

Chapter 18

Automobile Exterior Color Design Development Model: Partnering of Both the Auto- Maker and the Paint-Maker

ABSTRACT

The idea of global quality competition in the auto industry has made developing body colors that best match the exterior design of vehicle models a critical factor in terms of product strategy, as color selection has the ability to affect consumer purchasing behavior. The rapid global advancement currently underway brings with it increasingly diverse and complex personal values and subjective impressions, which are difficult to fully grasp. In this chapter, the author has concluded that traditional design processes, which are implicit and rely heavily on designer intuition and experience-based rules of thumb, must be reformed. To achieve this, the author has created the Automobile Exterior Color Design Development Model (AECD-DM) partnering of auto-maker and paint-maker. Specifically, to affect purchasing customer behavior, the author has developed the AECD-DM to body color development at a specific company and has obtained the given results.

INTRODUCTION

The idea of global quality competition in the auto industry has made developing body colors that best match the exterior design of vehicle models a critical factor in terms of product strategy, as color selection has the ability to affect consumer purchasing behavior. The rapid global advancement currently underway brings with it increasingly diverse and complex personal values and subjective impressions, which are difficult to fully grasp. However, manufacturers that cannot accurately identify these consumer values and subjective impressions and incorporate the corresponding elements in their vehicle designs will find it difficult to remain competitive in the market.

In Chapter 13, the author developed and verified the effectiveness of their Customer Science Application System “CS-CIANS” (- Customer Information Analysis and Navigation System), a business
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approach that scientifically indexes customer quality demands employing Advanced TDS through “Automobile Exterior Design Model using Customer Science principle” (Amasaka, 2002, 2005, 2007a,b) (Refer to Chapter 6 and 13).

The author has therefore concluded that traditional design processes, which are implicit and rely heavily on designer intuition and experience-based rules of thumb, must be reformed. To achieve this, the author creates the “Automobile Exterior Color Design Development Model” (AECD-DM) by partnering of both auto-maker and paint-maker using “Strategic Stratified Task Team: Joint Task 7” and Science SQC (Amasaka, 2003a,b; Miyake and Muto, 2010; Muto, et al., 2011, 2013) (Refer to Chapter 5 and 8).

On a concrete target, to affect purchasing customer behavior, the author first utilizes statistical modeling to visualize the factors involved in successfully meeting customer quality demands. Then, partnering (joint efforts) of auto-maker and paint-maker, they create indexes that allow auto-makers to develop a business approach that will align the concepts and approach of divisions involved in exterior design and color development. Second, linkages are forged between the identified factors of success and the indexes.

The author then develops the AECD-DM to body color development at a specific company and obtain the given results (Miyake and Muto, 2010; Muto, et al., 2011; Amasaka, 2015).

BACKGROUND

The author presented the study of “Automobile Exterior Design Model using “Customer Science Principle” which the author showed to Chapter 13. Then, the author focuses on the optimization of “Automobile exterior color design” (body color) which constitutes the typical core technologies in this study.

Prior research on this topic has been presented by Arima (2002), Kawamura (2003), Amasaka (2007a,b), Amasaka and Yamaji (2008), Takebuchi et al., 2012 and others (Amasaka, 1995; Amasak, et al., 1999; Amasaka & Nagaya, 2002; Fujieda et al., 2007; Yamaji et al., 2009).

However, the work of these authors focused on just a portion of the tasks associated with developing vehicle body colors. As clearly shown by “Chapter 13”, in “Vehicle’s exterior design”, the optimal matching with “Profile design (proportion), Form and Color matching” is indispensable. Therefore, research that utilizes a comprehensive business approach involving both paint manufacturers and auto-makers has yet to be carried out.

Therefore, in an implementation stage, the author strategically applies the “Customer Science Principle” application system “CS-CIANS” constructed by Amasaka (2005). CS-CIANS is a method for generating customer value in a way that recognizes the necessity of reforming design work processes with product planning departments, with the aim of making customer intentions scientific. It is a networking system that includes a navigation system for analyzing customer information (via multivariate analysis) and analysis case examples.

The author expanded this model in order to create a business approach model from a perspective that includes both paint-maker manufacturers and automakers.

RESEARCH METHODS

To understand how vehicle body color development processes were currently being carried out, the authors conducted an on-site investigation of color designers at three auto-makers and three paint-makers

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