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## **PRODUCT MAPPING: ANALYSIS OF INDIAN AUTOMOBILE INDUSTRY**

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# Product Mapping: Analysis of Indian Automobile Industry

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**Abstract – New products create value for the customer in terms of providing new feature. For the manufacturing company it provides competitive advantage by exploring new markets and the opportunity to capitalize old investments. It also sets up entry barriers for competitors by creating new industry standers, which the competitors find it difficult to emulate. Daewoo Matrix and Hyundai Santro enter the small car B segment with Multi-point Fuel Injection (MPFI); a New industry stander was born. Predictable, Maruti followed suit, but after the gap of nearly one year.**

**Inside the company, new products build new functional and technical skill, foster inter-functional integration and give the employees a sense of pride and confidence. Nothing could exemplify this better than the success of Telco in the launching of Indica and Victor by TVS; Indica has transformed Telco from a manufacture of diesel trucks and bus chassis to a car manufacture; it has also brought new competencies in petrol engines and capability in design, manufacturing and service. Victor has created the confident and ability in Indian manufactures to indigenously design the world motorcycle from scratch in record time.**

**Keywords – Automobile Industry, Product Development, Product Mapping**

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## INTRODUCTION

Competitive advantage in the market can only be sustained over time by creating a continuous stream of innovative and services. The accelerating pace of change has hastened the process of product obsolescence and the pressure in new product development. Manufacturing has come a long way from the mass manufactured model t ford in “all colors, as long as they are black’ in the beginning of 1900s. The increasingly specialized demands of. Customers have led to market being segment ted into smaller and smaller segment. To gain market share, companies are tailoring products for diverse segments to gain market share. Alvin Toffler (1970) wrote, “... manufactures of automobiles produce for “mini market”. This has started the drive towards mass customization. The proliferation of new products has seen a rapidly rising ratio of new to existing products. Manufacturing companies, especially those in the automobile industry are investing heavily in product development capabilities and competencies. The product development cycle, from concept to market, has come down from years or months.

New product development can be examined in the framework suggested by Hayes etal (1988). There are two axes, namely product (vertical) and process

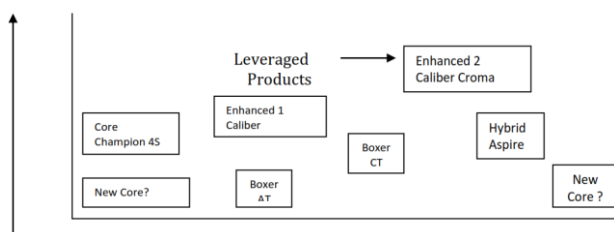
(horizontal). As shown I Figure 1. The product continuum is characterized by increasing functional value/price towards the top. The process continuum maps the increase in change from right to left. At the right upper corner we have “no change “and new core process at the left upper corner. If we examine the Indian automobile industry, we would see the majority of changes would cluster around the lower right hand corner-“incremental improvement” at the intersection of “no change-Add-on/Enhancement”. Typical of such attempts at new product are Ambassador from HM, in its various avatars of Mark I, II, III and IV and later addition of Isuzu petrol engine. In the two –wheeler industry, this is epitomized by Royal Enfield Bullet, which virtually remained unchanged in nearly half a century! Upgrading of Santro from 1000cc to 1100cc is an ‘incremental Improvement’ –‘Enhancement’ to match the performance of WagonR and Alto VX. The introduction of diesel engrains in Ambassador would fall under the category of “single Department Upgrade-‘Addition to Product Family. Telco’s foray in to petrol powered passenger car with MPI definitely comes under Radical change, which embraces both changed processes and change product.

New product development is not an easy process and the automobile market is littered with aborted, stillborn and short-lived products. Wheelwright and

sasser (1989) have enumerated the difficulties and reasons for product failures. The first and foremost reason is lack of product distinctiveness. The product is launched too quickly from concept, thereby may 'ack' many of the desirable criteria (Hill's order winning criteria). The kinetic challenger attempted to clone Hero Honda by reverse engineering, came up with no distinctive features except of chrome plating and is probably getting bombed at the marketplace. The market may dry up; as was the case with TVS Spectra four-stock scooter. It was launched at a time when the scooter market was experiencing negative growth.

A product may suffer from shifting or inconsistent focus. It may try to become too many things for too many people. Though strictly not from the automobile market, the Arjuna main battle trunks is a classic example

The conceptual flow. The concept is exhibited in Figure 2 with this conceptual framework, let us examine some of the motorcycles and cars in the Indian market. We take up the Bajaj 4S Champion (100 CC. Four - stroke motorcycle) and draw the following product map for the products derived from this 'core' Bajaj developed the core product -4S Champion in the mid-1990s with the help of their collaborators Kawasaki. It was Bajaj's foray into four stroke two-wheelers, keeping the imminent environmental laws in perspective, which were to limit two stroke vehicles. It was also Bajaj's first attempt to challenge the long standing supremacy of hero Honda in the 100-cc motorcycle markets. The motorcycle was a moderate success, but was plagued by niggling problems, which were sorted out over a period of two to three years What provided a fillip to the Champion sales was its fuel consumption. At 87 kilometers per liter, it had upstaged hero Honda CD 100 . From the core of the Champion, Caliber was developed with an enhanced engine capacity of 110cc. comprehensive instrumentation and rugged looks and higher price. It was aimed as a competitor to. Splendor<sup>4</sup>, the favorite but ageing model from Hero. Which sold around 62,000 motorcycles per month.



Caliber was a hit. Bajaj was quick to react to market feedback and fitted larger diameter front brakes, better responding suspension while retaining competitive fuel consumption. Simultaneously, a price-reduced version Boxer was launched for the rural market using the same 100 cc engine, but with stripped down features to compete with Hero Honda CD 100 SS. It was aimed at the farmer who uses it to carry odds and ends and hence had a detachable split seat. This did not perform well. Bajaj , undeterred, re-launched Boxer in

two versions- AT without battery and CT with battery and took the price war to the hero Honda camp by pricing Boxer AT at less than Rupees thirty thousand. Success of Boxer allowed Bajaj to utilize both the capacities and equipment installed for the Champion and also the competencies gained while developing the Caliber. Boxers were selling up to 51,000 units per month, second only to Splendor. Building upon the success of caliber, Caliber Croma was launched with disc brakes and stylish headlight while retaining the engine, frame and suspension. Croma's radical new looks and proven performance made it a fast selling bike. Caliber and Croma together sell around 10,000 units per month. Combining the caliber engine, Croma disc brakes and the Boxer frame a hybrid Aspire was launched. Aspire sells in steady but small numbers and is a prop up brand for Caliber and Caliber Croma. Keeping The enhanced Caliber in perspective and the market demand for higher performance Bajaj has moved into the 150 CC class with Pulsar 150 to compete with Hero Honda CBZ and TVS fiero. To create market leader with benchmark performance figures it has created a 180 cc market with Pulsar 180 cc. The Pulsar may be the new core for future developments.

We shall now discuss the Indian diesel car and its derivatives under the same framework and depict the product development the concept is explained through product mapping in Figure 4 . Indica DSL is the core from which the enhanced products DLE and DLX have been developed with additional features as AC and higher levels of trim. The development of indica Sport progresses naturally into the base level of customization.

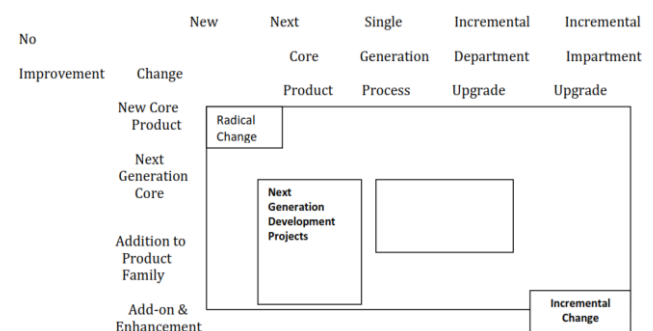
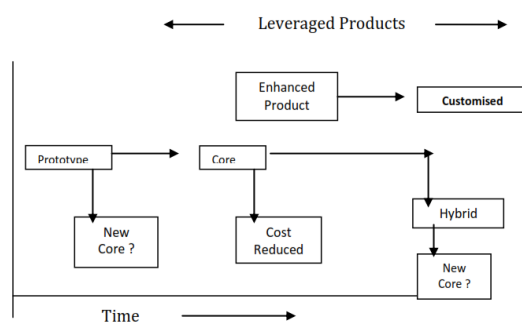


Figure 1: Product Development

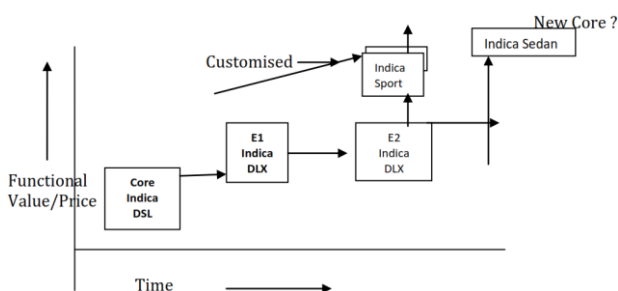
Wherein the product specification kept being updated, upgraded and changed. The product may run up against unexpected technical problems and critical component development may jeopardize the product development process. Light combat Aircraft 9LCA) was hamstrung by the stoppage of supply of American engines and inordinate delay in development of the indigenous Kaveri engine. Product development may be hampered by the mismatch between functions: engineering – manufacturing or manufacturing –marketing. Product development may suffer due to insufficient technical capabilities. The initial hiccups with body panel fit

and finish of Indica could be attributed to telco's lack of competence in complicated body shell forming process.

Wheelwright and Sasser had developed 'Product Mapping' – a conceptual tool for mapping existing products with respect to market segment, distribution channels features, value-addition and pricing product map helps the company to plot the conceptual movement from where we started' to 'where we are and further towards 'where we can go from here It graphically depicts the evolution of a company's products Product mapping starts with the 'core product' and moves on the enhanced product Enhanced product leads towards the leveraged lower-end product that the company produces in large batches with more features but not necessarily much costlier. To capture the higher – End of the market, the company produces 'customized' product in small batches, with customized features but with essentially the same technology and a premium price which more than offsets the cost of customization. For a price sensitive market, the company produces cost reduced' version with less expensive components with higher volumes which may share the assembly line with the enhanced product. Any of the above products may lead to a new core and the development follows.



Without including any higher level of technology, and is designed to sell in small volumes in niche markets at a premium. Aria is at a higher level of customization and includes minor technology enhancements such as a turbo blower. The experience of two-box Indica has naturally propelled Telco towards development of a three – box sedan to compete in the B-segment. This sedan may form the core for development of sedans in the future. A new core is developing around the same engine in the form of a MUV (Multi Utility Vehicle) or van-Indica.



**Figure 4 : Mapping Indica**

Product development map is a tool that helps the managers to develop conceptual milestones while exploring the development of new products. Many factors can be included in this map such as price/market, the technology level, distribution channels and functionality / value addition. To cite another example from the Indian industry-mahindra developed the Bolero as a core product for the Sports Utility Vehicle (SUV) went further to an enhanced version Bolero DLX. Both these were sold through distributors. They took the revolutionary step of creating a new channel, hitherto not used in India. They are allowing prospective customers to customize their own version of Bolero Designer through the Internet, so that each such Bolero design would be one of a kind.

Product maps are design aids that have been practiced in developed countries to direct and focus development efforts in the proper direction using each product as a stepping – stone for the next . It aids the conversion of market information to concept at the design stage; carries forward critical product characteristics to the development stage and retains the original product characteristics through the manufacturing and marketing stages. Product map is a logical thread running through diverse functions such as market research, engineering manufacturing and marketing. at each step the proper combination of market, price, and channel can be designed into the product while benefiting from what has already been achieved. It provides an element of objectivity to the product development process, which often otherwise remains inspirational and subjective. Indian manufacturing companies would benefit from this conceptual tool once adopted in the strategic process.

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