

Failures of Indian Toy Industries: Problem identification and proposed solutions through field visit

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Abstract

Toys are an important part of children life and also for their parents. In Indian, toys are also connected with culture and festivals, but Indian toys industries have failed to establish themselves not only globally but also locally. This paper focuses on Indian toy industries, which are ignored previously, and now the Indian government has taken multiple initiatives to boost this sector's scale. So this paper addresses the issue of the Indian toy industry with its solution. The current paper will address the problems of the Indian toys industry and propose solutions to those problems. The research is based on the field visit performed by the authors. During the visit, some interviews of toy manufacturers were performed, which helps to identify the problems related to the toy industry. This problem helps us understand why the toys industry fails in India and guide us to propose solutions for the respected issues. The data collection was done in India's Delhi/ NCR region, which holds the major stakeholders of the Indian toy industries. After the data collection, the experts' team has proposed solutions. The findings of the paper suggest that India has a great potential to become a world leader in the field of toys manufacturing, but lacking due to government policies, fewer skills, high-cost technology, less variety etc.

Keywords

Industrial Solutions, Innovation, Design.

1. Introduction

Toys are essential elements of children life, and plays a role to nurture and mould them. Toys are for entertainment in India and relate children to its ancient culture and traditions of festivals (Toy history, n.d.). Toys come in various shapes and sizes, such as animals, birds, cars, etc. They also represent gods. In India, the production methods of traditional toys are highly rich and diverse. Use various materials such as clay, wood, paper, plastic, leather, etc. Manufacturing and development of toys (India's Toy Story - An Overview, n.d.). Indian parents like it as an important way to educate and develop learning skills while playing with toys. Traditional toys mainly have a dual purpose. They are the first choice of children as a toy and a nice decoration for adults. Popular toy items are dolls, various animals, birds decorated with beads, buttons, feathers etc. Plastic toys and soft toys account for nearly 80% market share in India (Project profile on electronic remote controlled toy, n.d.). In the current scenario, the focus is more on toys due to nuclear family, increasing breakdown of both parents going to work, etc.

The process of making toys is as old as human civilization. In the beginning, toys were made from natural materials such as stones, sticks and clay. A variety of materials, such as rubber, wood, paper, plastic, leather etc., are used for craftsmanship in the modern era. Toys unearthed in the Indus Valley Civilization (3001,500 BC) include a small cart, a bird-shaped whistle, and a toy monkey that could slide along a rope (India's Toy Story - An Overview, n.d.). Still, the toy industry was largely ignored in the past, which led to their massive business failure in India. The Indian government is undertaking many initiatives to promote and develop the toy industry in several ways. These initiatives lead academicians like us to form a panel to address the issues of this sector followed by the proposed solutions to those issues.

The panel held a meeting regarding selecting disciplines within the selected group and allocating work to complete the task in an organized manner within the allotted time. Other panel members reached out to arrange meetings with the industry to gain practical insight into the area. The panel planned a visit to several industries in a particular cluster in response to industry responses. The committee prepared a questionnaire (subjective and objective) and several

interview-based questions to gain insight into the issues facing Indian toy players. Finally, the visits helped identify some of the critical problems faced by actors in the Indian toy market supply chain. The whole journey will be present in this paper to understand the fundamental insights of the Indian toys industries.

2. Background

India has a good and rich tradition of handmade toys made by local artisans and toymakers. Much of this wonderful tradition has been lost due to neglect and lack of institutional support (Project profile on electronic remote controlled toy, n.d.). A vast network of toy crafts and cottage industries stretches across India. There are two main categories: development and production of toys:

- Large communities make gadgets as well as toys.
- Long-standing communities make key products such as toys and work with various materials such as terracotta, wood, reeds, grass, bamboo, paper, etc.

The formal toy sector is much more competitive than the traditional one. Indeed, the formal and traditional sectors must coexist and strengthen to facilitate more production. Various natural materials such as wood, sugar cane, palm leaves, clay, soft stone and clay are safe and eco-friendly and allow you to enjoy nature very early in life. Toxic-free toys are made from vegetable dyes and natural dyes (Indian toy industry market analysis and recommendation, n.d.). In addition, the toys are held together with natural gums or tamarind powder instead of synthetic adhesives. Overall, 13 toys clusters were present traditionally, which manufactures various types of toys such as Rag Dolls, wooden toys, scientific clay toys, terracotta, pottery, bamboo Craft, PRO terracotta etc.

Indian toys have the potential for export to other countries. This traditional type of toy comes in different shapes and sizes, catering to different ages according to their preferences. The following steps can further expand this export potential-

- It is recommended that traditional toys be promoted in Indian stores abroad.
- Utilize shelf space with large overseas toy and craft stores.
- Exclusive booths are available at the international gift, craft and toy fairs and the India pavilion.

Finally, the safety and toxicity aspects must be carefully studied, and the necessary measures are taken to maintain the quality parameters.

3. Three Questions

The panel plans to visit industries to get practical information from manufacturers, raw material suppliers and toy industry retailers. This group aims to understand the challenges as well as the design and innovation prospects of the toy industry in our cluster and use the collaborative approach to understand industry challenges and resolve them collaboratively. We contacted many toy industries and divided the toy industry into three categories, which are

- 3.1 Soft toys / Plush toys (mainly fabric)
- 3.2 Plastic toys (mainly plastic)
- 3.3 Electric toys (mainly electronic-based)

This segment of the paper will discuss the three questions on which the whole research is dependent. These questions will be addressed with the help of DT five-stage implementation.

3.1 Soft toys / Plush toys (mainly fabric)

Soft toys are made of cloth and filled with various flexible materials, and are known by various names in multiple countries such as soft toys, plush toys and cuddly toys; In the UK and Australia, they may be called soft toys or cuddly toys because of their use in cuddle while sleeping and resting. The original soft toys came after the first soft toys produced by the Steiff company in Germany in the late 19th century. Plush toys come in various shapes, but most look like real, born animals, mythical objects, cartoon characters or inanimate objects. They can be manufactured commercially or at home from various materials, often superimposed textiles such as plush fabric for the upholstery's outer material and artificial fibres. Usually, these toys are designed for children, but plush toys are popular for a wide range of ages and use and have been marked by fads in popular culture that sometimes affect people, collection and value of toys. In India, stuffed toys are trendy, from road toys to brand name toys. Almost all families have these toys, and their toys vary in type and quality. Figure 1 shows process of soft toy flow in India. These processes are performed in various sections of soft toy industries, which are shown in Table 2.

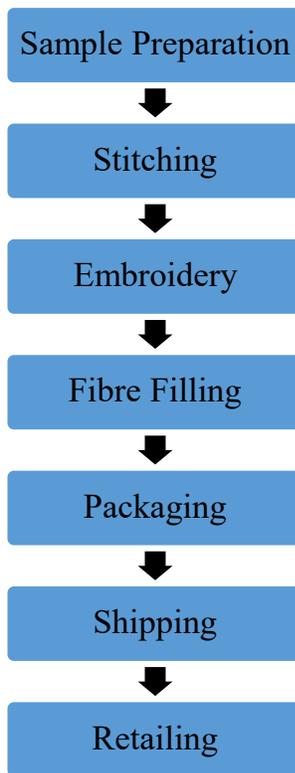


Figure 1. Process of soft toy flow in India

Table 1. Different sections to complete the soft toy cycle in Indian toy industries

S.No.	Unit	Performed activity
1.	Design	Toys are designed with the help of visualization technique and hit and trial method.
2.	Fabric selection	Fabric for soft toys are selected as per the client demand and the toy suitability
3.	Cutting	Different cutting machine used to trim the fabric as per the toy dimension
4.	Accessories	Different additional accessories related to particular toy are stored and organized
5.	Stitching	Various tailors stitch the different parts of the toys
6.	Inspection	Quality of stitching is inspected here.
7.	Filling	Filler material is stuffed inside the soft toy.
8.	Air washing	Air compressor is used to wash the toy.
9.	Test	Multiple tests are performed to check the quality issues such as push and pull test, torsional test, phthalate test, and gauge test etc.
10.	Packaging	Packed toys for final shipment.

Raw materials are purchased from factories in India to make toys. The design of the toys is based on the customer's request and the colors of these toys are decided from the Pantone shades (standard color code). After confirming the design, a sample is prepared for final inspection and product assurance. This step requires 2-3 samples to confirm the exact product requested by the customer. After confirming the sample, mass production of the toy begins. Manufacturing and selling costs have a margin of 10-15% from the manufacturer's point of view.

3.1.1 Problems Identification

We have interviewed the various toys manufacturers, and based on the interviews, we have identified some problems of soft toys industries. We have categorized the problems in following categories:

3.1.1.1 General problems

General problems are related to the government policies and the environment in which toy industries are operating. Some identified problems are as follows:

- There is huge lack of research segment in this industry.
- Alternate energy resources such as renewable energy are not sustainable economically.
- Government policies related to financial support are not flexible, and not beneficial due to the inflation in other segments of this industry.
- Toy manufacturers are lacking in producing new types of toys.
- Marketing of Indian toys lacks and fails to generate branding.
- Quality related government policies are not uniform for foreign and Indian toy makers.

3.1.1.2 Design and Innovation problem

These problems are related to the technical flaws of toy manufacturing and their marketing. It mainly emphasize on the problems related to the design and innovation. Some identified problems are as follows:

- Lack of low cost software technology to produce 3D models of soft toys, which pushes manufacturers to use their visualization skills.
- Designing skills is not good enough in this segment.
- Costs related to the designing and prototyping is very high, which stops manufacturers to do the experimentation with design.
- Less experimentation in new design of toys lead to lack of customer interest.
- This lack of design and innovation lead electronic toys to overpower the soft toys.

3.2 Plastic toys (mainly plastic)

Plastic toys are generally made of plastic / polymer materials via a commercially available injection molding process. Injection molding machines are used for mass production, which reduces the cost of the final product. Plastics are lightweight, flexible, versatile and soaring, but can be economically produced at high speed. This is the main reason why there are many plastic products and the amount of plastic waste is increasing. Generally, the plastics used for plastic toys are grade 1 plastic and grade 2 plastic. Grade 1 plastic is fresh plastic and grade 2 plastic is recycled plastic. Indian companies mainly use grade 1 plastic to provide better plastic toys in terms of quality and durability. However, the Indian market was flooded with Chinese toys, mainly based on grade 2 plastic, which is harmful but offers good aesthetics and is gaining more popularity. In the Indian context, plastic toys are prevalent in melas (fair), shops near religious places, roadside toys and branded toys. Almost every family has other toys, although the type and quality of the toys. Figure 2 shows process of plastic toy flow in India. These processes are performed in various sections of plastic toy industries, which are are shown in Table 2.

Table 2. Different sections to complete the soft toy cycle in Indian toy industries

S.No.	Unit	Performed activity
1.	Warehousing	Raw materials and finished goods are stored.
2.	Designing	Product is designed with the help of various softwares.
3.	Mould manufacturing	Mould is prepared to produce final products.
4.	Injection moulding	Product manufacturing is performed here.
5.	Packaging	Product is packed and ready to ship.

Raw substances bought from Indian enterprise primarily based totally on product specifications. The designer then makes use of three-D modeling software program to layout a CAD version of the product. This layout finally is going into the mould maker and clones the very last product to make the mould. The manufactured mould is mounted on an injection molding system the use of plastic particles as a raw material, heated through a heater, after which flowed into the mould thru a nozzle. The product is subsequently equipped to be packed and shipped.

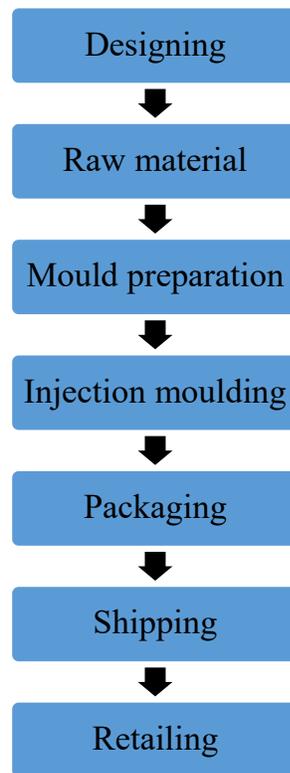


Figure 2. Process of plastic toy flow in India

3.2.1 Problems Identification

Interviews of manufacturers reveals the different problems faced by plastic toy manufacturers and also causing the failure of toy industry in India. Further these problems are categorized into two following category:

3.2.1.1 General problems

- Manufacturers have a fixed mindset to target only local market.
- These local market target mindset lead to lack of awareness of global opportunities.
- Slow to respond to import threats.
- Lack of facilities related to international product design and process standards.
- Lack of skill development.
- Marketing of toys market are not established.
- Financial benefits from government are not actually economically beneficial.
- Lack of risk taking capability lead to run the market with existing product.

3.2.1.2 Design and Innovation problem

- Mould cost is very high which lead manufacturers to use only mass production based mould.
- Low cost technology related to mould design is not available, which again lead to use the existing toy mould.
- There is a huge gap between designer and mould makers.
- Designing skill is very costly and there is a huge lack of design skills.
- Manufacturers use high grade of plastic, which is costly, but due to less aesthetical property, demand is less.

3.3 Electric toys (mainly electronic-based)

Indian toy corporations are absent from this toy segment, and there's no contribution from Indian corporations as cited through every manufacturer. China absolutely dominates India on this area. So, this area will now no longer be mentioned on this paper.

4. Proposed Solutions for toy industries problems

Most of the toy manufacturing industry is made up of small and medium enterprises (SMEs) and small industries (SSI). Until 2001, the production of toys was only allowed within the framework of SSI. Non-SSI units are only allowed to manufacture toys under specific conditions. In response to China's aggression on the Indian toy market, the Indian government has taken many decisive steps to create growth potential in line with the spirit of Atmanirbhar Bharat. With this great initiative, the national design and production base is to come together to ensure the availability of different kinds of toys according to different age groups and their designs based on the characteristics and culture of India. Apart from the government actions, following solutions are proposed for the problems of toy industries:

4.1 Labour cost as a beneficiary tool

Labour cost is low in India, and it could be a great opportunity for Indians to use this a beneficiary tool. China did this multiple decades ago, and get the success in manufacturing sector. Now, some other countries such as Taiwan and Indonesia are doing this, which is shifting the market from China to these country. So, we also have to identify this potential, and use this to solve the problems of toys industry and strengthen it.

4.2 Labour Empowerment

After establishing the labour intensive toy industry, it is necessary to focus on the labour empowerment. Otherwise, the labour can be a beneficiary tool on the permanent basis, and success of establishing the toy industry based on labour cost will be temporary.

4.3 Skill development

The toy industry is lacking due to less skills in the field of designing, and mould making. So, there is a huge scope in the various fields associated with technology. Skill development program can lead to the low cost technology, and further lead to the massive change in toys industry through toy varieties.

4.4 Centralization of toys industry

Centralization of toys industry will lead to the awareness, uniform regularities, and smooth functioning for various small scale toys enterprises. It will also help to generalize the taxation system, and will boost the financial association related to the toys sector.

4.5 Investing in research and development

Research and development is the most important part for the growth of any industry. Developed countries used this as the most effective tool for their growth. This will help to introduce the low cost technology, and will help industries to boost the sector on rapid scale. Similarly, research and development will also enhance the innovation within the industry and will create a healthy competitive environment. This healthy competitive environment will further lead industries to deliver new products which are green and sustainable.

5. Conclusions

The team's visit explored several angles of the problem facing the Indian toy industry, including the design and innovation challenges faced by the supply chain management of the toy industry. While various issues were explained in the previous section of the paper, many more still need to be explored. Initially, the manufacturers were reluctant to talk about the lack of government support in their opinion, but they were open and talked about the possible inputs / results of the government agencies concerned. After the visit, the team reported that design and innovation is an important part of this industry, which can lead to field scale. Visit also explores the loopholes in various government industry support programs, including a corporate finance affiliate that is only given to people who buy things by lending and not with their own capital. Likewise, fairs that promote this industry by the government are also not appreciated (the media do not promote, their stands are not well recognized, people under 18 are prohibited from entering, etc.).

In this way, they opened up to the following possible government outcomes-

- Research and development in this area needs more attention than ever before.
- There is a shortage of skilled workers, so skills development programs for this sector are very important.
- Design is a major issue for these industries, particularly in terms of cost and competence. It is therefore necessary to focus more on qualified designers, which will make the design part more efficient in the field.
- Innovation can be a better solution to material and process problems.

- Policies related to financial aid should be more flexible and easier to use.
- The Bureau of Indian Standards (BIS) uses globally perceived parameters, which are not always consistent with India's point of view, forcing manufacturers to use a more opaque process in managing the supply chain.
- BIS should be applied to all types of toys, including imported toys, exported toys and domestically produced toys.
- The toy industry is very disorganized, so a more centralized operation is needed.
- Raw materials supplied by Indian companies should be more competitive in terms of cost or quality, or both, as this directly affects the cost and quality of the product (toys).
- There are many electric toys by Indian companies pushing China to give more power to the sector.

Finally, government initiatives delight manufacturers, we have found them visiting the industry. The team reported that manufacturers are excited about many government plans that have initiated the quantum leap for the field. However, it is far away and it will take some time to move the pitch forward.

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Biographies

Ashutosh Samadhiya is a research scholar in production and operations management and pursuing PhD from the Department of Management Studies at Indian Institute of Technology Roorkee, India. His research area includes lean, Total Productive Maintenance (TPM), Sustainable Manufacturing, Design Thinking and Innovation management. Ashutosh has presented papers in many recognized International conferences such as POMS and IEOM. Mr Ashutosh has built one handloom machine and filed one Indian Patent for that machine. He is selected for the Newton-Bhabha PhD placement programme 2021 at the University of Derby, UK. He has organized and participated in many workshops, seminars, conferences, summits, and short course during his doctorate program, such as the Indo-German workshop on 'Mobility design', Two-day workshop on 'Design Thinking', All India DIC Meet 2019, Himalayan Summit on 'Design Innovation Challenge in Himalayan Region', Five-day workshop on 'Understanding Product Design: A Hands-on Approach', Two-day workshop on 'Curriculum Development', Pragmatic Optimization for Practical Problem Solving. Mr Samadhiya is awarded in recognition of his role as Teaching Assistant for the NPTEL online certification courses such as "Innovation, Business Models and Entrepreneurship", "Manufacturing Strategy" and "Production and Operations Management".

Dr Rajat Agrawal is a Professor in the Department of Management Studies at Indian Institute of Technology Roorkee (IITR), India. His research area includes Operations Management: Supply Chain Management, Quality Management, Inventory Management, Manufacturing Strategy, IPR, Innovation, Business Models, Entrepreneurship: IP Management, Co-creation, General Management: Indian Models of Management, Ethics in Management, Spirituality. Prof Agrawal holds many academic and administrative positions, such as associate Faculty in Centre of Excellence for Disaster Mitigation and Management & Centre for Transportation Systems, Associate Dean Innovation and Incubation, Chairman of Senate Committee for Scholarships and Prizes, PI & Coordinator of IPR Chair, Co-PI & Co-coordinator of Design Innovation Centre at IITR. Almost 19 students have completed their PhD under Dr Agrawal's supervision, and many are pursuing their PhD currently. Even after all these academic and administrative responsibilities, he has presented many papers in some worldly renowned conferences. Now, he is holding many sponsored research projects.