

A Study of the Automotive Product Design Practices in India and Europe through Expert Interviews

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Abstract: This paper attempts to understand the design practices of Indian and European Automotive manufacturers through 1:1 expert interviews (8 Indian and 6 European). The paper discusses the differences found in the general approach to and vision for design, the quality of user research and market research activities, the influence of culture in design, etc in the two regions. Also discussed are the different in the Globalization and Localization strategies and the approaches to User Involvement in the design process.

Key words: *Automotive Product Design, Design Practices*

1. Introduction

To establish a context for this study, presented below is a brief description of the automotive history of the respective regions. The mention of 'Europe' / 'European' in the context of this paper would primarily mean manufacturers from German, Swedish, Italian and French Automotive Industries and not the whole of Europe as continent with many countries. This paper focuses primarily on automotive product design and practices in the two regions of Europe and India from a product design perspective.

Since the time of Carl Benz and Gottlieb Daimler in the 1880s, Europe has an established history of automobiles. Therefore, the European Automotive industry and market is very mature with a set of well-established processes. Even though the European market is very mature, it has reached saturation in comparison to India and China [1]. The lack of significant local market volumes, the desire to expand globally and as well as to remain competitive and survive has forced many European Original Equipment Manufacturers (OEM) to look to markets such as India and China.

On the other hand, the Indian Automotive Industry is young compared to the European Automotive Industry. Aided by cooperation with various global manufacturers, the Indian industry has made rapid strides enduring a sharp learning curve in the journey thus far. As a result, the Indian Automotive Industry is now one of the largest in the world and one of the fastest growing globally with an annual production of passenger vehicles alone reaching 2, 987, 296 vehicles in 2010-11 [2]. The rapid development of the Indian market has resulted in stiff competition from both within and outside the country. The rapidly evolving end user with increased purchasing power, new growth areas and a highly competitive market place is making Indian manufacturers too to review their processes and practices to remain competitive.

From a literature perspective, there are many sources describing the overall design process in detail as shown in [3 and 4]. There are innumerable in depth studies such as [5,6,7, etc] on topics such as localisation, user research in the automotive industry, etc specific to OEMs and regions. However, there have been very few studies looking into the processes and practices as a whole in the different regions from a design point of view. The insights gained from such a comparative study could form the basis for detailed research into specific aspects such as Localisation and User Centred Design in the automotive industry, especially from a design perspective.

It is in this backdrop where this study generates interest. Fourteen automotive experts from India and Europe were interviewed to better understand the similarities and differences in the approaches and practices in their respective organizations / regions. The following section of this paper describes the methodology adopted for this study. The description of the methodology is followed by the presentation of key findings such as the differences in the general approach to and vision for design, the various Globalization and Localization strategies, the influence of culture in Design, user involvement in the Design process, etc. The description of the above-mentioned topics are done with the help specific examples and quotes from the experts followed by a brief discussion on the individual points.

2. Methodology

Eight automotive experts from India and Six automotive experts from Europe were interviewed for this study. Each of the 1:1 semi structured in person or telephonic interviews lasted about sixty minutes of time. Topics and the main questions under each of the topics discussed during the interview included

1. Design approach process and tools
 - The overall design approach and process followed
 - The methods and tools used for concept generation
2. Steps for Globalization and Localization
 - Steps taken to cater for different markets and their users
 - The use of local talent and resources for localization
3. Influence of Culture in Design
 - Incorporation of culture in the design – design process
4. User and Market Research
 - The effect, influence and the kind of user and market research activity that goes into the design of an automobile.
5. User Involvement in the Design Process
 - The ‘active’ involvement of the user in the design process

The experts sourced through personal contacts and references from academics included Automotive Designers and Design Managers from the various OEMs and Automotive Design faculty who consult for the automotive industry. Table 1 shows the brief profiles of the 14 experts interviewed for this study.

Microsoft Excel and Mind Jet Manager programs were used to collate and analyze the interview data respectively. The analysis was done by qualitatively comparing the mind maps created for each of the experts and regions.

Table 1. Brief profiles of the Automotive Experts Interviewed

	Automotive Designers	Automotive Design Managers	Automotive Design Faculty
Europe (6 experts)	French, 6 years of experience in Italy	German, OEM. 20 years of experience in Germany	German, 15 years of experience in Germany
	Indian, 9 years of experience in France and India	Indian, 17 years of experience in Sweden	German, 13 years of experience in Germany
India (8 experts)	Indian, 15 years of experience in India	Indian, 15 years of experience in India	Indian, 6 years of experience in India
	Indian, 8 years of experience in India	Indian, 20 years of experience in India	Indian, 8 years of experience in India
		Indian, 22 years of experience in India	Indian, 12 years of experience in India

Note: The view of the experts in this exploratory study is in a personal capacity and does not officially represent their organization’s views. The experts also did not give explicit permission to mention the their name or the name of their employers.

3. Presentation and Discussion of Key Findings

In the following section, the key findings from each of the topics discussed during the expert interviews are presented. The differences and similarities under each of the topics are discussed in tandem along with relevant quotes and examples from the interviews.

3.1 Design Approach, Process and Tools

The design approaches of the European and Indian manufacturers reveal stark differences in approach. The design activity in Europe due its long history is strategic and always in close relation to the company’s brand, values, mission and message. The vision for design in Europe is further ahead into the future as compared to that in India. This apparent difference in the vision is due to the strong difference in the life styles, infrastructure and the respective positions of Europe and India in the evolution cycle. In India, it is about aspirations and the manufacturers meeting customer aspirations of personal mobility and transport whereas in Europe, the customers’ needs and aspirations are being mostly met and therefore manufacturers and designers are forced to look beyond just meeting aspirations. The extremely low penetration of vehicles (vehicles per 100 people) in India and China (12 and 34 respectively, World Bank data, 2009) in comparison to the European countries further emphasizes the point. The > 400 vehicles per 1000 people in Europe suggests that the basic needs and aspirations of transportation and owning an automobile are mostly being met whereas owning a car is still a big aspiration in India.

Although the general approach to design is different, the design process itself is similar across both the regions. The general design process does not change in principle even when designing for a different audience in terms of steps followed in the process. The similarity in the overall process comes from the similar milestones and operational procedures such as sketching, rendering, tape drawing, clay modeling, etc followed by manufacturers in both regions. The reasons for similarity are many but it largely seems to be due to the close cooperation’s of the

Indian and European Industries. Another reason for similarity is the similar Design Education background of the present design leaders of India who were mostly educated on European Design Philosophies and practices.

A very interesting aspect of the Indian Automotive Design Process is the predominant existence of two tracks of design. One track of design focuses on short-term goals, staying abreast with the competition with tweaks in the features offered whereas the other track focuses on long-term strategic goals such as a new vehicle, platform and concept development. The key difference between the two tracks of design is the depth and focus given to the market research and user research activities. Although there does exist the two tracks of design in Europe too but, it does not play as huge a role as it plays in India. The reason being, in India because of the high volumes, heavy competition and a feature sensitive customer involved, manufacturers cannot afford to lose out on the lead time in the market. For example, recently, an American OEM launched in India an integrated Bluetooth environment vehicle. Within months of that launch, almost all OEMs in that segment offered an integrated Bluetooth environment vehicle. The evidence of two tracks was apparent by lack of quality and finish of the competitors offering in comparison to that of the American OEM.

“We keep tracking market trends in order to gain first mover advantage or not to lose out on lead time to competitors” – Indian Automotive Design Manager

There were different tools used to generate concepts among OEMs in both regions with no specific tool representing a region. The use of tools as mentioned earlier is dependent more on the OEM practice than that of the geographical region / culture. For example, the BMW design process [3 and 4] is different with an internal competition amongst designers for the styling of interiors and exteriors. Manufacturers popularly use traditional product design tools such as mood boards and theme boards to aid conceptualization. Few manufacturers also make use of highly developed personas and scenarios of their target customer in addition to mood boards and theme boards for design and conceptualization. The mature and saturated European market also leads to some designers in Europe not following the traditional design methods / tools for breakthroughs in design; at least in the initial phases of design.

“The idea is important more than process! If you don't have a new idea, you end up doing just variations of the same thing.” European Automotive Design Faculty

3.2 Steps for Globalisation and Localization

From the expert interviews, there was no single strategy representing the regions under study. However, the study did reveal different variations to the Globalization, and Localization strategies.

The globalization practice is represented by the ‘world product’ approach and the common platform approach. Both the approaches allow product design and development to be centralized with a possibility of production and supply chains being localized in the different markets. For example, it is common knowledge that VW, Audi and Skoda share the ‘A’ series platform for small and compact cars. Similarly, in India, TATA have known to use their ‘Indica’ platform for multiple offerings in the past. Manufacturers of the ‘Super Cars’ typically have a ‘World Product’ approach where the same car is sold worldwide with little or no modification.

The localization strategies are heavily dependent on the manufacturers’ positioning and volumes/ potential volumes in the prevailing and target markets. Localization was found to be a tradeoff between the costs of the

localization effort vs. the sales after localization effort. Table 2 below summarizes the different volume dependent Localization strategies employed by the OEMs.

Table 2. Market volume dependent localization strategies employed by OEMs

Low Volumes	Only adaptations as required by standards and the law
Reasonable Volumes	Benchmark competitors, carry out extensive market research, trends, etc and modify accordingly to be competitive
High Volumes	Extensive user research to understand users' eco system in addition to benchmarking and market research before modifying/ redesign to suit the market needs

From Table 2, localization triggered by the high volumes often result in the launch / relaunch of models as different variants or different names tailored exclusively to the local market. For example, driven by large potential volumes premium European carmakers are launching the “L” (long) series in the Chinese markets. Volumes dictating localization strategies is also emphasized by the fact that markets with high volumes such as China generally result in design studios being set up in the regions.

“Previously, at best we changed the skin to suit local sensibilities but, now higher volumes is making us think of dedicated strategies and offerings” – European Automotive Designer

“Market research and benchmarking saves us the costs on extensive Localization which the low volumes do not justify” Indian Automotive Design Manager

There was unanimous agreement by all the experts interviewed that hiring of local talent for the localization exercise is extremely beneficial. An intimate and better understanding of the local market, its users and their eco system is the reason behind the preference for local talent for the localization exercise.

3.3 Influence of Culture in Design

Designing a product such as an automobile for the Indian market / culture is a tough balancing act for manufacturers. On the one hand, they must cater to the tastes and culture of the Indian user and on the other; they must consider the aspiration of the Indian user to own a vehicle similar to the original European version. Culture has varying levels of influence depending on the kind of product, for example, a car because of it being aspirational and a symbol of the western lifestyle has less cultural influence as compared to a food processor that is heavily influenced by the local culture and tastes.

Although there was unanimous agreement among in the importance of culture in the design, culture seems to have a greater role to play in product customization as opposed to the design of a fundamental product like the car – car exteriors. Culture also has a greater role to play when catering to the middle and lower segments of society as opposed to higher segments of society where the differences seem to be subtler. For example, premium German luxury brands tend to export their vehicles to India with only regulatory changes made. At the same time, when catering to a high volume segment they make considerable changes to their original offering to suit local needs. It must to be mentioned that this approach by the premium German OEMs is also driven by the low volumes for this segment in the market i.e., the localization strategy for low volumes as shown earlier in Table 2.

The most common approach followed by European manufacturers / designers while design for foreign cultures is to immerse themselves in the target culture. Manufacturers set up design studios in different markets, hire local

talent for the design exercise and on occasions outsource the design to local players. Incorporating of cultural influences in design is seen as being “automatic” and “natural” especially when carried out under the influence of detailed market data, trend data, competitive benchmarking, etc.

While the European manufacturers have immersed themselves in the cultures of the new markets, the Indian manufacturers are still to do so due to the minimal volumes in foreign markets. Nevertheless, within India, the manufacturers cater to the different sub cultures of India by providing a larger, all encompassing set of options to the users rather than having specific designs targeting each of the sub cultures.

“We cannot afford to have dedicated offerings for the North, South, East and West of India ... instead what we do is to offer a wider range hopefully encompassing all tastes across India ” Indian Automotive Design Manager

3.4 User and Market Research

In this study, benchmarking, quantitative customer feedback, market and fashion trend spotting, etc was considered as market research while exhaustive qualitative studies, understanding of the customers’ lifestyle and ecosystem was considered as user research.

Traditionally, design has always been a separate entity from the market and user research departments in an organization. It is also common for manufacturers to outsource the user research phases to user research consultancies. It is a rare instance where a company has used an interdisciplinary team consisting of designers, marketers and branding people to carry out user research. There was a general agreement by the experts in this study that just numbers obtained from market research is insufficient to translate into effective design. It was felt that the involvement of designers in the user research is beneficial as it is based on close observation and the intuitive desire on the part of designers to find solutions.

“Just market numbers mean nothing unless; it gives me a clear description of the problem or a direction of design ” Indian Automotive Designer

“We use cross functional teams consisting of product planners, marketers, designers, etc to understand the users that result in Personas which are tracked through the product life cycle and beyond” Indian Automotive Design Manager

Companies generally choose different approaches for user research and market research depending on the objective of the project they are dealing with. For example, a new production model / variant on an existing platform results in extensive user and market research whereas a new concept design has very little of user and market research feeding the design activity.

The use of and focus on market research data was apparent and consistent across all companies in both the regions. However, differences were found in the amount and depth of user and market research carried out by the companies in the two regions. The increased depth and quality in Europe is due to the long history and experience of the European Automotive Industry. The lesser quality of user research in India can be attributed to the increased competition that forces more importance given to market research / numbers. However, the trend is slowly changing where Indian OEMs are experimenting with the creation and use of detailed personas born out of detailed user research. As one of the experts put it, at present India and China have a good understanding of the ‘what’ (market research) but are still lacking in the understanding of the ‘why’ (user research).

3.5 User Involvement in the Design Process

Customer involvement occurs in two main phases of the design process i.e. in the beginning / fuzzy front end of the process where there is active involvement of the users in the ideation process and the later stages of the process where the design is being refined to suit requirements. The users’ role in the design process has been traditionally restricted to the later stages of the design process i.e. restricted to the role of feedback and validation of the concepts generated through focus groups and customer clinics.

The involvement of the user in the fuzzy front of the design process is relatively new and is under explorations by OEMs from both regions. Interestingly, there was a strong practice among some of the European experts where they do not involve the customer/user in their design process as the “customer generally does not know what he wants or can get or what his tastes are going to be like 10years down the line...” Non-involvement of the user is an approach adopted when new concepts of mobility are being envisioned. For production vehicles, a combination of user involvement and forecasting feeds the design activity.

“Design by involving the user in my conception generation is not possible as it is restrictive” European Automotive Design Faculty

4. Conclusions

The study involved the interviewing of fourteen automotive design experts from India and Europe about design process and practices. The interviews revealed interesting insights into some of the practices of some of the automotive designers and manufacturers in Europe and India. Table 3 below briefly summarizes the findings of the expert interviews.

Table 3. Brief summary of findings from the expert interviews

Design Approach, Methods and Tools	<ul style="list-style-type: none"> • European designers look further ahead into the future in comparison to Indian designers. • Predominant two tracks of design in India • Design Process similar in terms of milestones and operational procedures. • Use of tools for design manufacturer dependent rather than region/country dependent.
L10 and G11on Strategies	<ul style="list-style-type: none"> • No clear G11n and L10n practice representing a region / country • Globalization represented by ‘world product’ and common platform approaches • Localization effort / strategies heavily influenced by volumes
Influence of Culture in Design	<ul style="list-style-type: none"> • Culture acknowledged as an important factor influencing design • Bigger role to play in product customization than design of a fundamental product • Trade off for the designer between catering for local needs and meeting the aspirational needs
User and Market Research	<ul style="list-style-type: none"> • No region / country representative practice for user and market research • In India market research favored in the short term and user research in combination with market research favored in the long term • User and Market research by European OEMs is more detailed and used more effectively
User Involvement in the Design Process	<ul style="list-style-type: none"> • Traditionally restricted to roles of feedback and validation • OEMs exploring the idea of involving users during initial ideation • Some European experts believe in NOT involving the users at all especially while generating new concepts

From the presented exploratory study, it is proposed to further carry out detailed studies into specific topics discussed in the interviews from multiple perspectives. For example, the influence of culture in the design of automobiles from a market, customer, manufacturer and designer perspectives. These in-depth comparative

studies from a design perspective would fill the existing gaps in research about design practices in the various regions.

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