

R&D Outsourcing

The merger of industrial design with engineering

In addition, due to the constant complication of products, industrial design is merged with engineering, which, according to the UN definition, is engineering and consulting services in the design, engineering and development of equipment, various materials, devices, buildings and structures, processes and systems. At the same time, today the engineering services market is an important component of any developed economy and the global economy as a whole. According to estimates by the Ministry of Industry and Trade, the volume of the global market for engineering services in 2015 was more than \$ 750 billion, and by 2020 it is expected to grow to \$ 1.4 trillion. It should be emphasized that gradually industrial design turns into a powerful tool for product differentiation (including those cases where quality competition has exhausted itself), while pushing traditional marketing into the background. For example, according to expert data, in the countries of Western Europe, in most cases, marketing activity does not produce the expected sales results. At the same time, according to a study conducted by the Design Innovation Group (UK), 90% of the design projects are profitable, and the average return on investment is an average of 15 months from the time a new product enters the market. Also, the fact that the capitalization index of American companies investing in Design Design (The Design Value Index) grows more than the US S & P 500 stock index over the past ten years can serve as confirmation of the profitability of design solutions.

Table 2. Comparison of business phases associated with the development, launch into production and promotion of new industrial products

business stages	Planning	Research	Concept	Project Development	Testing	Release
Marketing and advertising	- Market conditions - Segmentation of the market	Focus on competitors: they study the products they produce, markets, audience, etc.	The idea of rebuilding from competitors	Marketing plan: - Definition of target audience - Definition of the price of sales	- Consumer Testing. Focus on the desire of consumers to buy goods - Development of advertising strategy	Advertising campaign

Industrial Design	Product architecture	Focus on end-user needs	The idea of a new industrial foot product	Design project: - Shaping - Selection / development of materials Prototyping	- Consumer Testing. Focus on the desire to use the product. Satisfaction - making adjustments	Copyright support
Engineering	Evaluation of existing and new technologies	Identifying product specifications	The idea of implementing the requested technical parameters	Engineering project: - Construction - Design	Testing technical quality and making adjustments	Evaluation of test samples
Production	Evaluation of production capacity	Project cost / investment appraisal	The idea of economical and technological production	Alignment of technological processes	Pre-production	Mass production start

Source: based on data from MSTU.N.E. Bauman.

Link to article: [The merger of industrial design with engineering](#)