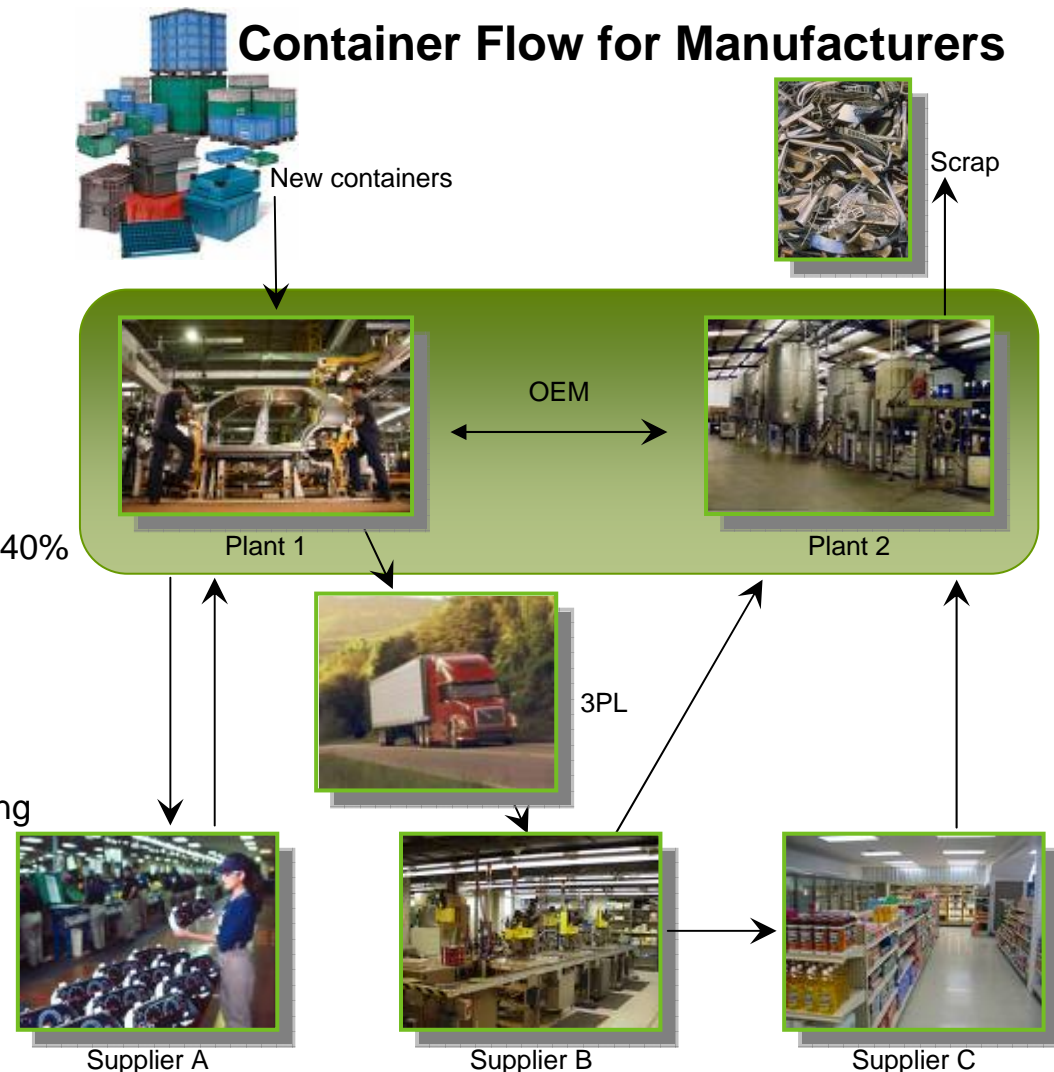
Operational / Performance Inefficiencies: Returnable Container Management

Challenges

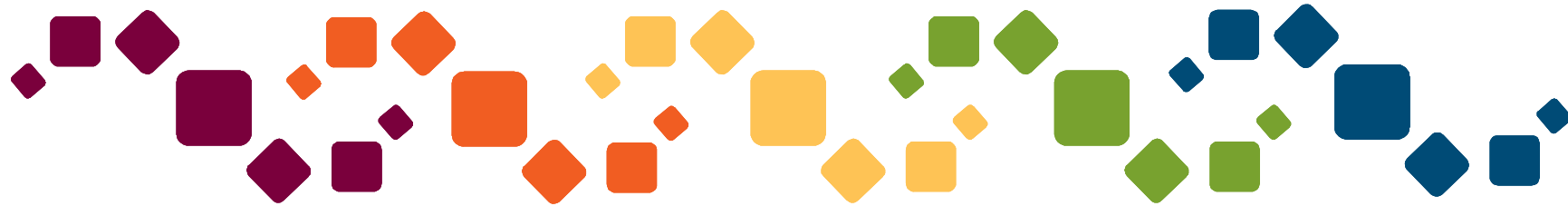
- High investment
- Cost to replacement
- Lack of monitoring
- High safety stock requirements

Benefits

- Reduce Costs
 - Reduce returnable asset inventory by up to 40%
 - Eliminate between 10-15% of safety stock
 - Sharply reduce substitution costs
- Increase Operational Efficiency
 - Eliminate potential shutdowns
 - Increase asset utilization
 - Optimize operation processes through trading partner collaboration
- Reduce Risk
 - Reduce asset counterfeiting
 - Reduce product counterfeiting
 - Protect investment



IBM Global Chief Supply Chain Officer Study



The Smarter Supply Chain of the Future

The increasing complexity of the supply chain raises the economic stakes in the event of contamination or other safety issue

Soybeans



- 2006: *Greenpeace alleges that Cargill, ADM and others, encourage farmers to clear Amazon rainforest for soybeans*
- Tesco, McDonald's, Sainsbury, Asda, Morrison and Unilever announce they will not deal with soy traders unless they can prove the legality of soy sources

Beef



- 2003: *Japan bans imports of US beef for 2 years following discovery of mad cow disease*
- 2006: new 6 month ban after prohibited backbone parts discovered
- Prior to the bans, Japan was the biggest importer of U.S. beef, buying \$1.1 billion-worth in 2003

Coffee



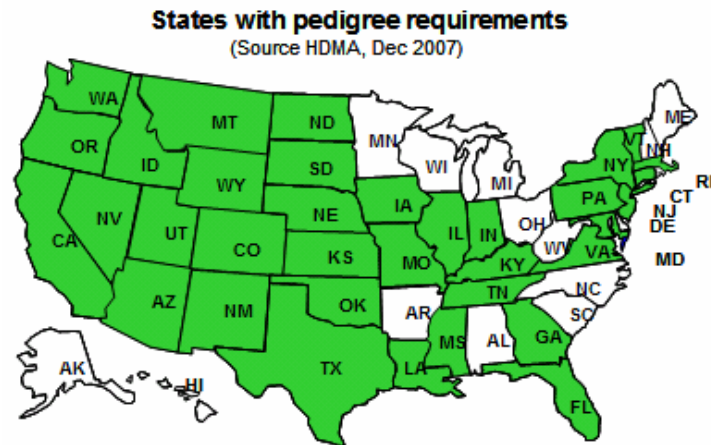
- 2007: *WWF alleges tens of thousands of hectares of rainforest in Indonesian National Parks cleared to grow coffee*
- Major coffee buyers, including Kraft, very concerned about potential negative impact
- Rainforest Alliance certifies a portion of Kraft's coffee

Grouper



- 2007: *NOAA agents investigate 24 Florida restaurants and discover fish marketed as grouper usually is not*
- Asian catfish imported from Vietnam often substituted, sometimes with signs of salmonella and illegal fungicides
- U.S. imports 9 million pounds of grouper each year

Governments & Industry are concerned for patient safety



Unique pack identification (mass serialisation)

3 countries (Belgium, Italy, Greece) are already requesting for each pack a serial number (in addition to the national product code).

Each pack is identified uniquely.

(the ABP Code, the Bollino and the EOF code all include a serial number)

3 countries (Spain, Turkey and Serbia) are currently working on new legislation mandating the use of a serial number



Who's next ?

ePedigree Result » Get Pedigree

Complete Pedigree Information for CURE-ALL 50mg (NDC: 00231-9828) with EPC: 00.0000V2

Print | Export to PDF

Complete Get Pedigree was a success

Basic Drug Information

Source

Manufacturer Name: DRUGS, INC.
Federal ID Number: 002122-3924568
Address: 219 E 42nd St, New York, NY, USA

Drug Characteristics

Generic Name: CURE-ALL
Quantity: 1
Dosage: 50mg
Container Size: 50
Number of Containers: 48
Lot Number: A0001
Expiration Date: 31 JUL 2009

Ownership Path

1 Name: DRUGS, INC.

Federal ID Number: 002122-3924568
Address: 219 E 42nd St, New York, NY, USA
Transaction Date: 16 MAR 2006 10:05AM
Invoice #: 349802455396

Shipping Information

Name: Drugs Logistics Center
Address: 1855 N Shelby Oaks Dr, Memphis, TN 38134

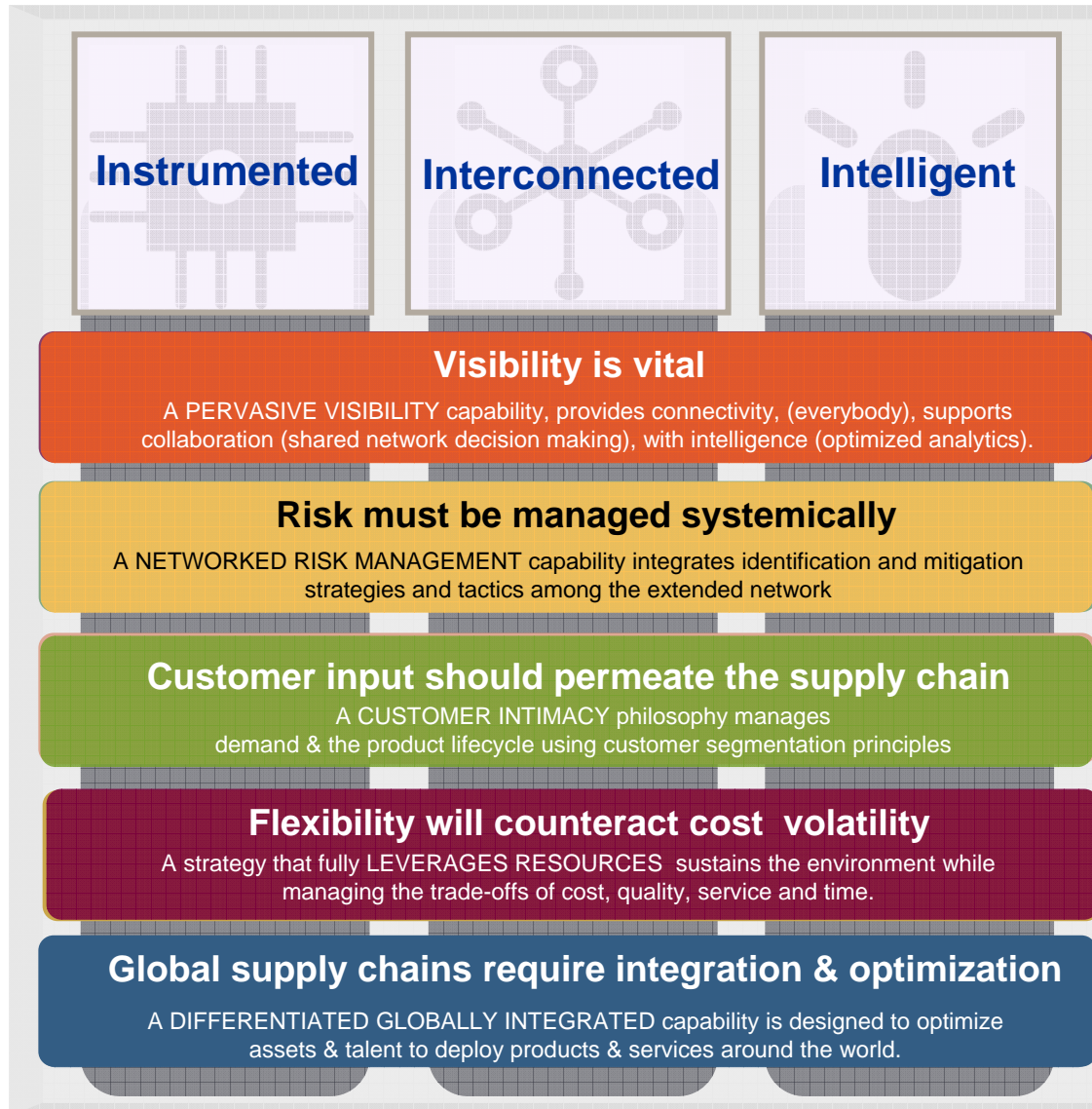
Certification

Name: Joe Herman
Address: Drugs, Inc, 219 E 42nd St, New York, NY

2 Name: DRUGS LOGISTICS CENTER

Federal ID Number: 002122-8328990
Address: 1855 N Shelby Oaks Dr, Memphis, TN 38134

The “Smartmap” to the Supply Chain of the Future



Top Capabilities for a Smarter Supply Chain

- Integrated real-time transactions (ERP) with business intelligence
- *Multi-partner collaboration platform*
- Dynamic supply & demand balancing
- *Predictive sense-and-respond event detection & resolution*
- Probability-based risk management
- *Supply chain risk analysis & mitigation models*
- Risk-adjusted inventory optimization
- *Environmental strategies & policies with sustainability models for usage impact analysis: Carbon, Energy, Water, Waste*
- Customer-segmented product lifecycle management
- *Real-time consumption & replenishment programs*
- Optimized pipeline inventory
- *Variable cost structures that fluctuate with market demand*
- Outsourcing non-differentiating functions
- *Global “centers of excellence” to optimize capability and delivery*
- Asset management strategy & global execution