

AN INTEGRATED APPROACH TO PRODUCTS AND PRODUCTIONS

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Summary

The environmental system is composed by living creatures connected with all the environment.

The paper, although not related with biology, discusses, analyzes and proposes an integrated approach applicable to the industrial production goods.

Due to the current crisis of the macroeconomic scenario, the production type approval of competing firms, but first of all the new environmental urgency, is rising the need of reconsider new production systems.

The methodological approach of the Design by components (Luigi Bistagnino, 2008), appears as one of the possible open paths to successfully face the on-going change; thanks to this approach, that critically analyses all the parts of a current industrial product, we can redesign new typology of products/production chains as well as the system they are introduced in.

The redesign of the object is not a mere styling of it, but is a reinterpretation of the whole structure that allows to extend the life cycle of the product (by easily updating, maintaining, repairing,...) by reducing its cost of energy consumption, maintenance (nowadays most of the object are not repaired because too costly). This approach, consequently, involve the redesign of the industrial structure that evolve in a more flexible, global, ethical, economical and environmental model.

Such strategies must be urgently met, because the lack of even only one of them could compromise the entire policy implementation and its own reaction to changes.

Keywords: product design, energy efficiency, system of product, share responsibility, industry evolution

1 Introduction and background

The current economic crisis has increased the need to lower prices, to compete with the continuous changes of the economic policies of the international market, directing the industrial giants to place themselves in needy areas to exploit the less restrictive regulations of ethic, environment and production. Parallel, the proliferation of standardized products has eliminated the natural differentiation resulted from the different cultures and technological skills. The products are transformed into status, their semantic obsolescence

accelerated by the policies of market increasingly saturated with equal products and "gadget". Companies, in this intricate relationship economics, politics, give up their intellectual capital by allocating part of their production to outside companies (outsourcing), away from their cultural production environment. Unlike the past, companies today are producing services rather than goods which have been move away from the main company, a choice that could greatly reduce costs, but that involves a loss of local knowledge enterprise.

The continuation of this situation has worsen the conditions of the international market especially the electrical and electronics industry: it is now imperative a sustainable change, a consumption and waste reducing, a technical / technological improving and an overall appreciation of human potential. The mere reduction in sales prices are no longer feasible roads; the company must begin a new path of continuous improvement or a radical rethinking of their business model. Therefore in order to achieve a prime mover position is advisable to refer to an holistic approach, analyzing the implications, causes and consequences of 360 degrees and taking advantage of multiple and interdisciplinary knowledge that are still not often brought into play in terms of "innovation".

2 Innovation

Environmental policies supported by the manufacturers have made great breakthrough in the field of electrical and electronic equipment, increasing the energy efficiency of the product and preserving parts of their leadership on the European market by slowing the advance of the East. On the environmental and economic subject, Scientific community and large producers are feeling the need to move proactively toward the total innovation of the industry.

Environmental regulations have been largely met by all manufacturers, products placed on the market are: more intelligent and personalized/customizable, able to better optimize the use of energy resources, eliminating the use of harmful materials, etc. In this wide scenario also the consumer role should be rethought . The research carried out inside the group of Industrial Design at the Politecnico di Torino, coordinated by Prof. Luigi Bistagnino focus the attention on the society evolution and the real needs of the human being. Until now, the role of the consumer has been limited to the meaning that the Latin ascribe to the word *consumere* (consuming drain, destroy), but the recent research attribute to this concept another Latin meaning *consummare* (to perfection, completion), this shift of perviception allow to consider the consumer not as a destroyer of resources but as a an active part in the complex production system.

In short, these embryonic ideas or even these first real innovative applications, are laying the foundations of future development of the sector.

What is needed, then is the alternative thinking, according to create innovation for the environmental, economic, social and productive sustainability. In order to carry out this big dare is necessary to look at the industrial production not as a linear path, but as a part of a bigger system of relations. The world that revolves around the creation of a product, be it an appliance or electronic product, is very complex. Each product can also be seen as a system of interrelated and complex components and the "final system"-(object) is the sum of all the subsystems that constitute it.

To better understand and plan new overall strategies, it should therefore start from the understanding and rethinking of the constituent parts of the whole system.

Complex systems often involve a huge number of variables whose interdependence must be taken into account. This makes the adoption of an integrated approach essential for the proper management of a wide range of aspects related to human life, from social matters to environment.

2.1 Guidelines

- productive and technological
 - Adaptation/further improvement of technological evolution that have been achieved until now (energy saving, noise reduction, optimal choice of materials used in relation to the cycles of life) to the new integrated production perspective
 - Adjustment and overall improvement of production systems connected to local realities
 - Improvement of producer / consumer relationship;
 - Increased levels of efficiency during the product service and maintenance phase;
 - Development and application of new technologies useful for reducing environmental impact
- housing and social issues
 - Optimization of electrical and electronic equipment in relation to the needs of different living spaces;
 - Propel systems/equipment management services within the apartment blocks and within city limits;
 - Attention and adjustment of the product with social changes in relation with their territory
- environmental matters
 - Manufacturers ability to adapt quickly to the current and future environmental regulations;
 - cascade re-use of water resources / energy, currently released into the environment;
 - Integration of the product with the home system (sharing of components, services, resources)

3 Conclusions

A similarly innovative manufacturing strategy using integrated systems clusters would permit greater efficiency in the monitoring of both up and downstream process, thereby reducing wastage of raw materials and energy. This type of strategy also means that larger numbers of producers, component manufactures, designers and technicians could work together in accordance with the principles of shared responsibility, with the aim of combining the synergies of multiple industrial powers to improve overall quality through an increased focus on customer service and environmental awareness.

The new model induce all the actors to operate according ethical value, the componentist are actively involved in the design phase, all the production are local and the component repaired can foment the second hand market.

This Sort of revolution of the industrial mentality will certainly be neither easy nor immediate. In the year to come, it will be necessary to predict and plan all the constituent part of a product, their material, duration, replacement and all there is to know about the life cycle of an object..

Facing the infinite opportunities offered by technological innovations, industrial culture and design will point out the need to assume our own responsibilities, as being able to choose forces us to plan at the same time all the variables that are part of production and dismissal of the object on many level.

In conclusion, it is mostly up to large size industries to make the sharpest change and to drift away from logics of goods designed for the end markets, by focusing on the technical and quality evolution of components and by changing the production rules in favour of systemic strategies deeply integrated with their own territorial, social and economical contexts.

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