

A Study of Innovations in Infotainment in Indian Market and Consumer Attitude towards These Technologies

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ABSTRACT

Technology is changing at a very high rate. To make the car safer and pleasurable to drive, many innovating features have been introduced by the car manufacturers. These technologies help the driver to get data about the traffic, accidents, and navigation to reach faster and safer. This study attempts to identify the infotainment trends in Indian market. Further, it examines the attitude of consumers on the basis of age of the consumers. Data is collected with the help of a questionnaire and SPSS20 is used to analyse the data. Consumers have a positive attitude towards the infotainment features in their cars. Touch screen control was found to be most important followed by navigation and connectivity.

Keywords: Innovation, infotainment, age, passenger car, India, behaviour, automobile, consumer

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I. INTRODUCTION

In the present era, technology is changing rapidly and it is seen that any new technology introduced chooses the skimming pricing strategy. This is the reason, these innovative features are introduced in high-end cars and then, once the manufacturers find out a way to produce a large quantity, the price comes down and hence, are introduced in small and mid range cars. Indian market has been a latest market for these infotainment which is also called as In-Vehicle Infotainment (IVI). Indian cars for many years had only the music system of one type or other and not many other electronics in it. Today, the scenario has changed and many advanced technologies are introduced in cars to help the driver to move safely and make the passenger have a pleasurable drive. Features like navigation, human-machine interface, advanced music system, internet connectivity have changed the way consumers perceive about the innovative features related to infotainment in cars.

IVI is an automobile sector terminology that talks about vehicle systems that mix information and entertainment delivered to people travelling in it. IVI systems use audio/video (A/V) interfaces, touchscreens, keypads and other types of devices to deliver these kinds of facilities. Infotainment in cars started many years ago. Radios began to be fitted to cars in the 1930s [1]. Demand for IVI and telematics is accelerating and the industry has to have strategic tie-ups with companies who would help them to have the competitive advantage [2].

II. OBJECTIVES

- To identify the infotainment trends in Indian market
- To examine the attitude of consumers on the basis of age of the consumers

III. METHODOLOGY

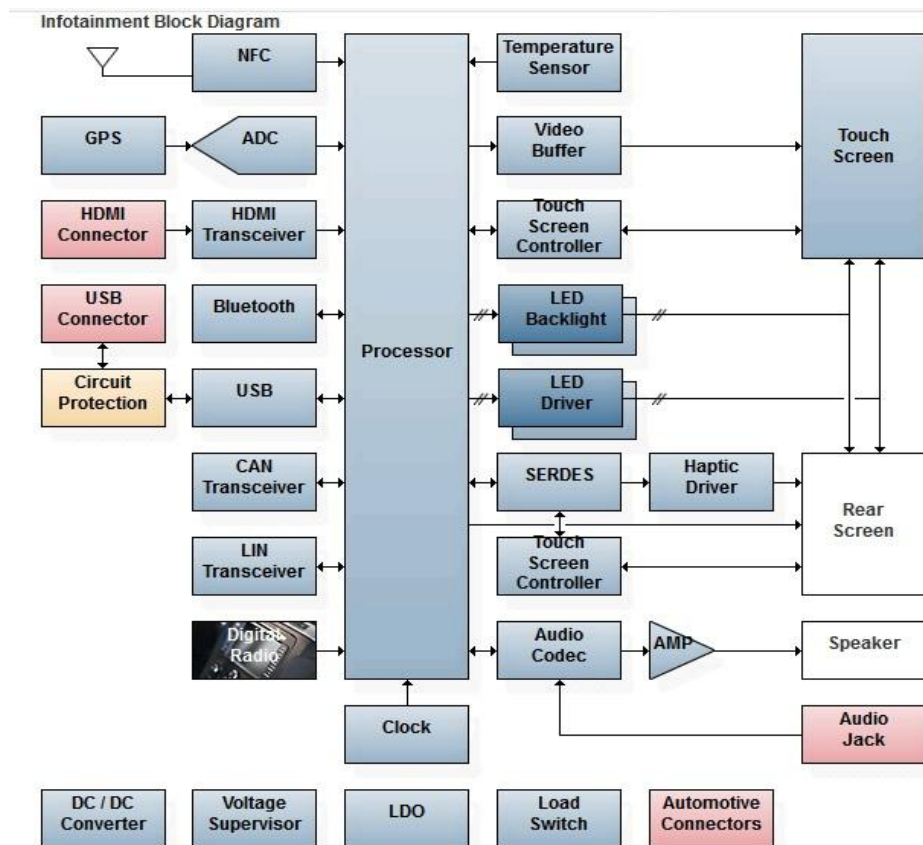
A questionnaire is used to collect the data. A total sample of 452 was collected and entered in the software to analyse. To analyse the data SPSS 20 is used. Snowball sampling and random sampling techniques are used to collect the data. The secondary data is compiled from journals and news articles and magazines. A thorough study of this information is done to understand the subject under study.

IV. LITERATURE REVIEW

Anil Sondur of Tata Elxsi [3] informed that consumer's expectations are changing and are demanding the in car infotainment in all range of cars. Innovative infotainments like internet connectivity and packet radio facilities are expected to be included in mid-range or low cost vehicles. That is the reason why the infotainments have been introduced in low budget cars too. This has led the automotive companies to innovate cost effective infotainment to create a whole new level of experience to the consumers travel via or possesses a small or medium car. He further highlighted that the IVI industry is still in its nascent stage in India. The growing urban population is seen as a factor which could increase the market for IVI. He pointed out that many international player have invested in developing innovative infotainment features for Indian cars. In future, Indian car may have lot of human-machine interface. Reliable voice recognition system, personalization of in-car environment will be driving growth in this segment. He said, Bluetooth connectivity is in its advancement stage in India. Future trends in Indian market which could drive the growth could be the technologies which could minimise the distraction of driver, like voice recognition capability, 3D graphics, and buttons of the steering wheel. He emphasised that, mobile phones will become a part of the IVI. A lot can be controlled using the mobile phone of the driver. Functions like reading emails loudly, identifying the traffic conditions, locating parked cars, and even the fuel prices can be done by the future IVI [3].

Kavitha Srinivasa [4] of Sasken technologies, in her article mentions that, the Indian car drivers are ever more considering for connectivity and enhanced IVI user experience in their cars. She points out that to capture the small and mid-segment which makes up the largest market share in car segment, manufacturers are innovating IVI and launching significantly de-featured versions of their connectivity platforms. She notes that features like safety sensors, detailed engine maintenance signals and smartphone integration have almost become the part of higher end cars. India is one of the largest IVI market in Asia with a projected growth rate of 5.3% CAGR during 2015-2021. Smartphones have brought new changes in the way IVI works. She says that this change is due to the 4G technology. Android apps, Apple car play have made the IVI experience even more effective. The mobile navigation apps are widely used by drivers. Future is of advanced car to car communication and car to infrastructure communication systems. These technologies will help the driver to have a hassle free drive by collecting data from other cars or the nearby infrastructure which are installed to generate data like, traffic jams, accidents, climatic conditions.

A block diagram by Mouser electronics clearly show the automotive infotainment in a car.



Source: Mouser.in, 2018

The websites describes that the future of connected cars initiates with infotainment systems. A smartphone will acts as a link between human and the infotainment system in the car. Features like Global Positioning System (GPS) navigation, internet connectivity, touchscreen panels and high resolution displays will be part of it. Along with them, car information like tyre pressure, oil pressure, battery condition can be accessed through the smartphone. This will make the car safer to drive on the roads. Infotainment systems provides wholesome entertainment in the car in both audio as well as video formats. This make the journey more pleasurable [5].

V. ANALYSIS

For the study, following innovations related to infotainment are considered.

Table 1 List of Infotainment features

| | |
|---|-----------|
| USB port and SD card | Infotain1 |
| Bluetooth Connectivity | Infotain2 |
| Touchscreen Display Control | Infotain3 |
| Navigation and Connectivity | Infotain4 |
| Steering Mounted Audio and Phone Controls | Infotain5 |
| Voice command control | Infotain6 |

Descriptive statistics of infotainment

Table no 2 Importance level of infotainment features among the consumers

| Importance Level | Infotain1 | Infotain2 | Infotain3 | Infotain4 | Infotain5 | Infotain6 |
|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Not important at all | 6 | 22 | 12 | 14 | 18 | 19 |
| Of little importance | 48 | 33 | 8 | 34 | 30 | 44 |
| Of average importance | 92 | 115 | 68 | 82 | 77 | 92 |
| Very important | 167 | 160 | 147 | 150 | 166 | 146 |
| Most important | 132 | 107 | 194 | 152 | 154 | 109 |
| Not aware | 7 | 15 | 23 | 20 | 7 | 42 |
| Mean | 3.87 | 3.76 | 4.27 | 4.00 | 3.95 | 3.90 |
| Std. Deviation | 1.042 | 1.139 | 1.012 | 1.130 | 1.094 | 1.256 |

From the Table no. 2 it can be seen that the awareness about the innovative features in infotainment category was high. It was seen that most of the respondents found these innovative features very important. Touch screen control was found to be most important among the features followed by navigation and connectivity. Overall, consumers found these features very important.

Following is the analysis to check if there is any difference in the attitude towards cars infotainment among various age groups

Null hypothesis : There is not difference in the attitude towards cars infotainment among various age groups

Alternate hypothesis: There is a difference in the attitude towards cars infotainment among various age groups

Table no 4 Descriptive statistics of infotainment and age groups

| | N | Mean | Std. Deviation | Std. Error |
|----------|-----|--------|----------------|------------|
| Till 25 | 95 | 4.0807 | .72480 | .07436 |
| 26 to 35 | 202 | 3.9364 | .78989 | .05558 |
| 36 to 45 | 84 | 3.8036 | .74588 | .08138 |
| 46 to 55 | 27 | 4.1667 | .76516 | .14726 |
| above 56 | 44 | 3.9470 | .76315 | .11505 |
| Total | 452 | 3.9568 | .76790 | .03612 |

Table no 5 ANOVA test between attitude towards infotainment and age groups

| | Sum of Squares | df | Mean Square | F | Sig. |
|----------------|----------------|-----|-------------|-------|------|
| Between Groups | 4.708 | 4 | 1.177 | 2.014 | .091 |
| Within Groups | 261.233 | 447 | .584 | | |
| Total | 265.941 | 451 | | | |

A one-way between subjects ANOVA was conducted to compare the effect of age groups on attitude towards Infotainment. The test was conducted to check if there is any change in attitude with respect to the Infotainment innovation in car among respondents who belong to different age groups.

There was no significant effect of age on attitude towards innovations in infotainments in a car at the $p > 0.05$ level for the five conditions [$F(4, 447) = 2.014, p = 0.091$].

Looking at the description table, it can be interpreted that the respondents who are in the age group of 46 to 55 years ($M = 4.1667, SD = 0.765$) had highest level of attitude towards innovations related to cars infotainment. Though there was very little difference among the rest of the groups, the least was seen among the age group of 36 to 45 ($M = 3.80, SD = 0.746$).

From the tables, it can be inferred that the consumers of all the age find infotainment innovations very important to them. They have a positive attitude towards the infotainment features in their cars. Touch screen control was found to be most important followed by navigation and connectivity. Least important among the infotainment innovations considered for study was Bluetooth connectivity.

VI. CONCLUSION

Consumer do find the innovative features related to infotainment highly applicable to the contemporary scenario. Consumers have positive attitude towards these innovative features in cars. IVI assists the driver in various ways as well the other passengers travelling in the car. The communication between cars helps to evade any accidents or road blocks. IVI has a huge growth potential in the Indian market provided the car manufacturers find ways to make it more affordable, as India is a market for medium and small cars.

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