

New design methodologies for creative development of new products

Matilde Portalés

Doctor in Fine Arts from the Universitat Politècnica de València.

Abstract

In the new market situation, innovation in designing products is needed. To achieve this when faced with classic analysis and investigation methods of a retrospective nature, prospective design methods are necessary, and these methods have as their main function the creation of new creative hypotheses with a view to the future. Prospective methods tend to satisfy consumers' as yet unformulated expectations and needs.

Here is an exposition of the basic characteristics of prospective design methods, from the process phase to the making up of teams which are to participate in these processes.

'There are no good answers where good questions have not been asked first'.¹

There is a factor which clearly defines the nature of the contemporary environment we live in, which is the variant of 'change'. 'In a world moving at dizzying speed, deadlines are running out and the magic words are renewal and change'.²

We have become used to hearing and reading every day in communications media thousands of comments on the incursion of change and the change in our lives at all levels, social, political, cultural, economic, etc., and the subsequent need to understand this situation as well as adapt to it.

However, at the dawn of a new century, and according to the conclusions of the European Forum on Corporate Marketing³ recently held in Madrid, currently within the industrial business framework we must keep in mind that although 'transformation has become a habit, it is no longer enough to adapt to change; it is necessary to prepare to take on the next one' or, in other words, introduce how we are to take on and carry out specific action to keep ahead and not arrive too late for the near future⁴. Because changes are so many and so quick that we no longer speak of one but many possible -probable- futures, which we must know how

to identify and take advantage of by means of prediction and action with eyes fixed on 'what's coming' and 'what part of it we can use'.

Therefore, within this new context marked by change and instability, the 21st century manager who wants to succeed will have no option but to abandon the use of management directed to the short term and begin to take on turning into a sort of 'futures doctor',⁵ so as to be able to detect symptoms of problems in his business before they blow up, even though superficially these symptoms may still be not very obvious.

Despite all this, even though the need to 'predict coming changes' will be the key for determining the way to be followed by end-of-the-century companies which do not wish to disappear, we need not fall into despair because of that. This instability and variation can not only generate great risk and challenge, but can also offer companies an interesting chance to improve, as long as they manage to take on change as another element in their daily lives and learn to benefit from it.

Thus, it must be understood that many transformations that have taken place have promoted the appearance of a brand-new competitive framework, ruled by new, complex, and increasingly aggressive game rules and, consequently, new needs have been created in contemporary industrial business which have to be solved, as, for example, reduction of the time needed for the product to reach the market (time-to-market), adapting to accelerating technology and, above all, generating a succession of 'added values' which allow market differentiation.

¹ GABIÑA, Juanjo. (1995). *El futuro revisitado. La reflexión prospectiva como arma de estrategia y decisión*. Barcelona: Marcombo. Boixareu Editores, p. 21.

² SCHREIBVOGEL, Peter. (1993) «La estrategia empresarial: un ejemplo práctico». 2º Congrés d'Economia Valenciana. Comunicacions [Castelló], vol. I, p. 21.

³ ANDRADE, Mónica. «La imagen de empresa. El principal activo». *El País*. (21 February).

⁴ Hence the Anglo-Saxon definition of the discipline of prospectives as Futures Studies, i.e. 'studies of the future'. See BELL, Wendell (1997). *Foundations of Futures Studies. Human Science for a New Era*, vol. I: *History, Purposes and Knowledge*. New Brunswick and London: Transaction publishers.

⁵ ELÍAS, Joan. *La organización atenta* (Ediciones Gestión 2000), quoted in JURADO, Enrique. «Directivos cortos de miras: muchos ejecutivos españoles carecen de visión global de la empresa y tienen serias dificultades para adaptarse a entornos más abiertos.» *El País*, (Sunday, 7 April).

Therefore, so as to be able to avoid markers, 'decade' (Vitrac, 1990) competition in a homogenised and highly offensive context, the company nowadays must begin to worry about, besides productivity, about the correct working of certain 'intangible' assets unattended so far, among which are quality, management, service and, especially, considering investment in correct implementation of design, research, and innovation within the development process of new products.

It is for this reason that, currently, old 'copy' or 'mimetic' strategies are no longer valid nor useful. Quite the contrary, to achieve a competitive outstanding position in the market now, all companies must operate on strategies based on an offensive, searching for leadership by means of launching a good attack, based on thinking up and launching innovative and creative 'new products' which consumers can identify with a strong company identity.

However, from the corporate point of view, and depending on the degree of novelty the new product contributes to the market, we can pick out three categories of 'new products':⁶

- Original products: those which contribute new physical and perception characteristics.
- Redesigned or reformulated products: those undergoing variation in some of their physical, cost, field of action, etc. characteristics, with no alteration of the product's basic function.
- Repositioned products: those keeping similar physical characteristics, but offering the consumer a different image or perception.

However, whatever the category we may find ourselves in, we must stress in all cases the existence of certain factors which greatly hinder successful development of new creative products in an industrial company.

Among these factors, we can underline two: on one hand, some businessmen's 'short-sightedness' and, on the other, the appearance at the end of the 20th century of a new consumer profile.

In the first place, we speak of 'short-sightedness' to refer to the fact that there are now some companies with an obvious deficit in research structure.

Innovative design does not rise by accident and businessmen's perception is sometimes very narrow and often lacking the ability needed to move forward or backwards to holistically assess a problem.

We can cite here the predominant deficits of Spanish industry, which is not always clear about where the company wants to go, where it wants to get to and, consequently, does not grasp the foreseeable divergence between what it wants and what it gets. Thus, futures experts such as Juanjo Gabiña⁷ speak of the great need in this country's industry for 'stripping off the dead weight and ballast which the well-known traditional mind-set represents', exemplified as 'we've always done it like this' or 'we've known this all our lives'.

In the second place, we must mention the discovery in the last few years that a priority factor to be kept in mind are consumers (the famous cliché 'the customer is always right') who, when faced with something new and original, can be tempted by it. This fact is even more important if we take into account the wide spectrum of increasingly homogenous stereotypes and products existing in the current market.

Doubtless we are faced with a consumer with a new identity, to whom we formerly attributed a traditional personality such as 'not very daring', 'moderately intelligent', 'reactionary', with 'classical tastes', and usually 'reluctant to change and resistant to innovation'.

We can assert, however, that during the 90's we have gone from surroundings characterised by a certain consumer passivity to another, in which the consumer is raised to a research and analysis centre by companies when they establish offers.

Thus, according to conclusions in a recent study by the French Observatory Cetelem⁸ (1999), during this last decade consumers have undergone a surprising evolution towards discernment and are increasingly becoming 'true buying experts'. This is a consumer on whom we have hung labels like 'multidimensional', 'capricious', 'hedonist', 'chameleon-like', or 'harlequin',⁹ a new type of consumer, now much more alert and demanding, who does not see consumption as activity-restricting, but rather as a great pleasure to be enjoyed within personal means.

⁶ CHOFFRAY, Jean-Marie (1989). *Developement et gestion des produits nouveaux*. Mc. Graw-Hill, citado por MONTAÑA, Jordi. *Cómo diseñar un producto*. Madrid: IMPI, chapter 2; and BARBA, Enric (1993). *La excelencia en el proceso de desarrollo de nuevos productos*. Barcelona: EADA Gestión, p. 22.

⁷ GABIÑA, Juanjo (1995). *Op cit.*, p. 21.

⁸ CETELEM. (1999) *Dix ans d'observation Cetelem*. France: Cetelem. L'Observateur Cetelem.

⁹ Ídem.

Even so, and although it may seem strange, what characterises a great many contemporary industrial companies is not exactly this 'up-to-date' view of the consumer, but rather an increasingly large empty space between corporate identity, products, and consumer motivation, deeply rooted and rarely known.

At this stage, and keeping in mind all we have said about the nature of the global competitive framework and the new end-of-the-century consumer profile, there is no doubt that there is one essential question which all companies must nowadays ask seriously and be able to answer quickly; this can be summed up as 'What can we make and sell successfully in the future with minimum risk?'

The process of 'creative conceptualisation of new products' is becoming a vital issue which all industrial companies must consider and solve by the use of new methodologies for analysis and synthesis of information, brought up to date and adequate to the global and mutating nature of our current competitive framework.

However, we must keep in mind that creative development of new products is a process which holds great risk, as possibilities of success are equal to those of failure.

It is precisely for this reason that it seems necessary to set some standards and benefit from new technology which will determine the order of our action when approaching this first stage of the design process securely, i.e. using new techniques and analytical and control tools when successfully implementing the process of creative conceptualisation of new products.

Actually, according to Philip Kotler¹⁰ (1994), the key to reaching successful innovation and creativity in this complex panorama lies in having an adequate organisation which handles ideas for new products and develops adequate research, creating decision procedures for each level and each stage of the process of new product development.

Inevitably, market globalisation, the great number of products offered, the diversity and development of cultural behaviour, increasingly unpredictable consumer habits, etc. have overturned classical analytical and research methods with a 'retrospective' nature, and tend to invalidate them. Faced with these 'retrospective' methodologies and short-term considerations, we have increasingly prevailing use of new techniques and methods based on detecting new creative hypotheses with a view to the future, a task in a new age of mul-

tidisciplinary knowledge, defined by experts as 'Strategic Futures' (Godet, 1993/1996. Gabiña, 1995) or as 'Futures Design' (Vitrac, 1990).

We should make it clear that when accepting this second definition we are referring to the specific use made of this methodology (Strategic Futures) within the framework of the industrial company when applying it to the first stage of the design process (conceptualisation of new products). Consequently, whenever we refer to inserting and using futures research as a tool to improve the design process in the company, it is to be understood that we can speak either of acting with Futures Design¹¹ or with Strategic Futures.

By means of Futures Research we substitute the restrictive attitude proper to traditional research methods (based on existing analysis factors such as market statistics control or quantitative research on consumption and distribution by means of more or less specific surveys) by a multidisciplinary methodology (based on anticipation and creative imagination, able not only to adapt products to consumer demand, but also to foresee and consider consumers' future needs).

In fact, the idea of investing energy in futures design begins with a need for creative freedom and encouraging innovation and departs from the limits and constrictions of a traditional structure, usual thinking methods, and idea generation in industrial companies.

We are facing strategy methods which par excellence generate creative novelty ideas which become incorporated into the game, beyond considerations fixed by function areas like marketing or production.

However, we must not forget that, as we have seen, many companies find it difficult to embark on what they call 'untangible investments', of which design is a typical expression. Consequently, there are still many manufacturers who have great difficulty in conceptualising new products and generally opt for restricting specifications, delimiting product policy, and working on short or medium-term concept development.

However, in a large number of companies corporate strategy is usually preferentially based on analysis of

¹⁰ KOTLER, Philip. *Dirección de Marketing* (8th ed.). Ed. Prentice Hall, p. 356.

¹¹ VITRAC, Jean Pierre (1990). «Prospective Design». In: *Design Management. A Handbook of Issues and Methods*. Oxford: Mark Oakley. Basil Blackwell Ltd.

what has happened in the past as specific, tangible information used as a basis for their actions. Consequently, when it is a question of contributing innovation in a company by means of research, they think of only partially exploiting it, i.e. only in case it can be cut down or shaped to dimensions considered 'adequate' to what the company always does, and adapted to more or less normal market conditions.

As an alternative, futures design offers a new approach in creative conceptualisation of new products which allows companies to satisfy those consumer expectations which may not yet be set out. It is an up to date research method working with specific propositions and which, by information analysis and synthesis, allows creative and innovating idea generation, relating to major change currents nowadays and apparently based on 'irrational' elements of creativity.

The fact that we are using the word 'irrational' here is a way of stressing and, at the same time, defending the unpredictable nature of creativity as an instinctive and intuitive process, which not everyone is apt for. In fact, this 'irrational' nature of futures design is strengthened, gains purpose and sense in practice, thanks to intervention during the creative impulse of professional experience and a consideration based on market research and satisfying a public objective.

As to tools or techniques used to implement futures research in new products, we will stress the most important and well-known at an international level:

- Scenario method
- Acting games or MACTOR method
- The Delphi method

However, whether we choose to work with one or another of these techniques, we should always keep in mind that for possible application of strategic futures in creative new products conceptualisation in a company, i.e. for working adequately with Futures Design, a company must comply with three requisites beforehand:

1. In the first place, finding an open attitude and a commitment to investment in creativity and innovation.
2. Introducing design from the beginning of the project and using it as a way of integral thinking for innovation, differentiation from competition, and contributing new variables which will enlarge cor-

porate cultural dimensions: product ethics, environmental impact, quality of life, etc.

3. Selecting agents or teams to work on the development of new creative concepts and promoting work in a flexible environment with no barriers or restrictions, and promoting fluent communication.

To begin with, the first requisite pursues achievement of a company commitment to innovation and creativity, with an aim not only of avoiding set limits for possible hypothesis generation, but also motivating creation in the company of the best possible conditions for decision-taking on future product development. By this, we mean the need to free industry thinking from old ballast and encouraging creative freedom in industry by means of new hypothesis creation, as only by systematic search and investigation for information proceeding from many sources (and only if all other kinds of obstacles and objections disappear) can specifications for new, innovating, creative new products be achieved.

In the second place, we must not forget that, in the industrial field, commitment to innovation implies, at the same time, a commitment to design. Therefore, it is necessary to deploy innovation potential by adequately integrating design¹² in companies as a process to promote formulating new hypotheses when conceiving new products.

If by design we understand 'the development or creation of products or systems', we enlarge the starring role played by design when structuring competitive strategies allowing our companies to take on markets with certainty, as this business asset acts in the corporate framework as a nexus/interface between two spheres: the productive and the commercial.

We should also not forget that, as to this second issue, the designers' eye acts as a catalyst in the industrial field, a new way of looking at things which is both instinctive and rational, as it is able to observe the existence of trends designer's themselves promote, while

¹² We refer to Design in an up-to-date and integral sense, defined by some as 'Total Design'. See, among others: GARDINER, P. ; ROTHWELL, R. (1985). *Innovation. The Design Council*. Londres; PUGH, S; MORLEY, J. E. (1998). *Total Design: Towards a Theory of Total Design*. Design Division. University of Strathclyde; HOLLINS, Bill (1988). PUGH, S. (1990). *Successful Product Design*. Butterworths.

at the same time using a highly developed and operational industrial culture.

In third and last place, owing to the complexity of the problems to be faced, it is essential to adequately select and determine a work structure or team within the company in charge of operating on Futures Design, and leaving them complete freedom to work, with no kind of censorship or restriction imposed.

The make-up of this structure can be either permanent or only occasionally set up around one or more persons in charge of the project. Operative figures should come mainly from the company (people with knowledge of design, marketing, technology, research, business, etc.) but there can also be an option for outsourcing specialists for solving this kind of study.

This multidisciplinary team should work under the guidance of an internal or external futures consultant who ought to act as the work-team's moving force by encouraging the rise of new ideas among all those involved. At an internal level, this work can be carried out by a designer fit for it or a design manager (acting as project director).

On the other hand, there is also need for an 'intelligent', synergy interface, based on fluent communication, without barriers and with a complete commitment by the rest of the company's personnel. In other words, we need to stimulate imagination and creation of a common language, structure reflection by the group concerned, set out the different problems well and, above all, collectively share the solution.

Once these three conditioners have been reached, companies can begin the process of creative work proper to futures design.

For this, it is necessary to operate in two large areas, which we will call 'Pre-action' and 'Action'. Action in this second operative area (Action) is broken down in turn in three subphases which end in what we could call the 'fourth subphase', corresponding to the design of the specified product or the projective implementation of discoveries carried out (Vitrac, 1990).

Pre-action stage: defining the framework for action

In this first stage we should carry out a report which clearly defines what our framework for action is to be, answering the following questions:

- What do we want to do? The first question to be asked by a company even before beginning the task of strategic design is defining what is to be done, for example, defining the idea or concept of the product to be manufactured, according to the actual situation and problems of market functioning.

Here, what is most appropriate is not making a good choice, but rather being sure that the proper questions have been asked.

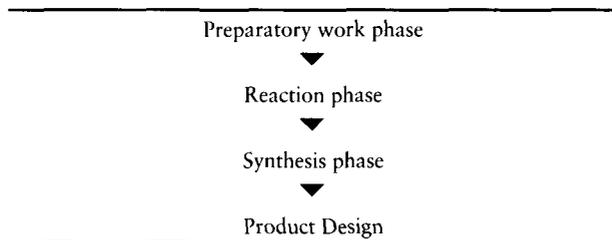
- Who are we? What do we do? Strategic planning cannot work if it is not capable of integrating affected organisations' cultures and planning (Godet, 1996) and, thus, before reaching an answer to the first question (that is, what do we want to do?), it is advisable to consider and firmly determine what the company culture is using any kind of analysis for image perception, product definition, consumer types they have in mind, and whatever other kind of linking factors. We are speaking of carrying out a profound study at the internal level in which all kinds of resources are assessed, that means human as well as material resources.

In this report, it is basic to know what aims have not been reached by the company beforehand, what hypotheses have already been considered before, what operations were thought of to carry out specific action and which were not successful or were not concluded.

Futures action stage: the process of creative conceptualisation of new products

Once what we want to do, who we are, and what resources we have is clear, we must begin phases which make up the process of creative conceptualisation of new products by means of strategic futures, a task which is to be organised in three phases and which will end, as we have said before, with the arrival at a fourth and final stage which we will call '(futures) design of the product', and in which all the discoveries made in the three previous phases will be carried out (see Fig. 1).

Figure 1. Futures Design: work phases according to Vitrac (1990)



Preparatory work phase

In this first stage, we define what will be the scenario where we will apply new concept creation; a task for the futures consultor who is here in charge of presenting a wide range of creative hypotheses as sketches, covering the whole area for action to be explored, to the selected work team.

It is not only a question of working on a basis of concepts we have previously chosen, but rather considering placing them before the opinion and judgement of a group of consumers within a possible wide-angle world view on a future horizon (horizon year). The work group responsible for the project will intervene by always observing proposals creatively and synthetically, with no kind of industrial filter which might act as a brake imposed by the sales department (which could register an instantaneous negative reaction), the person in charge of production (who could assert that manufacture is impossible or too expensive before studying them), the person in charge of marketing (who might not identify the target audience for this 'new' product, etc.)

During this phase, concepts should always be presented specifically: the product visualised schematically, with each item given to one concept only. The main questions to ask are: what are consumer perceptions on this sphere of activity? and what level of creative development can they absorb? We can thus assess a risk factor and get an idea of what future consumers will be like.

Reaction phase

Once the preparatory work is concluded, we enter the reaction phase, which is much more than a simple ratification of proposed hypotheses. For this, we must face

consumers with possible proposals suggested in the previous phase.

It is in this second stage that, in answer to the wide range of proposals set up, a wide number of possible alternatives will appear for new, innovating, and creative products.

The task to be carried out by the work group at this moment is identifying what a possible specification could be of a product not yet in stock at stores, something which must respond to both its creators' imaginations and consumer needs which this reaction phase allows us to uncover.

Thus, during the presentation, consumers are first faced with their current environment, and later introduced into new scenarios or future worlds.

However, it is not a question of carrying out utopic suggestions, but of proposing 'something' which can probably be developed in the future. The solidity of acting this way lies in the fact that consumers are provided with a perfectly plausible and instantly applicable projection of their world, even though it may seem quite different from what they see day by day. For this reason, the consumers chosen will end up asking themselves why these products are not yet on the market.

What is most important at this stage is, in the first place, eliciting consumer reactions such as approval, disapproval, or indifference to our proposals, i.e. understanding how different product alternatives can fit into these people's lives. In the second place, it is essential to assume that the innovative idea of the concept that has been developed goes beyond a mere fashionable image because, before taking on an analytical attitude, people have a strong affective position which becomes clearer when concepts set out are solid and genuine. Consequently, then, consumers will naturally tend to show slight interest or none at all in something that seems to be pure formal aesthetics with no content.

However, a very common attitude to this is the belief that a manufacturing company is capable of creating innovating products with no problems, identifying innovation as only an improvement on some technical aspect in manufacture. With this kind of attitude, they forget consumer opinions on a creative or innovating product essentially depend on an over-all concept of the product and company image which must respond to an obvious need, even if it did not exist yesterday.

Methodologically, stimulating this kind of consumer group is a task requiring great ability by the futures consultor. People who carry out this activity do not tend to act objectively but need to make provocative suggestions which help to show what lies behind the diverse reactions, thus getting several opinions, reaching certainty (or falsity) in them, and adapting and shaping the concept being judged.

During this phase, the personnel group in charge of futures design will stay with the consumer group. This way it is possible to eliminate all kinds of mistrust there might be toward the consultor in charge.

Consumers represent the last link in the industrial chain, and what they say is really instructive. Thus, facing them with possible hypotheses suggested we achieve not only a ratification of possible concepts, at least partially and even before they are selected and produced, but also maximum risk reduction when making decisions.

Synthesis phase

Essentially, this phase contributes guidelines for developing future product concepts.

As the process of decision-taking is very complex, at this point we take support from our convictions. Thus, it is then that, keeping in mind results from the previous phases (first analysis of company resources and opportunities, as well as consumer reaction to proposals), the action plan to be followed is decided.

For this, strategic decisions must be taken which are relevant both in the short and the medium term, with an aim to preserving the company's active strength and its image in relation to the new possible product concept set out.

There is now progressive introduction of one or more 'idea specifications' carefully avoiding a total break with our company's corporate image, and preparing a new appearance with new, clearly differentiated and specified, corporate products and actions.

Different 'specifications' of selected ideas are defined with support from the previous observations and, with this basis, we begin the normal, classical course of product design in its project stage.

In this fourth subphase, the project process is simplified as we now have concrete specifications which rose from a state of uncertainty or hypothetic suppositions, validated by immediate use of some principles and rules, once its effect has been proved.

To conclude, once we have exposed on the one hand the requisites for operating with an investigation of a futures style, as well as what could be described as a generic model for working with futures design, we must now only insist on the essence of our article: the enormous profit contributed by futures design in the manufacturing industry as an excellent and accurate method for introducing innovation, eliminating by its application a great many risks linked to old retrospective methods which have been, until now, the main factors for limiting creativity.

Futures design is thus consolidated as a new strategic methodology which can lead a company back to the front line of development, despite all the demands and the great uncertainty in the contemporary world market, thus opening long-term opportunities for the company to set out on a succession of effective action which will allow improving commercial profits.

Finally, we must comment on the enormous impact that the use of this new method can achieve in internal programming and organisational structure of industrial companies, as long as we do not forget that, although it is possible to develop anything, we must do it with an innovating and creative view. Only thus can we stand out and both satisfy and seduce new consumers' whims, wishes, and needs in the coming century.

Bibliography

- BARBA, Enric (1993). *La excelencia en el proceso de desarrollo de nuevos productos*. Barcelona: EADA Gestión.
- BELL, Wendell (1997). *Foundations of Futures Studies. Human Science for a New Era*, vol. I: *History, Purposes and Knowledge*. New Brunswick and London: Transaction publishers.
- CETELEM (1999). *Dix ans d'observation Cetelem*. France: Cetelem. L'Observateur Cetelem.
- GABINA, Juanjo (1995). *El futuro revisitado. La reflexión prospectiva como arma de estrategia y decisión*. Barcelona: Marcombo. Boixareu Editores.
- GODET, Michel (1993). *De la anticipación a la acción. Manual de prospectiva y estrategia*. Estrategia y Gestión. Barcelona: Marcombo. Boixareu Editores.
- (1996). «La caja de herramientas de la prospectiva estratégica». *Quaderns de LIPS*. Paris: Laboratoire d'Investigation Prospective et Stratégique.

KOTLER, Philip (1994). *Dirección de marketing* (8th edition). Ed. Prentice Hall.

VITRAC, Jean Pierre (1990). «Prospective Design». In: *Design Management. A Handbook of Issues and Methods*. Oxford: Mark Oakley. Basil Blackwell Ltd.