

Variation of system properties for new or improved function

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Abstract

CREAX is proposing a performing, reliable, easy and efficient application of the TRIZ methodology. The **performance** gain is rooted in the translation of the TRIZ tools into *property-function* connections. This translation brings an entrée for the none-mechanical domains to benefit from the TRIZ-based methodology. The access of the philosophy is therefore more transferable and more complete. Since the translation to *property-function* connection is closer to engineering terms than the sometimes confusing TRIZ jargon, the completeness of the research in patent and knowledge resources becomes more **reliable**. As the *property-function* relation is closer to an engineering education, its usage is **easier** and allows the engineer to be trained, rather than educated. As the *property-function* relations are easily accessible and well described in various knowledge resources, the *computer aided* idea generation tools bring a large difference in research **efficiency**.

Extended Abstract

TRIZ brings idea generation through a structured methodology reinforced by the worlds' knowledge. Whatever the problem, the chance that someone somewhere has solved the same problem is nearly 100%. The question is who, where and how this related to your setting. CREAX developments are transferred through training programs, a software package and customised innovation culture initiatives. Our solutions are specific projects in innovation (new products or processes), problem solving, and solution marketing (finding new applications for existing products or processes). The easiest to clarify a methodology is to bring an abundance of examples. CREAX launched www.moreinspiration.com as a free source of good innovation examples. The database is furthermore structured by domain, property, function and keyword. Feel free to join the community and be aware of the latest innovations. We are surrounded by good innovations which we can use as inspiration. If we classify those by which property they altered to achieve the extra value, we can create a system that allows us to create new innovations in a structured manner, as a checklist of potential value propositions. So every property can be seen as 'turning knob' that, once turned a property is changed creating a new or improved function. Since the examples prove feasibility in other domains, it acts as a help to transfer the property and function to your specific domain. Note that every property change brings several potential new or improved functions to be gained. Through its patent research CREAX has creates innovation charts by property, linking them to the achievable functions. Surface change, for example shows that, your product can gain better grip, or heat transfer, drainage or self cleaning. You could argue that a golf ball has understood what a car hasn't yet. Use the surface for a function as better aerodynamics.

Charting all the properties of your product onto a radar diagram plots a star as your *product DNA*. It is the set of properties (connected to your product's function) that define your product. All the light blue space is property changes you have not yet utilised, i.e. your innovation potential. The yellow zone is new terrain gained.

Once your *product DNA* is defined it is a base for making new connections. If a product is brittle, shaped in a plate, made to look through and completely transparent you can guess it is a window. Other products are also transparent and brittle, take glasses. Then, you can transfer double glazed glasses, or windows, that can see further.

Every innovator knows all the properties and functions that define their product or process. It is thereby easy to create your own *product DNA*. Thorough (computer) searches can identify all related products or processes. There difference acts as list of potential specifications for creating new variations of your product. There is symmetry in the approach. On one side, you can change a property and browse a list of potential new or improved functions you can gain. On the other hand, if you know what function you would like to improve, you can find out which properties to change in order to achieve that function.

You are interested in a transparent, flexible, hollow or magnetic product (adjectives define properties) for cutting, cleaning, holding or folding (functions are expressed in verbs). CREAX patented the search algorithm where you relate the properties with the adjectives and the functions with the verbs, so to find out what exists and what doesn't.

The process of the CREAX innovation methodology is pored into a facilitation software tool. Whilst guiding your innovation process, the tool brings thousands of examples, helps to structure your patent research and manage your idea generations. Giving you have identified 30 properties with each over 35 potential functions brings you over 1000 ideas.

Presenter's Profile: Presenter's Name

Since January 2000, Simon Dewulf is Managing Director of CREAX NV, a Belgian based innovation research and engineering centre. He is lecturing a guest speaker in several universities and research institutes across Europe on the topic of systematic innovation. Simon is a graduate of Imperial College of science, technology and medicine, where he is completing a doctorate in creativity in science and engineering. Simon is the author of several books and papers. CREAX is actively partnering in innovation programs for building an innovation culture in companies like P&G, Goodyear, Philips, Shell, Bekaert, BARCO, Sara Lee, Total, L'Oreal, Henkel and Atlas Copco.