

Managing Global Supply & Distribution Chains to Protect Consumers

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President, Consumer Goods N.A.
Intertek

An Extensive Global Network



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Our Industries



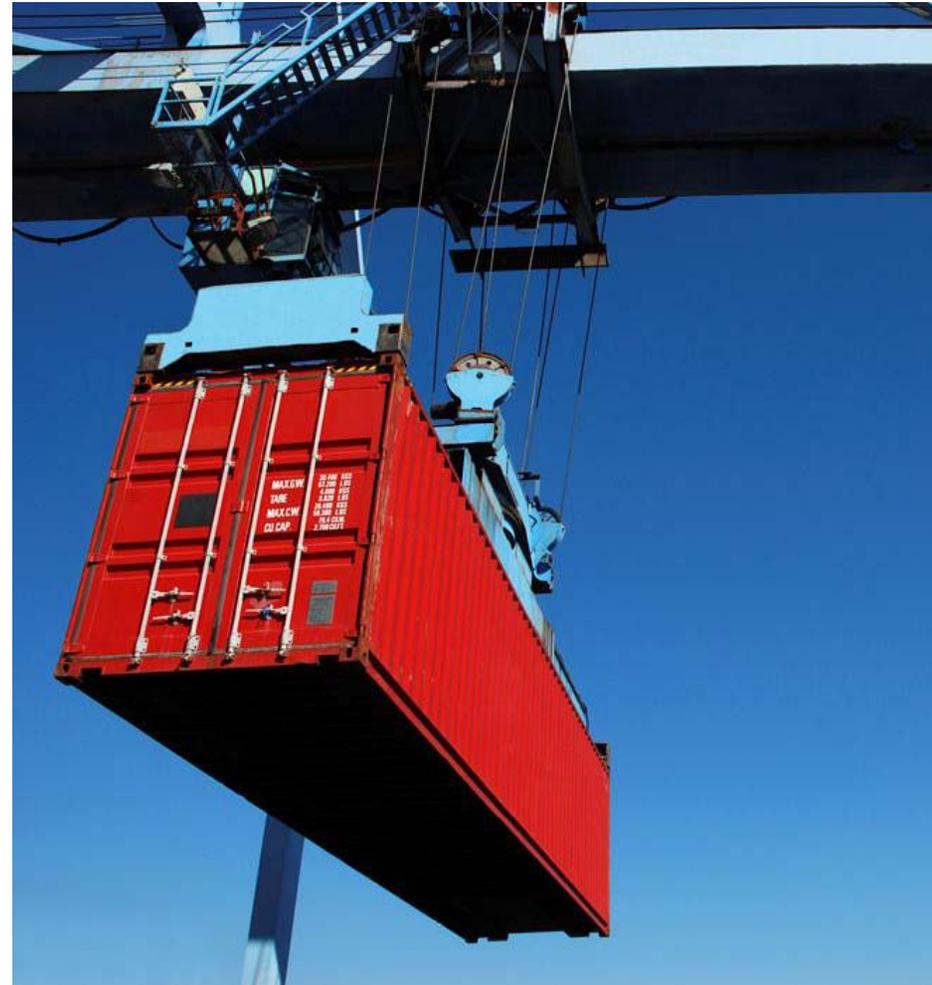
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| Our organisation | Industries we operate in | What we do |
|--|---|--|
| <p>Consumer Goods</p> <p>Commercial & Electrical</p> <p>Commodities</p> <p>Chemicals & Pharmaceuticals</p> <p>Industry & Assurance</p> | <p>Aerospace & Automotive</p> <p>Building Products</p> <p>Chemical</p> <p>Consumer Goods & Retailers</p> <p>Electrical & Electronic</p> <p>Energy</p> <p>Food & Agriculture</p> <p>Government & Institutions</p> <p>IT & Telecom</p> <p>Industrial</p> <p>Medical & Pharmaceutical</p> <p>Minerals</p> <p>Petroleum</p> <p>Toys, Games & Hardlines</p> <p>Textile, Apparel & Footwear</p> | <p> Testing</p> <p> Inspection</p> <p> Certification</p> <p> Auditing</p> <p> Outsourcing</p> <p> Advisory</p> <p> Training</p> <p> Quality Assurance</p> |

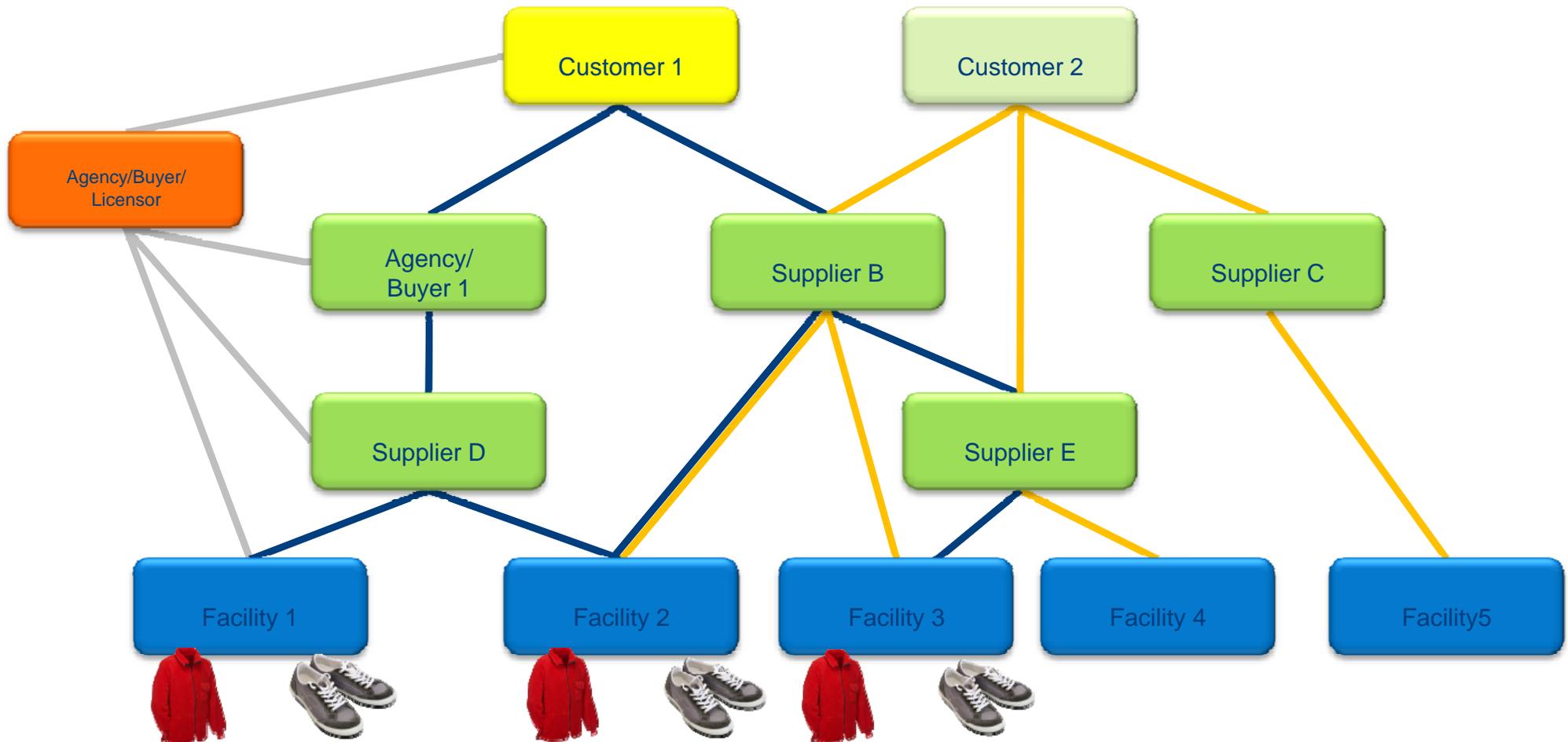
Position Statement

Every year, thousands of importers import millions of consumer goods that meet the highest quality and safety standards.

These importers utilize robust quality and safety processes to mitigate the risk of importing defective product.



Supply Network: More Realistic Example



Scenario 1: Supply moves through a single thread of the Supply Network. Note that in some cases, an Agency/Buyer or Licensors can have visibility into the supply chain without direct control over supply. In other cases an Agency/Buyer can directly participate in the supply (e.g. Agency 1).

Scenario 2: While Facility 2 has an implied connection to Customer 1 via Supplier B, the actual supply only traces up through Supplier D and Agency 1 for syrup.

Scenario 3: While Facility 3 produces both sugar and syrup, it only supplies sugar to Customer 1, and then, only through Supplier E. This highlights supply opportunities in that the same sugar could be procured through Supplier B if needed OR if a new syrup supplier is needed, Facility 3 will show up as a pre-approved option.

Elements of a Robust Safety Process

Safety Process

Factory / Vendor Qualification

Product Specification

Design Assessment

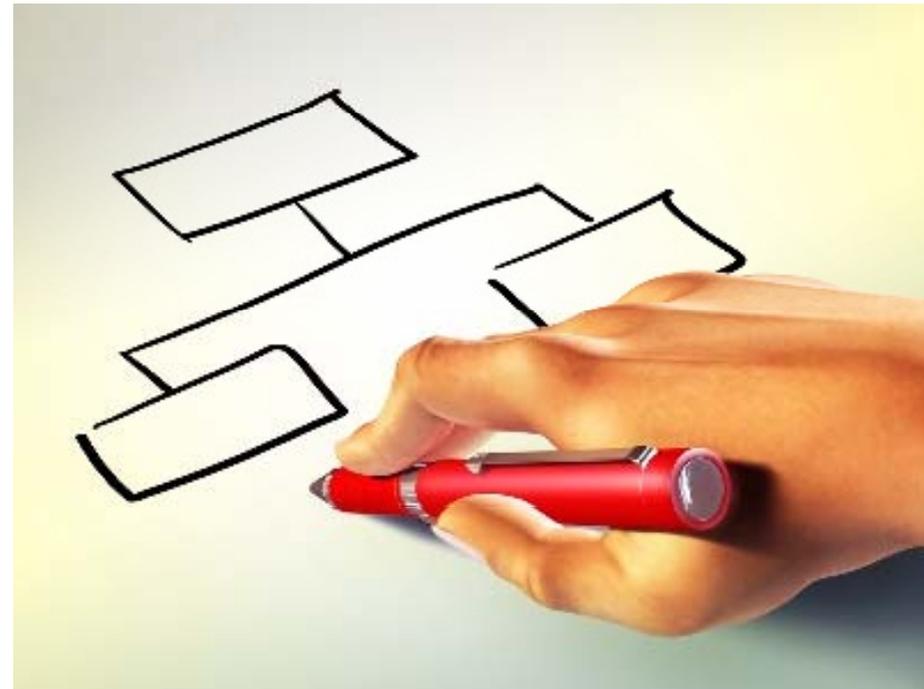
Manufacturing Process & Controls

Statistical Verification Testing

Traceability

Document/Technical File

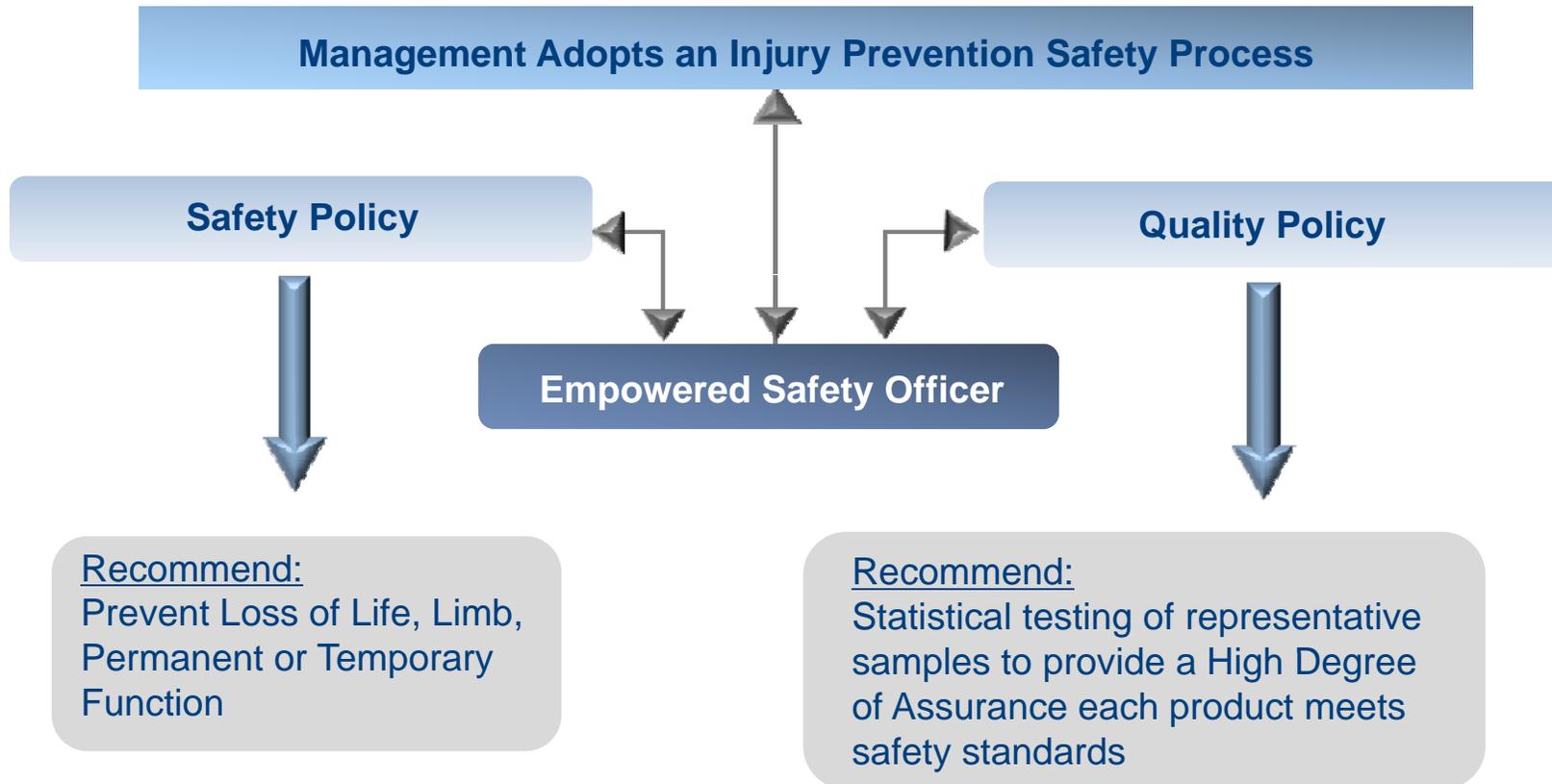
Returns/Complaints Analysis



Safety Process – Comprehensive Strategic Solutions



Safety Process – Comprehensive Strategic Solutions



Safety Process – Comprehensive Strategic Solutions



Safety Process – Comprehensive Strategic Solutions



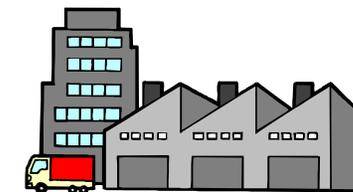
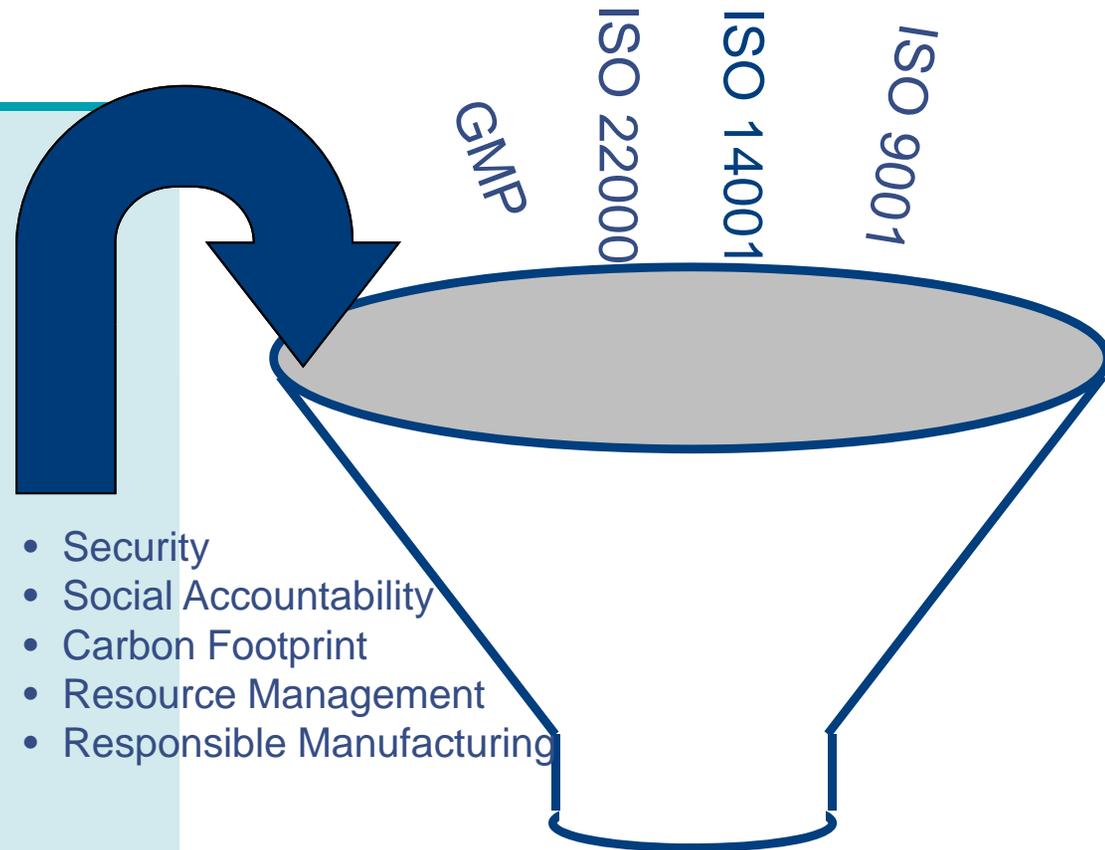
Safety Process – Factory Qualification



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Three Basic Questions:

- Does the factory have a documented management system?
- Is the system implemented?
- Can the factory provide evidence the management system is effective?



Safety Process – Product Specification



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- Product Description
- Model Name & Number
- Bill of Materials
- Raw Material Sources
- Parts Listing
- Applicable Safety Standards

| Product | |
|--------------------------------|---------------------|
| Product Name: | Teddy Bear |
| Product Identification Number: | 969696 |
| UPC Code: | |
| Market: | USA, EU (Toys only) |
| Customer Name: | |
| Product Class or Brand: | |

| Manufacturing | |
|----------------------------------|--|
| Manufacturer Name: | DEMO-AB Food & Beverages (Shanghai) Ltd |
| Manufacturer Location (Address): | P.O Box 705 Hermiston Oregon 97838 United States |
| Manufacturer Country: | United States |
| Production Quantity: | 20000 |
| Production Duration (days): | 14.00 |



Materials and Components

Please refer to BOM from Product Dashboard.

Applicable Requirements:

USA

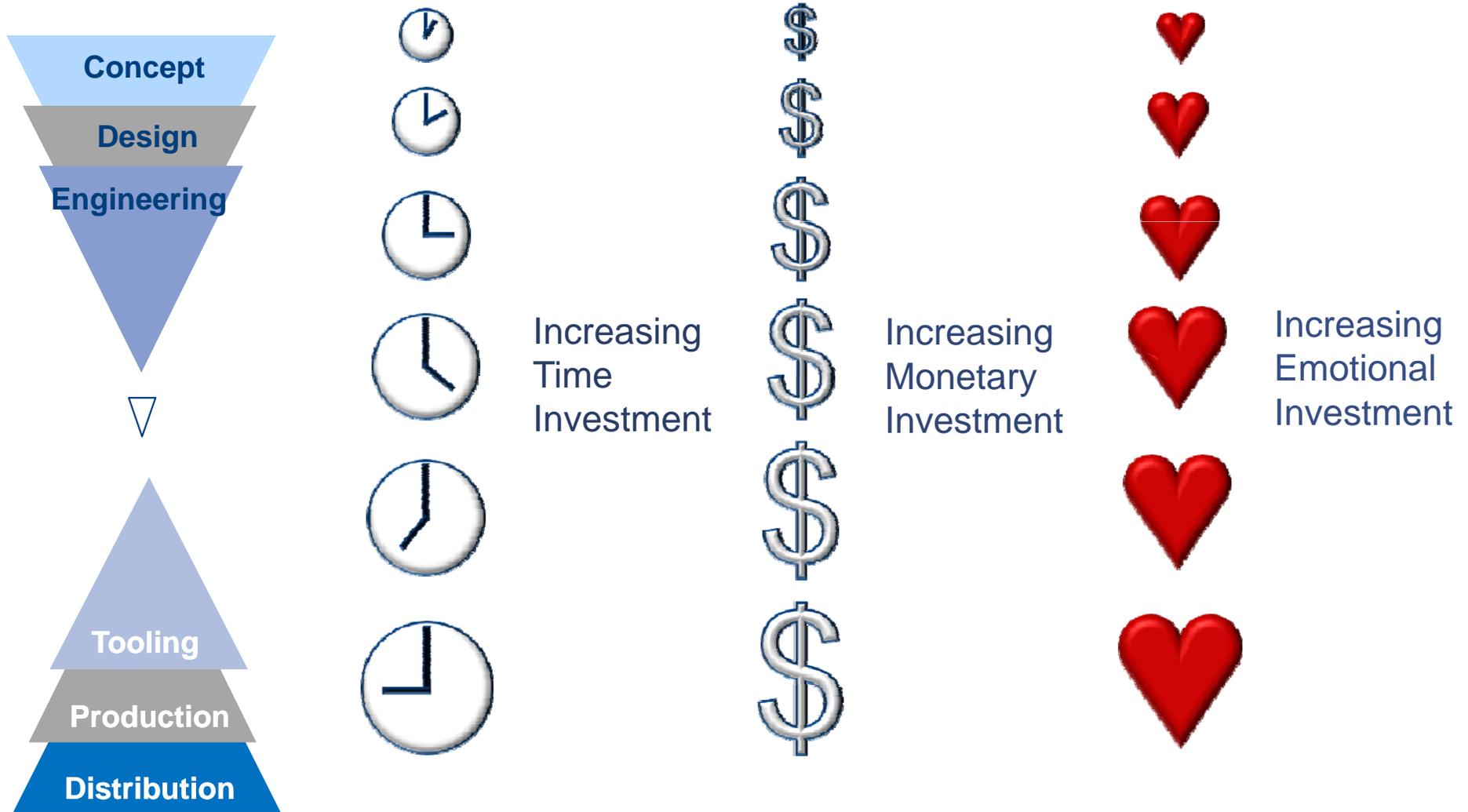
- 16 CFR 1500.44 - Flammability of Toys
- 16 CFR 1500.45 - Sharp Points
- 16 CFR 1500.46 - Small Parts
- 16 CFR 1501 - Small Parts
- 16 CFR 1610 - Flammability of Clothing Textile
- ASTM F963 - Toy Safety Standard
- Phthalate content - CPSIA § 108 / CPSA § 8
- Total lead content (substrate) - CPSIA § 101 / FHSA § 3

EU (Toys only)

- 2009/48/EC (Toys)
- EC Type Examination
- EN 71-1:2005+A9:2009 Safety of Toys – Mechanical and Physical properties
- EN 71-2:2006+A1:2007 Safety of Toys – Flammability
- EN 71-3:1994/AC:2002 Safety of Toys – Migration of certain elements
- EN 71-9:2005+A1:2007 Safety of Toys – Organic chemicals
- REACH Annex XVII (cadmium)

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Safety Process – The Business Process



Safety Process – Design Analysis



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Independent Academic Researchers Agree:

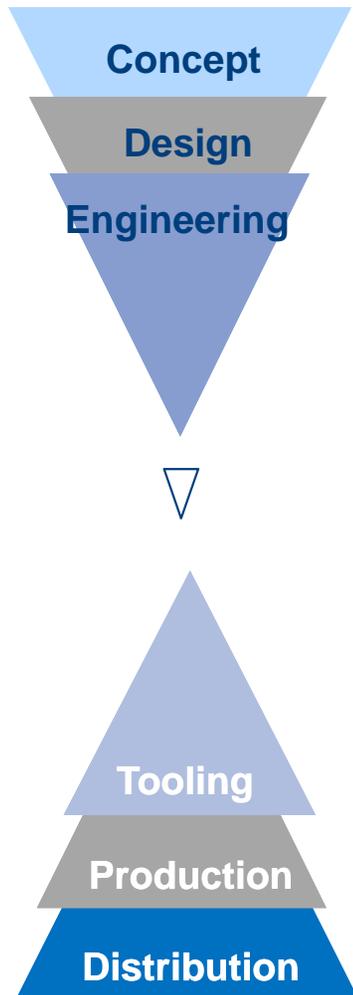
Design is Root Cause of 75% of Recalls, Injuries and Deaths!

“Problems with lead paint (which is a manufacturing flaw) aside, most errors that lead to **recalls—not just of toys but of all kinds of consumer goods**—are **design mistakes**. As such, they are the responsibility of the companies that dream up the products in the first place. **And these mistakes are highly preventable.**”

“The U.S. Consumer Product Safety Commission maintains a public list of the top consumer hazards and reasons for recalls. **Flawed design**—sharp edges, long strings, and small detachable parts, for example—has been **the cause of three-quarters of all U.S. toy recalls since 1988.**”

Dr. Hari Bapuji & Dr. Andre Laplume
“Toy Recalls and China: Emotion vs. Evidence”
Harvard Business Review 2008





← Design Assessment

Benefit:

Changes to product design can be made before significant time, emotional, and monetary investment

Design recommendations can be made while product is still a “concept”

Design changes can be implemented to minimize impact to product functionality

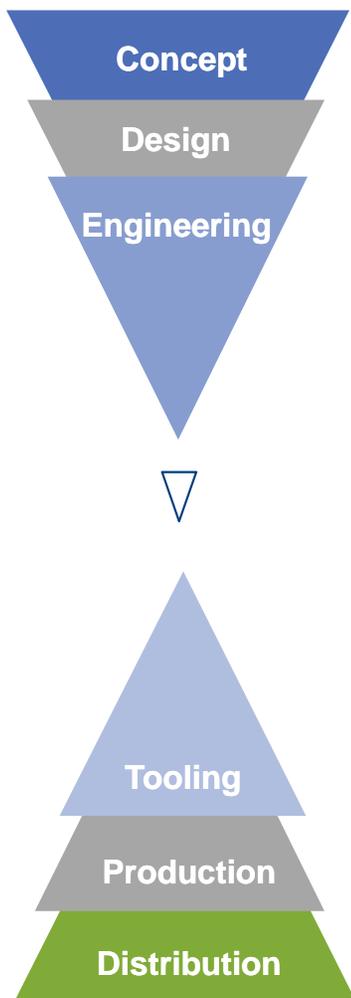
A successfully implemented design assessment process allows a Quality Engineering process focused on assuring that the product is manufactured per the safe design

Safety Process



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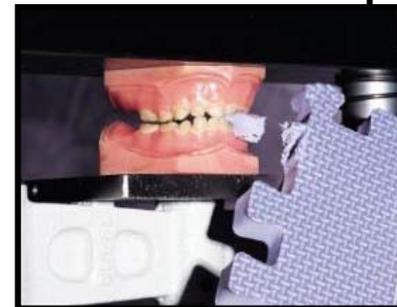
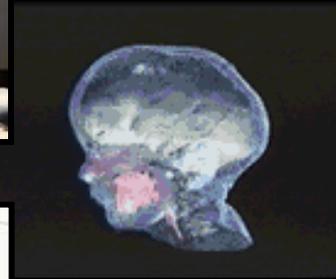
The Business Process



- ← Design Hazard Analysis® (DHA)
- Compliance Requirements
 - Incident and Recall Data Analysis
 - Foreseeable Use
 - Human Factors

Manufacturing Defect Analysis

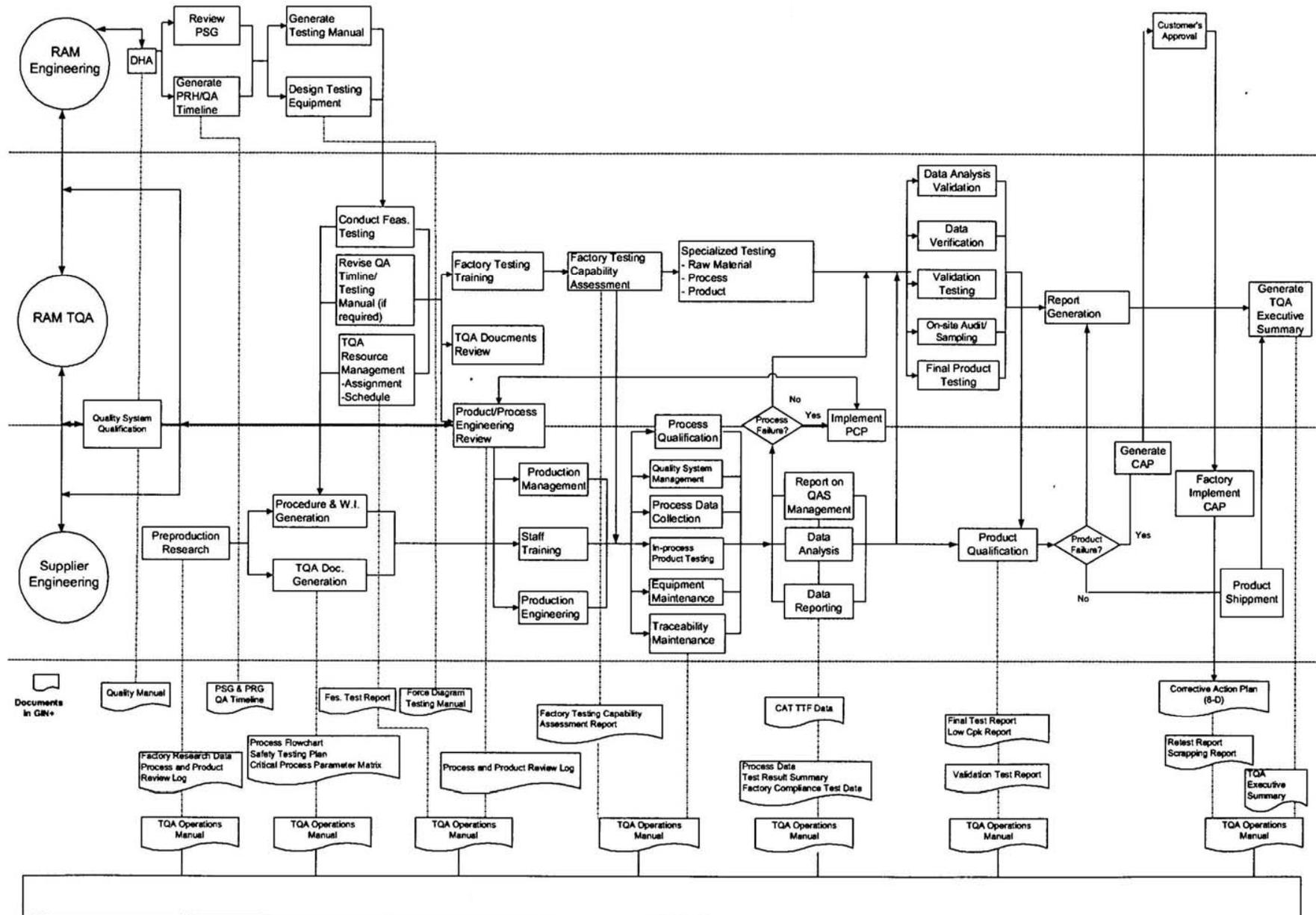
Distribution Feedback Analysis



Safety Process – Manufacturing Operation & Process Control Map

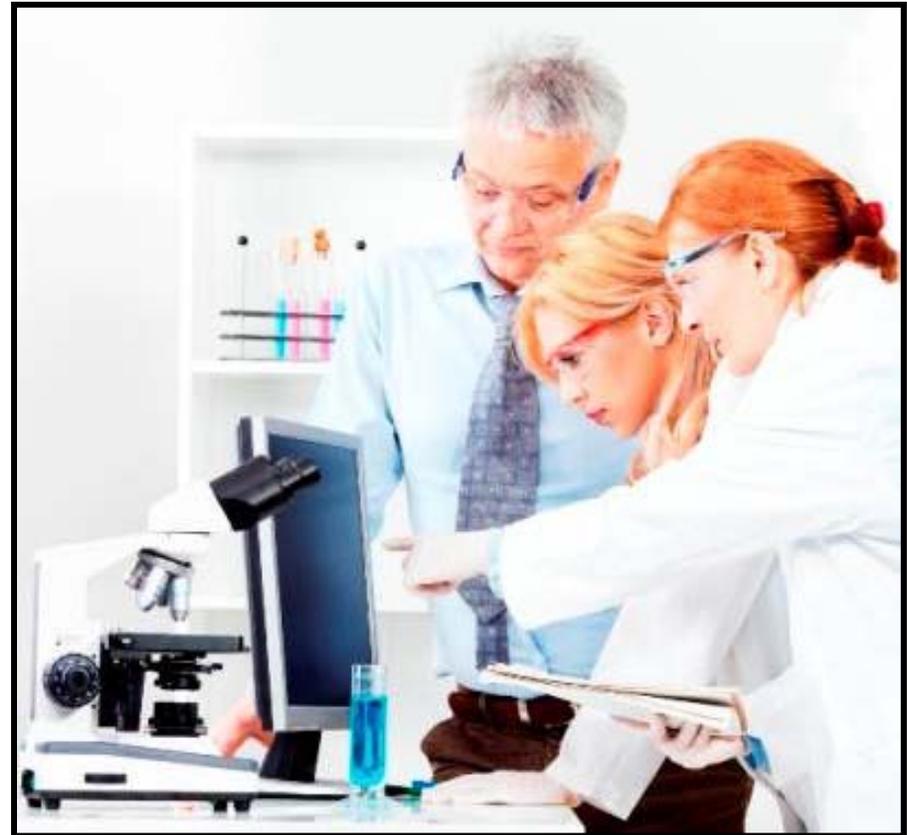


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Safety Process – Statistical Verification Testing

| Compliance Testing | | |
|---|------------------------------|---------|
| Number of Test Required with no Observed Failures | Potential Defective Products | |
| | Percent | PPM |
| 9 | 25% | 250,000 |
| 25 | 10% | 99,800 |
| 300 | 1% | 9,980 |



Safety Process – Statistical Verification Testing



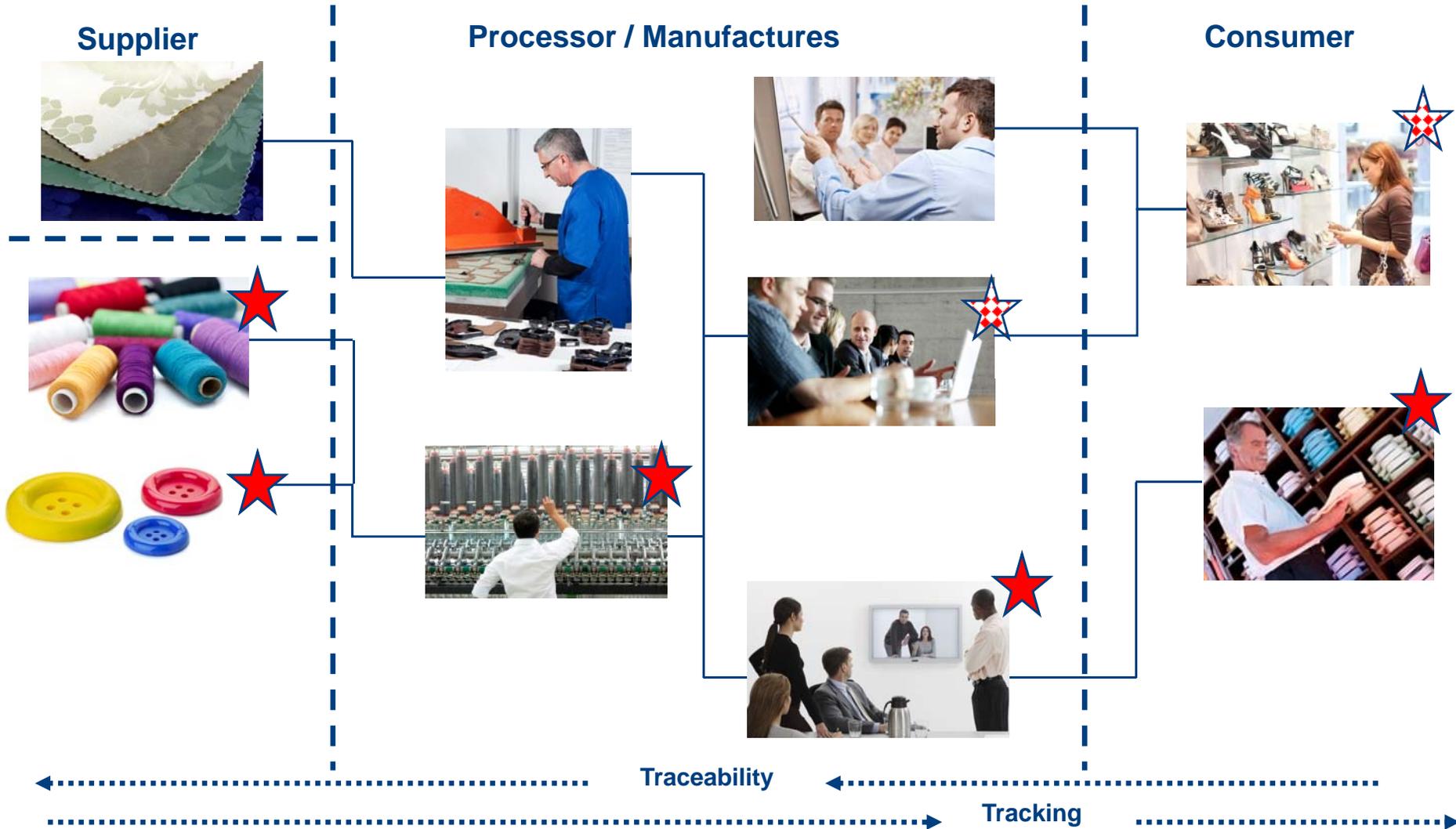
| Compliance Testing | | |
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| | Percent | PPM |
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| 25 | 10% | 99,800 |
| 300 | 1% | 9,980 |

| Test To Failure | | |
|-------------------------------|------------------------------|------------|
| 30 Products Tested To Failure | Potential Defective Products | |
| Z-Value | Percent | PPM |
| 2.0 | 2.275% | 22,750 |
| 3.0 | 0.135% | 1,350 |
| 3.7 | 0.0100% | 100 |
| 4.0 | 0.0032% | 32 |
| 5.0 | 0.0000287% | 0.287 |

Safety Process - Traceability



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Safety Process – Document/Technical File

Production Testing Plan*



Compliance Certificates*



Test Reports & Supporting Documents



Remedial Actions*



Material Change*



Product Specification*



Technical File



Training Record*

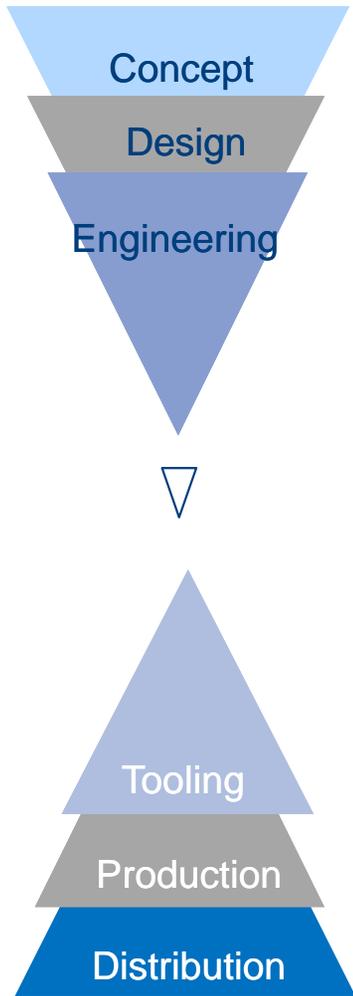


*=Generated by iComply™

Safety Process – Returns/Complaints Analysis



- Customer service staff learn of product safety concerns first
- CPSIA required establishment of new publicly searchable database of all product-related injuries & allegations of potential harm
- About 700 complaints posted in first two months: largest category was kitchen-related products (244 reports); infant/durable nursery products (78); home maintenance (76); clothing/accessories (46); furniture/household (45); etc
- All companies should register to receive Database complaint alerts about their products



Design Hazard Analysis[®]

| | | |
|---|--|---|
| <ul style="list-style-type: none"> • Creative & Development • Modeling & Purchasing | <ul style="list-style-type: none"> • Compliance Requirements • Incident/Recall Data Analysis • Foreseeable Use • Human Factors | <p>New Knowledge Research</p> <p>←</p> |
| | <p>▲ FEEDBACK</p> | |
| <ul style="list-style-type: none"> • Product Design | <ul style="list-style-type: none"> • Mechanical Specifications • Manufacturability | |
| <h3><i>Manufacturing Defect Analysis</i></h3> | | |
| <ul style="list-style-type: none"> • Manufacturing Process Design | <ul style="list-style-type: none"> • Capabilities Study | |
| <ul style="list-style-type: none"> • Production | <ul style="list-style-type: none"> • Statistical Quality Assurance (SQA) • Total Quality Assurance (TQA) | |
| <h3><i>Distribution Feedback Analysis</i></h3> | | |
| <ul style="list-style-type: none"> • Regulatory Feedback • Customer Feedback | <ul style="list-style-type: none"> • Feedback Management System | |
| <ul style="list-style-type: none"> • Failure Analysis | <ul style="list-style-type: none"> • Failure Analysis | |

Thank You!



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For More Information
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