

Abstract

The rapid social and demographic transformations resulting from globalization processes and the exchange of information and interaction in "real" time, are catalysts for changing individual expectations of people and their relationship with others, which from the market perspective makes consumers be more and more participants and deliberative, as they become more interconnected. As a result of this dynamic, it is undergoing a metamorphosis in the forms of relationship between the consumer and the products, changing from being receptors of functions to meet needs, to become co-creators of value through interaction and experience.

This new context obliges to reformulate the way in which products should be developed, and reorient the role of designers in the process of breaking the paradigm of mass production and the logic of the economy of scales, which results in the increasing of product launch frequency and multiplicity of alternatives in the offering, where the variability and personalization are now qualities required by consumers, and the ability to conceptualize products linked to company strategy and market dynamics, is a factor builder of competitive advantage and differentiation.

This research focuses on determining the characteristics and requirements for product design, within the phenomena of variability, personalization and differentiation; in order to achieve this goal, three complementary analysis that define the field of inquiry are initially performed: first, are studied the levels of complexity of product design activities in organizations, discovering that is in the level of the design of groups of products (families, platforms, etc.), from which are addressed the new market conditions, supported primarily on technical, production and logistic criteria; and in a complementary way, is described the relationship between user - product, framed in the categorization strategy, identifying the variables and behaviors that characterize the product groups studied. From the analysis of the methods and methodologies for design based on the variability and modularity, are isolated variables and elements required for the design of product groups (referred in this research as product system), finding that these variables conform three interrelated groups (structure, coherence and order), with which are defined the characteristics of the group and the products that integrate it. The articulation of these three conceptual bodies by applying the method of systems modeling, allowed the formulation of a conceptual proposal for the designing of product systems.

The project is developed based on five hypotheses emerged from the proposed conceptual model, its validation led to determine that: a. Market analysis in the dimensions, capabilities, attributes and representation, integrate into product systems the attributes derived from the criteria of variability,

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~~customization and differentiation; b. Modeling is a consistent strategy to~~
address the complexity of design of product systems, which is structured into the interdependent subsystems: structure, coherence and order, and demonstrates how systemic approaches based on modeling allow optimally the managing of information from the initial stages of the design process (based on the conceptual definition of the system and the characteristics of the elements that comprise it), continuing with the identification of the common elements and the inter and intra product relations, to then extrapolate this information to the design of a group of products developed in a systemic way. c. The categorization enables the designing task, to establish patterns in product configuration by identifying groups of the most influential variables in the characterization of each category, the study demonstrates how this influence focuses on the variables associated with the use and experience, becoming therefore in the origin of the design process of product systems.

In the study, new results related to product design from an integral and systemic approach are obtained; these results allow the visualization of new design action scenarios, focused on the development of a repertoire of products / experiences, consistent with consumer expectations. The definition of the attributes and characteristics of the groups studied, articulated from the systemic approach are considered contributions of great value, as they provide designers with an interpretation of the phenomenon, centered on use and experience, which contrasts with approaches based in the functions and its materialization in physical attached elements, which responds to the logic of technical rationality.

Keywords:

Systems of products, systemic design, user experience, categorization, conceptual design, industrial design.

Research lines:

Systemic applied to product design, design management and methods of industrial design.