



Mattel's Toy Recalls and Supply Chain Management

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Learning

- In low cost product supply chains such as food, toys and many others, the lower tier suppliers may adulterate, contaminate, use banned materials which are cheaper options , etc either being unaware of the dangers or deliberately to lower costs.
- How do the Lead Players of long dispersed supply chains ensure the above issues do not occur?
 - Inspections, communications, supply chain visibility, CEMEX way, Collaboration and what else?
- **Governance takes the Center Stage**

Mattel Company Profile

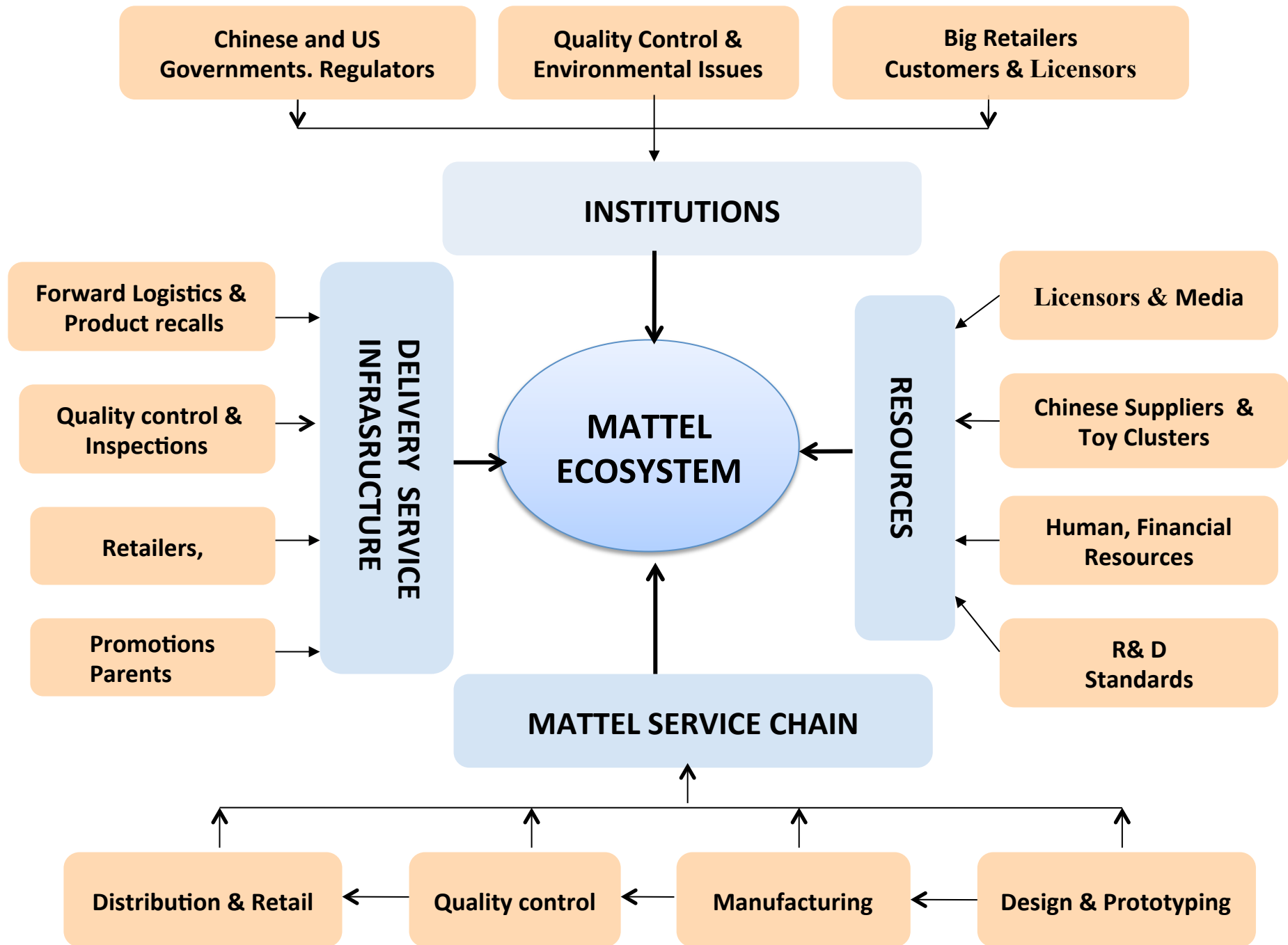
- Started in 1945, Mattel has grown to become the world's largest toy company
- Mattel is responsible for many of today's most popular toy brands : Barbie, Tickle Me Elmo, and Hot Wheels
- Mattel sold products under license based characters from *Sesame street*, *Barney*, *Walt Disney* , *Warner brother movies* and *Harry Potter books*
- 2006 sales exceeded \$5 billion and in 2007 \$6 billion
- Most of Mattel's toy manufacturing is done through outsourcing, mainly in China (about 65%)
- In 2007, at the time of the product recalls, Mattel was the world's largest toy maker

**Ecosystem Aware
Global Supply Chain Management**

Mattel Ecosystem

Mattel's Stakeholders

- The ecosystem consists of parents & Children, Retailers, Manufacturers, Suppliers , Raw Material suppliers, Quality control at all the stake holders, R &D at Mattel and at Suppliers, Governments, Employees in China, Hong Kong and USA, Media and the financial institutions.



**Ecosystem Aware
Global Supply Chain Management**

Supply Chain Chain

The Mattel Supply Chain

- Mattel's first Barbie dolls was produced in Japan in 1959.
- Mattel had its own production facilities and maintained tight control to address the possibility of trademark infringement.
- Mattel inspected materials when they arrived at the factory door. Suppliers were closely monitored for problems such as lead-based paint & vendors were terminated for violations.
- Mattel developed about 5,000 new toys each year. New toys were produced in small batches for approval. When full-scale production began, toys are inspected periodically.
- Mattel sub contracts to 30 - 50 vendors to produce non-core products and also components of core products such as the fabrication and painting of eye balls for certain dolls.

Toy Production in China

- By 2007 about 80% of the world's toy production was made in China. Nearly 80 % of toys coming to the U.S. were made in China.
- Mattel produced about 65 % of its toys in China. Most of these toys were produced in about 5,000 factories located in Guangdong province owned by Hong Kong entrepreneurs.
- Toy distribution had evolved from specialty retailers to mass market companies such as Wal-Mart who pressured the suppliers to drive down costs.
- Mattel had moved manufacturing to China in the 1980s.

Supplier Selection & Monitoring at Mattel

- Factories in Mattel supply chain should procure paint and other materials from certified suppliers and follow corporate safety standards. Mattel did not price pressure suppliers, particularly on paint related products.
- Vendors subcontracted with other suppliers, who might further sub contract to other suppliers for parts or materials.
 - For instance, a company that was making a doll might subcontract certain processes, such as painting the eyes to another company. That company might obtain paint from still another supplier.

Supplier Selection & Monitoring at Mattel

- Mattel prohibited subcontractors using multiple layers of additional suppliers. Mattel required vendors to notify the company of all subcontract deals with option inspect them.
- Mattel had 200 employees based in Hong Kong whose sole responsibility was training and supervising its Chinese contractors.
- Mattel was considered to be the best role model for how to operate prudently in China. *New York Times*

Retailer Effect on Toy Manufacturers

- The retail market for toys had consolidated, and the negotiating power of large retailers such as Wal-Mart, Target, and Toys “R” Us increased (41% of Mattel's 2007 sales).
- Mattel and its competitors had to continually reduce prices in order to meet the demands of the big retailers.
 - This put pressure on Mattel's suppliers to continually cut their costs.
 - There were also pressures (Yuan appreciation, tax and labor cost increases etc.) pushing costs higher with little room for cuts
 - In this cost-sensitive economic environment, there was little incentive, for Chinese factories to increase their investments in quality programs or product testing.
 - Companies relied on testing samples. Once production started, companies did not test their raw materials, even though suppliers were known to substitute less expensive material.

Resources

- Licensors & Media
- Suppliers
- Testing & Inspection
- Design and R&D

Regulations

- Administration of Quality Supervision, Inspection and Quarantine (AQSIQ), is Chinese top quality control agency.
- China enforced a nation-wide product quality licensing system, requiring official inspections of toys made for export. Companies exporting toys are required to apply for “quality licensing.”
- The Guangdong Import-Export Inspection and Quarantine Bureau keeps records on potentially dangerous materials and paints in addition to checking finished products
- Under an agreement signed by the U.S. Consumer Product Safety Commission (CPSC) and AQSIQ, the use of lead paint in toys was prohibited. The agreement also included plans to improve education of Chinese suppliers about U.S. safety standards, share information between the U.S. and China, and increase inspections in China.

Delivery Services

- Forward Logistics & Product recalls
- Promotions, Parents
- Helping their suppliers, educating and supporting them.
- Testing, Quality control & Inspections for safety
- Mattel had 200 employees based in Hong Kong whose sole responsibility was training and supervising its Chinese contractors.

Product Recalls

Reasons for Toy's Recall

- **Design Problems**
 - Detachment of loose small parts
 - Small powerful magnets dislodged from toys & swallowed by children
- **Manufacturing Problems**
 - Use of paint with lead levels exceeding 0.06 %
- **Product Misuse**
 - Children often find creative ways to play causing detachment of parts and misuse of swallowing

Reasons for Toy Recalls- Design Problems

- Use of small, powerful magnets in children's toys.
 - Magnets not encased properly due to deficient designs & could become dislodged and swallowed by children.
 - The ingested magnets could bind together across intestinal folds, eventually perforating the intestine causing serious injury or death. First death for this cause was reported in 2005.
- Parts could break off toys & can cause choking in infants.
 - Designer should ensure that toys intended for very young children did not have loose small parts, and that any small parts attached to toys (such as noses and eyes on stuffed animals, or buttons) could not be detached.

Reasons for Toy Recalls-Manufacturing Problems

- One recurrent problem was the use of lead paint.
- Lead was commonly used in paint until the 1970s.
- Paint with lead levels exceeding 0.06 % was banned in the U.S. for residential and consumer use in 1978.
- Companies manufacturing in China put processes in place to prevent the use of lead paint on their products.
- There were many possible reasons for use of lead paint
 - Paint with lead costs 30-60 % less than paint without lead.
 - Use of unapproved suppliers
 - Falsified certification documents by suppliers

Reasons for Toy Recalls- Product Misuse

- Children often found creative ways to play that were not anticipated by the designers.
 - Cords that could wrap around a child's neck
 - Features in which a child's head could get stuck and potentially cause strangulation

Mattel 2007 Recalls

- On August 2, 2007, Mattel announced a voluntary recall of 83 Fisher-Price products sold from May to August 2007 .
- On August 14, Mattel issued a second voluntary recall involving 436,000 toys worldwide, 253,000 of which were in the U.S
- More recalls on September 4.
- Reason: “Toys were produced using a non-approved paint pigment containing lead”
- On Sept 21st Mattel announced that the vast majority of the recalled toys, 17.4 million, had been due to loose magnets (defective designs), while a much smaller number, 2.2 M were related to manufacturing defects (excessive lead).

Risk Management in Outsourced Manufacturing

Prototype Testing for Design Failures

- Would this toy be safe— does it have small parts, sharp edges, long strings, holes/gaps, uses or chemicals that may be harmful?
- Would the toy hold up in use, abuse, and misuse situations?
- Does this toy break easily? If so, does it generate small parts, sharp edges, long strings, etc.?
- What are the most unexpected ways a child can play with this?
- Does the fact that testers' colleagues made the design and prototype influence the error reporting?
- Are the test reports taken seriously?

Mattel must ensure that its Multi-tier Supply Chain meets its Standards

- As the supply chain adds levels, it becomes increasingly impossible to inspect the lower tiers. These companies work on thin margins, and lack the size and financial resources to invest in quality improvements
- It is essential that Mattel's first tier suppliers recognize the importance of product safety and integrity, and that their performance is consistent with Mattel's expectations. This recognition, would then need to be passed on to each successive tier of the supply chain
- A third party supply chain monitor may also be considered

Product Recall: Operations Ready

- Risk analysis of all possible happenings of design, manufacturing and product use failures and actions in each case.
- Appropriate Governance structure should be in place for product recalls.
- Learn from Red cross, Media advertising, Information through Retailers

Conclusions

- Multi-tier supply chain partner selection and risk management are big issues in Globally dispersed supply chains.
- Design for manufacturing, Zero defect production, Customer safety are the hallmarks of manufacturing of the 70's.
- Managing accountability in a long, global supply chain is a difficult challenge.
- How do long dispersed supply chains ensure the above issues not compromised. Inspections, communications, supply chain visibility, Collaboration, Incentives in low cost SCNs, The CEMEX Way and what else?
- What Governance structure do you suggest low product global supply chains? The CEMEX Way?