

## **PRODUCT RECALLS IN AUTOMOBILE INDUSTRY- A COMPARISON OF INTERNATIONAL PRACTICES VERSUS INDIA AND EMERGING STRATEGIES**

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### **ABSTRACT**

*Post globalization all over the world, product recall in various industries has become a primary obligation for a manufacturer in meeting the safety standards of use to the consumers. Despite a company's best efforts to design, manufacture and sell safe and reliable products, the possibility still exists those dangerously defective products may reach the consumers. These products may cause accidents, leading to adverse verdicts in product liability litigations. Unfavorable publicity may result in loss of sales and damage to the company's reputation. In the past, product failures were often attributed to local or functional errors in product design, the manufacturing process, or inadequate labeling with limited impact. However in recent years, a series of high profile product recalls in Indian automobiles including Nano, Toyota, more recently and Tavera has shaken the public confidence in the ability of the manufacturers', regulatory bodies and governments to assure the safety of products to consumers . It would lead to huge litigation fees and loss of sales, reduced manufacturing output and significant repercussions in global scale. This research paper addresses the concept of Product recall and the procedures followed in USA, Europe and Indian automobile industry, the Government of India /regulatory agencies and certain strategies and a code of conduct are presented to the government authorities, Indian automobile manufacturers, and the user public at large.*

*This research paper is organized as follows: The first part introduces the concept of the Product recall and the procedures followed by the industry in general. The second part discusses about the product recall procedures adopted by the automobile manufacturers in United States of America and Europe. The third part attempts an understanding about the product recall procedures done by the Indian manufacturers, and the system of inspection and checks followed by the government authorities/industry association in general .Finally the emerging strategies are presented to the government authorities, Indian automobile manufacturers, the testing & certification agencies and the user public at large.*

**Keywords:** Product recall, Consumer Product & Safety Act (CPSA), National Highway Traffic Safety Act (NHTSA), Automobile Research Association of India (ARAI), International Centre for Automotive Technology (ICAT), Regulatory approval.

**INTRODUCTION**

Many industries continue to experience a growing number of product recalls that has caused product safety and security to emerge as a critical concern within the industry and affecting the consumers at large. Further products of many industries are sourced from both inside and outside for a variety of reasons, from the globalized market, and transportation and distribution in the international and national markets. In the recent years, safety problems have been identified to changes in the global supply chain systems. Although product safety has traditionally been viewed as a technical problem in the domain of regulators, design engineers, scientists, as well as quality management, safety engineering and ergonomics, there has been growing awareness that operations management can provide fresh and effective approaches to managing product safety and security.

Product recall is calling back a product which is not in conformity with the standards committed to customers from the market. While some recalls if not executed immediately could endanger the safety and well being of the consumers, certain recalls become necessary due to social, cultural and environmental issues. All recalls need not end up with the product being destroyed permanently. In most of the cases, barring food and pharmaceuticals, the products recalled are reworked upon and re-offered to customers. While sometimes only a small part of the output is recalled, in other instances the entire batch and in extreme cases the entire output of a product line may have to be recalled.

**The Consequences of a Recall**

Cost – Depending on the quantity to be recalled in terms of reverse logistics rectification ,salvage or destruction as the situation demands can range from few lakhs to several crores (Rs.) This is the direct cost.

Production Schedules - Recalls, particularly major ones such as in Toyota or Nano throw the entire production planning out of gear. This necessitates dedicating a large part of the facilities and capacity for the rectification /re –work and consequent postponement of original schedules and remedial procedures in terms of identifying the defects /failures and redesigning the product and production thereof.

Damages – Affected consumers may claim huge damages in the form of compensation and legal expenses to be incurred by the company to be paid to the consumers either as individuals or groups. Further, heavy penalties can be imposed by law enforcing authorities, which, in extreme case s may even result in the manufacturer being permanently blacklisted.

Brand Image- Product recalls inflict huge damage on the image of the company. Consumer's confidence in the company is badly shaken because of recalls and the company's credibility and reputation takes a severe beating, which sometimes could be irreversible. Keller argues that delays in executing the product recall damage the brand equity due to the negative word –of –mouth publicity generated. Apart from substantially diluting the brand equity, the product recalls often result in steep drop in the company's stock price in the market. The company's ability to charge a premium price for its products is also severely impaired due to product recalls.

**Supply Chain and Security Issues**

In the past, product failures were often attributed to local or functional defects /errors in product design, manufacturing process, or inadequate labeling with limited impact. Today, a

single product safety problem can have significant repercussions on a global magnitude. Internationalization of most industries has sparked heightened awareness of the various risks and vulnerabilities that products are exposed to as they move along the supply chain continuum from design and sourcing to manufacture, packing and labeling, transportation, distribution and reaching the consumer. Supply networks are long, complex and multimodal. Many entities including outsourcing agencies/subcontractors in emerging markets handle the product as it moves across the geographical and national borders, thereby creating many physical and temporal threats that pose a risk to product safety and security. Product safety refers to the reduction in the probability that use of a product will result in injury, illness, and death or negative consequences to people, property or equipment. The use of a product can be broadly addressed to its consumption, physical implantation into the body, or placed into physical use. While some safety issues can be traced back to design flaws, manufacturing or processing defects, software problems, and packaging errors, or a combination of all these. A supply chain perspective highlights the safety problems that can occur at transfers in the system from proper storage, handling and distribution of a product. Managing product safety involves adopting proactive and reactive strategies to minimize likelihood of delivery an unsafe or ineffective product to avoid expensive recalls.

Product security refers to the delivery of an uncompromised by intentional contamination, damage or diversion within the supply chain. Security problems can result from actions of third party that either disrupt the supply chain in order to destroy assets, as in the case of terrorist attack or alter and misrepresent an individual product for economic gain as in the case of counterfeiting. There has been increased attention towards developing strategies to safeguard product supply chain against security breaches in order to avoid losses to human health and well-being, infrastructure and supply chain assets. These approaches often involve strategies to reduce overall losses by identifying likely sources of threat or taking action to prevent or reduce potential damage posed by that threat. Our focus is on security problems that compromise the product, resulting in the delivery of a product which is unsafe or ineffective. These problems would include deliberate substitution of materials/components, contamination or adulteration of a product or misrepresenting a counterfeit product as authentic through counterfeited labeling or packaging or instructions. While any of these actions can lead to unsafe or harmful product, they may also lead to a product that is ineffective. In the case of medical diagnostics, a compromised or counterfeit testing device may fail to diagnose a medical condition, causing an error in the prescribed treatment and possible deterioration in the overall health of a patient.

### **Product Recall Experience in USA and Europe**

Automobile industries have received considerable attention lately due to series of large recalls by Toyota and other car manufacturers. In the United States of America, the responsibility of safety to the consumers generally is addressed by the U.S. Consumer Product Safety Commission (CPSC), which regulates the manufacture and sale of more than 15,000 products consumed by the public at large. Authority for the CPSC is provided within the legal ambit of the Consumer Product Safety Improvement Act, 2008. This act was the spike of the consumer products recalled in 2007, in what is referred to the “Year of Product recall”. Since 2011, the US Government has maintained a data base of public complaints of safety problems connected with any of 15,000 kinds of consumer goods regulated by the CPSC. This database provides a growing and potentially rich database for understanding the trends in consumer product safety. Authority for European Consumer Product Safety is

provided under the framework of General Product Safety Directive. A Rapid Alert System called “RAPEX “allows rapid exchange of information on dangerous consumer products between member countries and the European Commission (EC), with the exception of food products, pharmaceutical and medical devices which are covered under other legal statutes. In the U.S. the National Highway Traffic Safety Administration (NHTSA) is responsible for writing and enforcing safety, theft resistance, and fuel economy standards for motor vehicles. NHTSA maintains the National Centre for Statistics and Analysis data base and the Fatality Analysis Reporting System (FARS), which is a resource for traffic safety research throughout the world. The table below highlights the recent high profile events /accidents in the airplanes /automobiles industry in general.

**Table 1.** High profile Automobiles/ Airplanes

Year	Automobile Type / Components	Problem Description	Company /Organization
2012	Accelerator Pedal	Poorly Fitting Floor Mats Trapped Pedals Forced The Recall Of 5.3 Million Cars In Us& Europe.	Toyota Motors
2010	Lithium –Ion Batteries Of Airplanes	U.S.Federal Aviation Administration Decision To Ground Boeing 787 Which Had A Major Financial Impact For The Airplane Manufacturer	Boeing Airlines
2007	Window Switch Defect	Over 6, 45,000 Jazz &City Cars Were Recalled Globally In The Second Generation Models. However The Third Generation Models Were Improved And Sales Were Not Affected.	Honda
2006	Trucks	Recall Of Nearly 8 Million Pickup Trucks & 14 Other Models Built In 1988-1993 For A Short Circuit In The Ignition Switch That Could Lead To A Fire In The Steering Column.	Ford
2003-2009	Steering System Power Windows	Avensis, Corolla & Prius Models Had Faulty Steering Systems Prompting Rattling /Knocking Problems. The Company Voluntarily Replaced 1.51 Million Units In Native Japan 1.25 Million Units Abroad.	Toyota Motors
2000	Automobile Tires	The Tire Failure Resulted In Some 200 Deaths And 3000 Major Injuries. The Company Recalled 6.5 Million Tires Used In Explorers And Mountaineers. The Recall Spent \$440 Million For The Tire Manufacturer And \$ 3 Million For Automobile Company.	Firestone /Bridgestone Ford

While problems with Consumer Product safety have continued to increase in recent years, little academic research has directly addressed the operational and supply chain issues that

led to unsafe products and recalls .In the 1980s and early 1990s, consumer product safety research focused on manufacturing issues within the factory, including factors such as quality control and to some extent, product design. The failures and accidents in the automobiles products have been by and large caused by the defects and poor quality compliances occurred during the manufacture of the components /devices produced by other industrial units. Recently safety problems with consumer products can be traced to changes in global production systems and increasing complexity of global supply chains –especially supply chains that cross emerging markets such as China. On the other hand, studies of the trend in automobile product recalls in the U.K. between 1992 and 2002 demonstrate enormous differences that are observed to car manufacturers across the geography. Specifically European and American automobile manufacturers have recall rates that are three times that are higher than that of the manufacturers in East Asia, which proves the stringent product safety and legal systems that are prevalent in Europe and USA ,than in East Asia. (Bates et al 2007) Safety and security issues have been attributed to broadly three categories of sources: (1) supply chain related issues, (2) design related issues and, (3) manufacturing related issues.

As consumer product companies have shifted large segments of their manufacturing overseas, it has been more difficult to maintain safety of their products. This is especially true of recent high profile recalls of products made in Asia and other emerging markets. In 2008, the European, U.S.A. and China adopted a trilateral approach to product safety designed to build mutual trust and develop a coordinated response to product safety concerns as well as to keep product safety concerns at the top of consumer protection agenda. International priorities include product traceability, convergence of safety requirements, advice to manufacturers, and joint enforcement actions. The particular challenges to maintaining product design quality and safety in international production networks, while at the same time trying to cut costs and shorten the concept- to- market time have been addressed. (Zhu et al 2009, 2008). Many attribute the massive 2010 Toyota recall to overly rapid expansion of Toyota’s international production networks and focus on the bottom line rather than on product quality and safety (Minhyung, 2010).

Another stream of research has attempted to understand which parts of the value chain are most responsible for safety problems by distinguishing by design-related and manufacturing-related product recalls. Design defects include such causes as the use of small detachable parts that pose a swallowing threat or engineering design defects that may cause product overheating. Manufacturing defects include the use of parts contaminated by toxic materials or manufacturing errors that have led to malfunction or explosion. Such problems would include use of an inferior material instead of a specified material, poorly fitting parts and improper assembly or batteries that overheat. The use of lead paint would also be considered a manufacturing –related safety problem since it was part of the intended design. Research by Chiang et al (2001) examined the product design and manufacturing literature to understand why consumer products of daily use fail to provide the intended function to the user’s satisfaction. As noted above, many of the defects /failures that result in safety problems for consumer products can be attributed to a lack of quality processes during product development, including engineering and design (White and Pomponi 2003). While a number of papers appeared in the late 1980s and early 1990s addressing design issues and safety, many addressed the field of ergonomics .Principles of ergonomics can contribute directly to the resolution of product safety problem. A methodology has been developed for

applying the ergonomic factors to the resolution of safety issues concerning the design, manufacture and use of components in automobile industry. (Ramsey 1985, Sagot et al 2003) Several papers have investigated the root causes of accidents in order to estimate the percentage of accidents that could be prevented or mitigated by changes in the design or the design process (Hale et al 2007, Kinnersley and Rolan 2007, Kirwan 2007). Some authors have tried to present a coherent and systematic approach for considering possible safety problems and how to avoid them (Fadier and Cicotelli 1999, Kjellen 2002). Others explored whether design processes that are successful in one industry can be transferred to other industries (Drogout et al 2007). A variety of methodologies and systems have been made for integrating safety into design processes (Fadier & De la Grazza 2006, Hasan 2003). An expert, Lewis coined the term “operational risk” which he defined as the potential for an operation to generate negative consequences for various external and internal stakeholders. Using case studies to investigate a theoretical model that integrated theories of operations management with risk management, he concluded that effective risk control is more similar to service quality management than process control. Some researchers have addressed user-focused design methodologies, taking into account end-user characteristics and task-cognitive requirements. Frameworks for user-focused design have been developed. Quality function deployment has been proposed for including safety in design requirement. A new concept, Prevention through Design (PtD) has been introduced as a national research initiative towards achieving risk mitigation in a number of industries.

### **Product recall in Indian Automobile Industry**

In the recent years since 2011, product recalls in the automobile industry have been frequent raising several questions and severe doubts about the checks and safety measures adopted by the automobile makers. Government regulations in India pertaining to recall are not very specific and the policies not well defined. For instance, the Indian Motor Vehicles Act, 1988 has no provisions for dealing with product recalls. Automobile recalls were earlier not very prevalent in India, as manufacturers' feared bad publicity from the exercise, leading to a potential negative impact on sales of the model. However, with increased focus on customer safety as well as roll out of voluntary recall guidelines issued by the Society of Indian Automobile Manufacturers (SIAM), leading automobile manufacturers have been making announcements on defective components.. Industry analysts strongly feel that Indian vehicle manufacturers shy away from admitting to faulty parts when a generic problem is noticed. Against a strict regulatory regime followed in USA & Western countries over automobile defects, India is yet to get a mandatory recall policy backed by the Government. Even during production, an annual random check can be undertaken. However, these checks are not observed carefully leading to lapses in procedures /false certifications by Government agencies.

Significant evidences by leading automobile manufacturers in India, though voluntary have become common in recent years as described in the table given below:

Year	Automobile Type	Problem Description	Company
2013	Tavera Mpv Bs 3 & Bs 4	Inconsistencies In Emission Norms Observed And 1.14 Lakh Units Recalled .Its 280 Dealers All Over India Would Undertake The Replacement Free Of Charge For Vehicles Sold Between 2005-13 In Addition To Facing A Fine Of Rs.3.4 Crore . It Has Also Reportedly Sacked More Than 2 Dozen Executives In Its Various Divisions For Possible Oversight And A Big Damage To Its Brand Image.	General Motors India
2012	Corolla Altis & Camry	Faulty Power Window Switches Observed And 8700 Units Recalled As Part Of Bigger Global Recall Of 7.4 Million Vehicles Sold During July 2008 – December 2011.	Toyota Motor Kirloskar
2012	Eco Sport (Diesel Variant )	More Than 950 Vehicles Were Recalled To Relocate The Glow Plug Control Unit Within The Engine Bay And The Cost Was Shared Between The Manufacturer And Component Vendor.	Ford Motors India
2012	Adios Sedan & Liva Hatch Back	Fuel Inlet Pipes Observed To Be Faulty And Increased Fuel Consumption And Clogging Pipeline Observed. The Company Replaced 41,000 Units.	Toyota Motor Kirloskar
2012	Premium Motorcycle Cbr 250 R	Defective Brake System Observed Leading To Ineffectiveness In Front Brake System And 11,500 Units (Made Between March 2011 –September 2012) Recalled.	Honda Motors & Scooter India
2012	Honda City Sedans (Ii Generation)	Defective Power Windows Observed And Over 42 000 Cars (Made Between 2007 - 08) Recalled	Honda Cars (India ) Ltd.
2010-11	Nano Cars	Faulty Air Conditioning, Starter Motors, Catalytic Converter Observed In The Cars (Made During 2010-11) And The Improved Nano Plus For India & Nano Europa For The European Market Have Been Brought.	Tata Motors
2010	Concept A Star	Problems In Fuel Tanks Observed In The Cars Sold In European Markets And Over 1, 00,000 Cars Replaced With Parts Free Of Cost.	Maruti – Suzuki

The recent instances of product recalls in the automobile industry as reported above have caused the intense media gaze and the proliferation of social media. Vishnu Mathur ,Director

General of SIAM ,says “ even until few years ago, car manufacturers recalled their vehicles without using the term ‘recall ‘ .Earlier a product recall situation was disguised as ‘special service ‘ . Today, no company can resort to such camouflage and put consumers at risk. “V .G. Ramakrishnan Managing Director, Frost &Sullivan, South Asia adds “consumers in India are exceptionally become aware of their rights on account of the recent instances. While product failure rates are higher in categories like toys and fast moving consumer goods (FMCG), it is not easy for consumers to swallow the bitter pill of product recall in automobiles as the upfront payment made by the buyers is way higher “.Automotive Research Association of India (ARAI) has recently proposed that instead of declaring a particular day on which testing agency visits the automobile factory for picking up vehicles for the test ,ARAI could declare a broad timeline of a particular week /a month within which the agency can land up without giving prior notice to the automobile companies. It is also seeking to explore a computer generated system of randomly picking up vehicles from the factory to enhance the randomness in testing procedures. Shrikant Marathe, Director ARAI says “the industry must have its own internal quality and test standards. We don’t believe in policing, you will never achieve results by policing. Instead of informed visits, there should be randomness “ . ARAI has submitted a comprehensive report to the Ministry of Heavy Industries along with its recommendations to investigate specific checks on macro manufacturing practices of the automobile companies, post the Tavera recall controversy specifically.

## **CONCLUSION**

As discussed above, the vital issues of the Product recall needs urgent attention at various levels, the following strategies and code of conduct are suggested here for the Government, the automobile sector and the general public.

### **Government /Government Agencies**

There is an urgent need for incorporating recall policies in the Motor Vehicles Act, making it mandatory for auto mobile manufacturers to publicly announce all recalls. As mentioned above, stringent norms that require the auto mobile manufacturers to take total responsibility for the defective vehicles is legislated in developed countries like USA and European countries. Such regulations are observed in China as well. Manufacturers in India are generally known take advantage of the loopholes in motor legislations and do not make special efforts either to educate the consumers or their employees about the consequences and implications of product recalls. Therefore, it is not surprising that in our country all concerned lack the awareness and preparedness to handle product recalls.

The Government of India has to come out with a comprehensive policy and legislation on Product recalls. This should cover the obligations of the manufacturers /their agencies in terms of product design, packaging, labeling ,identifying situations that warrant compulsory recall, penalty for failing to recall , punitive action for repeated product recalls, procedures for destroying recalled goods that cannot be salvaged and settlement of claims made by affected customers/buyers. The regulatory framework followed by developed countries can be suitably adapted to the local context so that too much time is not spent on framing the rules and policies.

Automobile companies have to provide prototypes of the vehicles to the Vehicle Testing & Certification /Type Approval agencies such as Automobile Research Association of India (ARAI) and the International Centre for Automotive Technology (ICAT) which has to be



approved before the sales begin. As a fall out of frequent instances as discussed above, ARAI has sought a random selection of vehicles and increased frequency of testing to make testing procedures in India more stringent. In order to create increasing awareness to the automobile manufacturers /ancillaries and the users in general, the Government endorses these recommendations speedily.

Government of India should also make it mandatory for the automobile manufacturers to go for product recall insurance (first party damages ) instead of third party damages that are covered by most of the companies so that the manufacturers are more open to recalls instead of trying to 'hush up things'. Insurance Regulatory Authority like IRDA might note the suggestion.

Any risk management strategy for assuring product safety throughout the supply chain must address incentives (or disincentives and penalties) for firms implementing policies, processes, practices to promote the safety of products. Governments and Industry associations are seldom considered as collaborators in supply chain safety, but partnerships between business and government agencies would be required to improve safety and security in the supply chain.

### **Automobile Manufacturers**

Ideally, products shipped out of the factory by the automobile manufacturers should be 100 % defect free. Manufacturers must ensure that the defects in terms of PPMs do not exceed specified limits. This can be achieved by having a well-designed process that is reliable and by putting in place appropriate process checks and controls using advanced statistical methods and appropriate sophisticated instruments.

The first response to product complaints from the consumers need not be a recall. A quick but thorough analysis of the situation may present different alternatives such as fixing the problem at the customer's premise by deputing a team of well qualified technicians instead of incurring huge costs on reverse logistics. Reverse logistics addresses a different set of issues and therefore discussed later.

A recall manual, on the same lines as an on-site emergency plan should be prepared and a team of senior managers drawn from all functional areas should be always available to handle product recalls. In the event of a crisis, the team should take a quick assessment of the situation and decide on the appropriate action plan, i.e., total recall, selective recall, or free repairs at customer's site.

Proper product identification system, preferably driven by latest technology such as RFID, helps identify the exact batch number, and date/time of production of goods warranting recall. It may be stressed here that Automobile industry from the earliest times has been assembly oriented manufacturing industry and the components used in building the automobiles are mostly the parts manufactured by other industrial units/ancillaries /component producers than the automobile manufacturer itself.

Once the problem is resolved, there has to be a debriefing session for all the managers to learn from the experience. A product recall ,whether a major or minor may necessitate a thorough review of the company's quality assurance /verification systems ,product design packaging and logistics ,all of which provide a great learning opportunity ,should be documented for future use and reference.

The Public Relations department of the company has a major role to play in controlling the damage by issuing timely press releases about what it is doing, giving media briefings, posting notifications and updating on the company portal and by keeping the communication channels open 24x7 for all stakeholders to avoid any possible misgivings. It is important that the company is fair, honest and transparent while dealing with product recalls, instead of trying to 'hush up things'.

Help should be taken as the situation demands, from outside experts such as lawyers/attorneys and professional media managers /copywriters, albeit on a temporary basis to handle the crisis as all the organizations may not have adequate in-house expertise for handling such crisis situations.

### **Consumers and Media**

If the product recall is a compulsory one, consumers have to cooperate with the manufacturer and the law enforcing agencies by returning the defective products. Consumer forums should be sufficiently empowered to admit claims pertaining to product failures, in the event of automobile manufacturers not owning up the responsibility to facilitate a speedy redressal procedure of grievances and disposal of claims.

Reverse logistics is related to ownership cycle of the vehicles among the first hand buyers /owners in India which is about five years. There is a registration process that needs to be followed once the vehicle ownership changes from one person to another. This is one of the pain points during product recall. Owners of second- hand vehicles take the registration formalities casually and don't often bother to get a new registry on their names. This makes it difficult for the car manufacturer who is trying to get in touch with the owner during the product recall. Vishnu Mathur, Director General of SIAM, says "as the second –hand market mushrooms in coming years it will become tougher to track the current owner. If the batch of vehicles to be covered in a recall was manufactured 10 years ago, it will be difficult to trace the owner.

To conclude, a strong consumer movement together with stringent legislations in India will drive product recalls by brands that cannot afford costly litigations and the possible loss of goodwill in the market. In such a situation, the faster and low profile a recall, the cheaper it will be for the company in the eye of the storm.

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