

DESIGNING FOR UNREVEALED VALUES

M. Mekhilef

Keywords: user values, user needs, design requirements, psycho sociology in design, design evaluation, design supporting tools

1. Introduction

The aim of this paper is to report the findings of a research program we run during the last two years as a collaboration between an automotive car industry manufacturer and three universities of which two are acting in the psycho-sociological field. From the political perspective, this research is part of the actions that the World Health Organisation and the United Nations asked the decision makers to consider in order to reduce of the number of killed persons in car accidents. This research addresses the issue related to the apparent inadequacy between the user needs and the technological solutions provided by the industry in the area of cars' safety systems. The objective is to understand what is important for the consumer beyond the monetary value, what makes him/her buying an additional safety solution, and how to provide designers with a comprehensive set of requirements in order to secure the buying decision. The study covers a) an understanding of the concept of value, its components and the interactions between the values b) the methodology that gathers the product potential characteristics from which we derive recommendations for the designers.

In the car industry, and specifically in the area of safety, assessing the client's priorities targets the design of new systems and the design of the communication strategy around new concepts. PReDICT (as: A PaRadigm to Improve DesIgn for CusTomer) is designed as an industrial project to face the challenge of selling safety systems that go beyond the requirements of the regulations. At the general level, in Europe and developed countries, safety is implicit and already embedded in the proposed services and products through the fulfilment of the standards' requirements. From that perspective, the consumer rational does not normally consider "buying" additional safety services or devices.

In parallel, safety is a policy issue and a public-health problem on one hand and linked deeply to the image of the car manufacturers on the other hand. The competition between the car manufacturers is then expressed as the development of new technological solutions with high added-values, whilst ensuring their successful commercialization.

Experience of all the car manufacturers shows the fact that consumers are not willing to pay for additional safety systems. From the sociological and psychological perspectives authors reported the high rating of the "safety" value in developed countries.

The dilemma is then well stated: Why for a society that has a primarily value "safety" do citizens not buy additional safety systems? Is it a matter of the price? Is it a matter of the product and its features? In this research we focus on the former, considering that the first hypothesis is more related to marketing which is outside the focus of this paper.

One can formalize this question as **"Would it be possible to identify additional criteria other than the economical and technological ones which allow a better understanding of the customer needs on one hand and translation of these needs into specific requirements for the design?"**

After a multi-disciplinary analysis of the state of the art in this matter, we introduce a holistic model to gather the product values in the second section. A new proposition is made in the following statement

related to the inter-dependency between the values, with the concept of “**Matrix of Reinforcement and Contradictions**”. We present in the next section a general framework to gather the product values with the mean of collegial analysis of products. Section five is dedicated then to the discussion and analysis of two safety systems and shows the benefit of the methodology and related tools. Proposition of improvements and generalization is proposed in the conclusion.

2. State of the art

2.1 The individual & universal values: Orientation function of actions

Several reasons lead us to consider the values as essential to understand the human behaviours, amongst them the theory that lies in the normative characteristic of the values. They are considered as important for some authors such as [Feertchak 1996]. As an illustration, Herbst & Houmanfar [Herbst and Houmanfar 2009] insist on the social slant of the values, they refuse to consider them under a perspective that does not recognize the dependency between values and the individuals within social institutions. Merton [Merton 1949], creates a distinction between values and norms; according to him the values are the ideals of the individuals whilst the norms constitute the means needed to reach those values. In the same way, Rokeach [Rokeach 1973] considers that the values are the basis for the norms and the attitudes.

According to Schwartz [Schwartz 1977], norms and values are organized as a vertical structure composed of values, general norms and specific norms. In this study we have used Schwartz categorisation as it allows a certain level of segregation between the values in a way that engineers can easily capture them.

The general norms are those necessary to support the realization of the values while the specific norms are those allowing their articulation within a specific real context. From this perspective, the values lie at a very high level of abstraction. Rokeach [Rokeach 1973] and Schwartz [Schwartz 1977] distinguish the instrumental values (those we use daily in our behaviour) and the terminal values (that refer to our objectives in our lives). This input can easily be used to understand the process that an end-user may follow when he assesses a product or its features.

2.2 What motivates the actions?

In her paper [Boztepe 2001], Suzan Boztepe proposed a way to investigate what constitutes values for users and how values are shaped by local context. From this study we learn how to consider the side effects of the values and thus how to better assess the real effect of a design and the way it will be perceived.

Drucke [Drucke 2001] pointed out "customers pay only for what is of use to them and gives them value" one can see here that not only the usability is needed to understand the behaviour of a customer; therefore considering the user satisfaction in terms of values appears according to this theory necessary. Rokeach [Rokeach 1973] pointed out that no real definition of the concept of value has been proposed in the design area as it has in many others such as sociology, anthropology, psychology, economics, marketing; leaving aside the term of value in its plural form as a conception of what is ultimately good in human life.

From the economics field, value is understood as the willingness to pay the price of a good [Gale 1994], [Butz and Goodstein 1996]. Although Marx does not further develop his theory on use-value, he puts forward the idea that the value is conditioned by the physical properties of products. This leads to the possibility of linking those properties through an injection function in the values' space as soon as it is described with a sufficient number of dimensions.

2.3 The cultural aspect of the values

Several cultural models have been proposed and designers have been using them extensively. These models operate under the assumption that a categorisation is always possible, leading to clustering and distance measures between the cultures along the corresponding dimensions.

In this area, one can consider the work from Hall [Hall 1984, 1990] who proposed a differentiation from the context standpoint (high, low) and a differentiation from the temporal perspective (monochronic, polychronic).

Hofstede [Hofstede 1981] proposed a classification according to 5 dimensions: Power distance, Individualism/Collectivism, Masculinity/Femininity, Uncertainty avoidance, Short term/Long term.

While Trompenaars and Hampden-Turner [Trompenaars and Hampden-Turner 1997] extended the Hofstede model with seven other dimensions: i.e. Universalism/Particularism, Individualism/Collectivism, Specific/diffuse, Achievement/ascription, Neutral/emotional, Time orientation and nature orientation

Boztepe [Boztepe 2007] suggested four major categories for user values: Utility value, Social significance value, Emotional value and spiritual value. One needs to mention that the author deeply specified the utility value in terms of convenience, quality, performance and economy.

Thus these findings support the general process that we are aiming to follow in order to better understand the concepts in most cases not revealed nor expressed but behind what we address as “value”. However, one can note the variety of possible categorisation (of the understandings) which leads to potentially different meta-modeling. As a consequence, the unique way we should consider, has to rely upon the completeness of the components of the values and their universality.

2.4 Safety and safety: A biased value

As reported by H. Andersson [Andersson 2005], governmental policy may not reflect society’s preferences for safety, and it is therefore important to elicit individuals’ preferences for safety and monetarize them.

The author use the risk-money trade-off from the Swedish automotive market to estimate the value of a reduced risk of dying in a car accident. This value is called the value of a statistical life (VSL), and is a benefit measure of how much people are willing to pay to reduce the risk so that there would be one less death in a population.

When converted for use by designers, the question is then formulated differently: for a given monetary value, how can we make sure that the buyer (who is most cases the future driver) will get full satisfaction from a proposed sub-system. This question reveals the specific case of developed countries where the safety is ensured by the compliance to the regulation and standards. When one buys a coffee-maker he is unlikely willing to buy a safety system that will protect him from electrocution. Numerous research work have been carried out in this area such as [Persson et al. 2001], [Persson and Cedervall 1991], [Johannesson et al. 1996], all considering the stated preference (SP) studies.

3. A holistic approach for value concept understanding

3.1 Model for human values capture

Starting from the fact that in the addressed area, the values that the consumers may consider as important is lagging, we started a research program to face this challenge and tried to provide a better understanding. The basic idea was built upon the variety of understanding that one can notice when browsing some scientific fields. The understanding of the "value" concept differs from sociology, psychology, ethnology, anthropology, economics, marketing and engineering. Thus we have followed three paths to collect those understanding as follows:

1. Firstly we have explored the scientific articles dealing explicitly with the concept of value in those areas mentioned above.
2. Second, we run several individual interviews in order to catch reminding ideas with scientists and in-the-field engineers from various domains such as: mechanical, electrical, engines, ergonomics, safety.
3. Finally through 20 workshops that invited those players we collected the interactions, contradictions and convergence.

This first study which took one year, led to a corpus of 1768 different instantiations of the “value” concept. One has to recognize that this set, while considered as wide, is still way beyond the results

that sociologists collected and reached the level of about 18000 to cover all the cross cultural understandings.

The second outcome of this first step is an ontology of values that allows an easy access to the surrounding meaning of each value as reported partly in Figure 1.

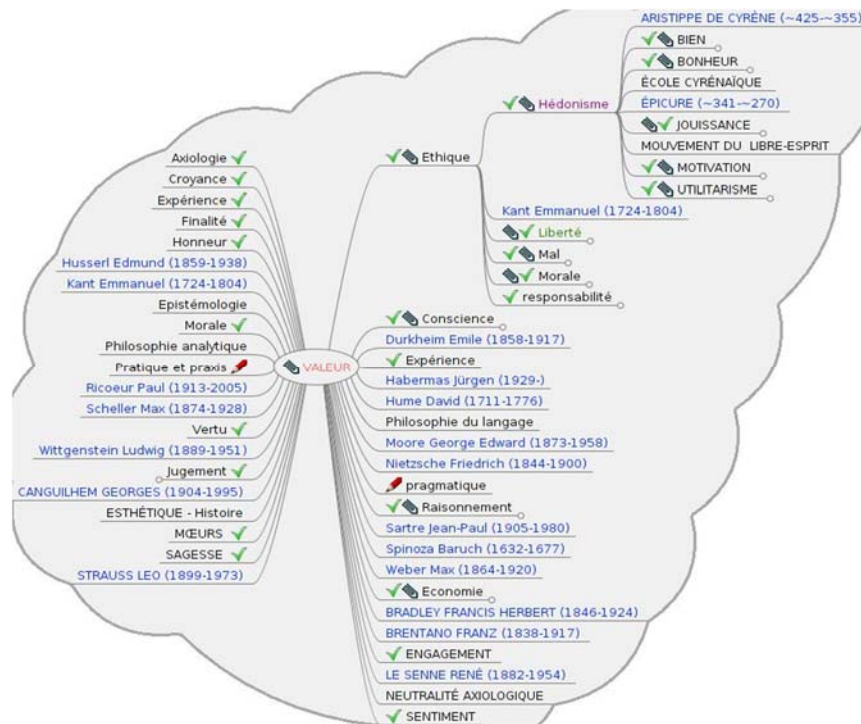


Figure 1. Extract from the ontology of values (*Ontology developed from the French dictionaries and thus can't be translated*)

3.2 The semantic distance

Considering the constraint that lays behind an engineering study, which requests the values to remain easy to understand, to capture and measure, we launched the second step that aimed at reducing this corpus.

The methodology used is based on the semantic distance between synonyms. Most of the tokens that we used have multiple meanings. Far from interfering with our approach, this phenomenon, called polysemy, is instead a source of knowledge and therefore express the inability of the languages to clearly segregate the perceptions.

3.2.1 Polysemy in computational linguistics

When one wants to automate this semantic distance, polysemy appears a real problem and it gives much concern to researchers in Automatic Language Processing. The inclusion of polysemy in ALP results in the following question: "**How to automatically associate a meaning to a word in a given statement?**"

The answer lay in two steps: first determine all the possible meanings for each word likely to be disambiguated and then determine which direction is the right context. This is the whole point of disambiguation tasks. There are two tracks mostly followed: one is to use the differences between the various meanings found in dictionaries, the other to use statistical methods to identify patterns of co-occurrences of words in a given context.

In our approach, only the techniques for identifying synonyms and antonyms are considered. The solution is to work on paradigmatic relations between words (synonyms, antonyms,...). A word can express a myriad of implications, connotations in addition to its specific senses as listed in dictionaries. We seek to exploit the computational model of knowledge vocabulary that reflects

adequately the "almost synonymous" and that can choose the right word, one that will reflect the gradation of exact meanings in a given context.

3.2.2 Dynamic calculation of the meaning

The Gestalt principle of compositionality involves modelling as part of the dynamic systems. This avoids the vicious circle of the fact that most units are polysemous, and to determine the meaning of each one needs to understand a sense of others, and vice versa.

We have associated each language space, called semantic space, with a precise mathematical structure in which the sense of unity is represented by a region of the space. The "contextual unit" defines a "potential function" of the semantic space. The potential values below a certain threshold determines a region of the semantic space (see Figure 3). As an example, and in this specific case, one can recognize that the different meanings of "power" includes seven connex sets, each of which defined by non independent values :{ 1→{authority, domination, Influence, Force, energy, power} ; 2→{Capacity, Possibility, Liberty, Faculty} ; 3→{Risk} ; 4→{Image, Respect, Prestige, privilege, Possession} ; 5→{Art, Skill} ; 6→{Quality, Efficiency, Effectiveness} ; 7 → {Mastery, Competence, Know-How, Fitness} }. The analysis of the distances between these values show that 3 main values could cover the whole space.

3.2.3 Area of relevance associated with a meaning

For each synonym for the targeted concept, we associate a function with regions that represent more precisely the area occupied by the associated meanings. This function allows the visualisation of the semantic space for which the synonymy relationship between the considered concept and its synonyms is relevant (see Figure 2 and 3).

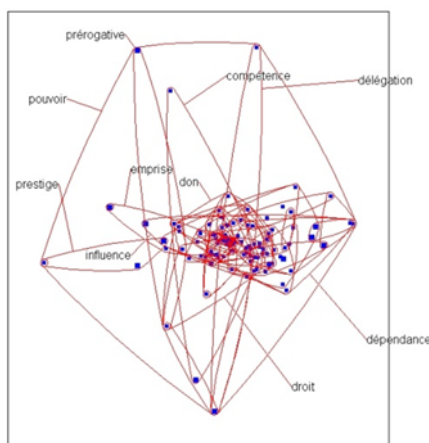


Figure 2. The related values of the concept of "Power" as an example of the semantic distance (Polysemy for French concepts, translation might alter the results)

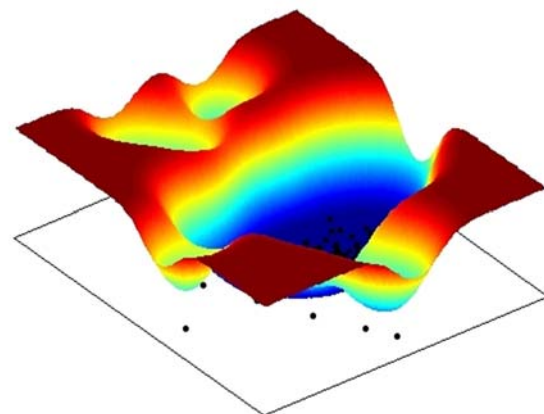


Figure 3. Illustration of the semantic distance between the concepts. In this example, the value "Power" is displayed

Using the eight French dictionaries and the content of the discussions we had during the workshops, we have identified those values that may be amalgamated. This long process led to our final corpus of 60 values ranged using the *Schwartz* circumplex as shown in Figure 4. When we apply this distance analysis to the concept of "power" we lead to five regions in total that are: Authority, Image, Respect, Mastering and Capacity. These regions constitute in the *Schwartz* circumplex one the dimensions called "Power".

The reinforcement and contradiction matrix

The main outcome from the interaction between the scientists and the engineers is the non independence between the values. In other words, if any action on the design of a product leads to the

excitation of a value, it will at the same time decrease or increase the perception of other values. This dependency gives rise to a very interesting issue.

Since all is inter-dependant, how to ensure that an improvement in a design will gain success on the consumer side?

The methodology we have used is based on the identification of all those interactions and captured them using a specific algorithm in order to avoid bias, extremes and personal positions. This process was run using several teams of philosophers, sociologists, psychologists and anthropologists. This capture is now in the form of a matrix that provides all the potential impacts of any change in a value with the mean of an interval to cover the human variety. This matrix is called the “Reinforcement and Contradiction Matrix”

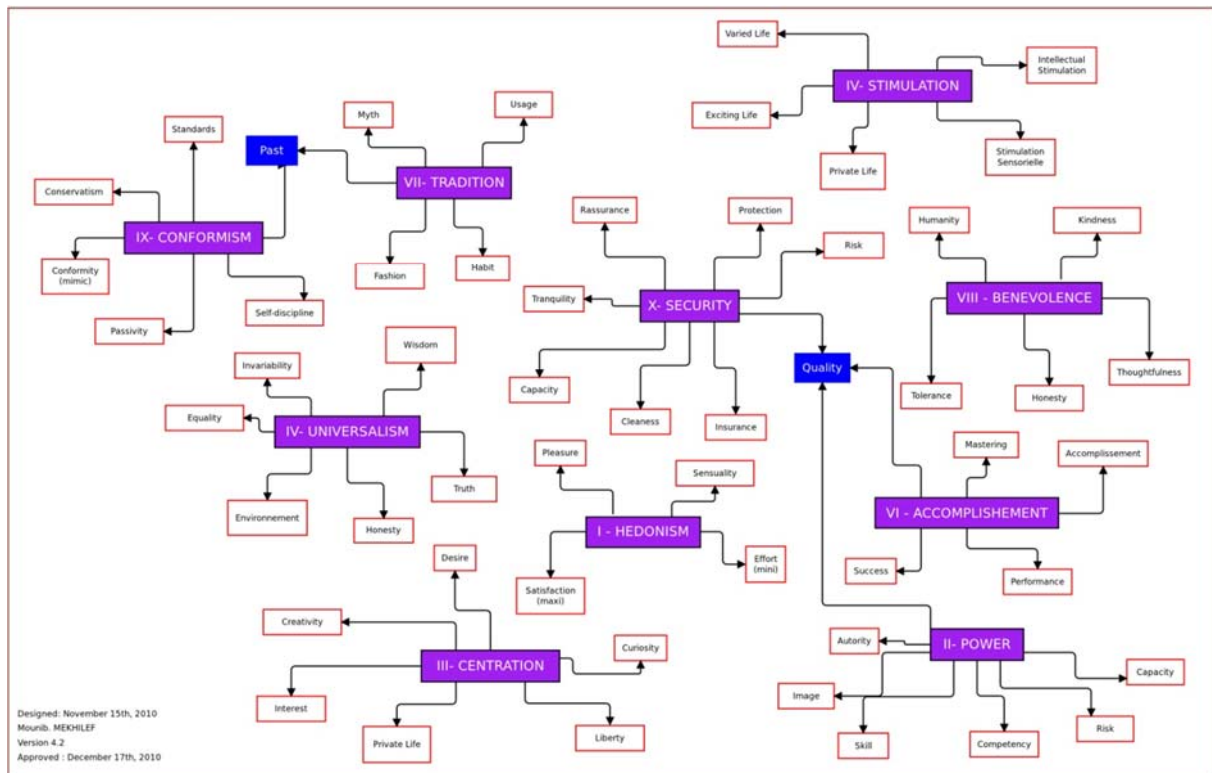


Figure 4. The global model of values

Capturing all the interactions, interdependency between the values allows a better mastering of the side effects. This is what is allowed by the MCR which is made of 60*60 intervals. Each intervals expresses the variety and diversity of perception by citizens belonging to a specific cultural context. Figure 5, gives an idea about this structuring.

We can consider back the example of the “Power” Class as defined previously and see how they interact between themselves.

When exciting the Authority value in the positive sense, then according to the group of the human science experts this may lead to a balanced effect on the image (-0.5 ; 0.5) and likely ti influence positively the perception of mastering (0.25 ; 0.5) with a little positive effect on the perception of increasiness of capacity.

When we consider the effect of the power values on the values that belong to the universalism class (Equality, Peace, Environment, Sagesse, Beauty, Justice, Invariability), then we can observe that increasing the effect of “Authority” is likely to degrade the perception of peace. Interestngly is the case of the influence of authority on the preservation of the environment. In fact there is a high potential to send a negative signal and a higher signal to persuade that authority may help while caring about the environment.

In the same way authority is not the best lever to influence perception of justice or wisdom as shown in Figure 5.

	Authority	Image	Respect	Mastering	Capacity				
Authority		-0.5	0.5	-0.5	0.75	0.25	0.5	0	0.25
Image	0	0.75		-0.5	0.5	0	0	0	0
Respect	0.25	1	0.25	1		0	0	0	0
Mastering	0.25	0.75	0.25	1	0.25	1		0.25	0.5
Capacity	0	0.25	0.25	0.5	0.25	0.5	0.25	0.5	

	Equality	Peace	Environment	Wisdom	Beauty	Justice	Invariability							
Authority	-0.5	0	-0.5	0	-0.5	0.75	-0.8	-0.5	0	0	-0.5	0.75	0.25	0.75
Image	-0.3	0.25	0	0	-0.3	0.5	-0.5	0.5	0	0	-0.5	0.5	0	0
Respect	0.25	0.75	0.25	0.75	-0.3	0.5	0.25	1	0	0	0.25	1	0.25	0.75
Mastering	-0.3	0	0	0.25	0	0.25	0	0.25	0	0	0	0	0	0
Capacity	-0.3	0.5	0	0.25	-0.3	0.5	-0.3	0.5	0	0	-0.3	0.25	0	0

Figure 5. Extract from the matrix of contradictions & reinforcement

4. Methodology: Characterising the products

4.1 The generic process

The general model that we report in this paper is about the use of this information to better understand and assess the value of a given product or its features. At the operational level, we have run workshops with experts for several safety solutions, as follows (and reported in Figure 6):

1. Understanding of the exact technology addressed, its characteristics and limitations,
2. Capturing the intended design and assessment of the product along the corpus of 60 values,
3. Translation of the debate between the team members into the PReDICT tool¹
4. Desk research is then needed in order to collect all possible information and feedbacks from consumers about the product (if it already exist on the market).

4.2 Design analysis

The main aim is to capture the product's characteristics in term of values. The process used is based on the capture of the design goal or intention.

The experts were asked to assess whether a specific value was considered and appears either explicitly or implicitly in the list of requirements. This assessment was done without any influence, and however using the PReDICT manual which explains the value in question.

Once this question was answered, we used the contradictory group to assess what could be the client perception. The group was composed of an engineer from mechanics, a psycho-sociologist and the person in charge of the product development (in most cases engineers).

The assessment was then entered as an input in the process. The MCR was then used to derive the side effects of the perceived values and the corrected values of the product.

We then derived the main characteristics of the product and the assessment against some specific criteria computed using transfer matrix.

4.3 Transfer matrix

In order to assess the design along various criteria, we have set a series of transfer matrix that allow a mapping between the corpus of 60 values and the specific focus we need to consider. Among these criteria we can list the following:

- Family protection indicator;
- Driver centric;
- People centric;
- Corporate Identity;
- Safety.

¹ This tool allows capturing all the dialogues, between the experts, using keywords.

These indicators are obtained as linear combinations of the intrinsic rate of the associated value and the weighted side effects as defined in the MCR and the transfer matrix.

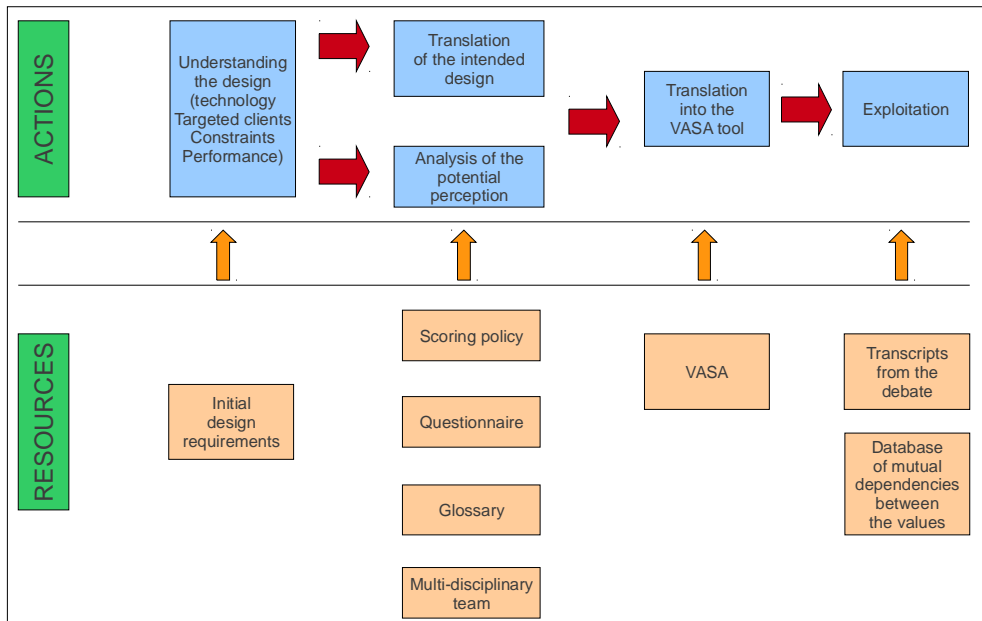


Figure 6. The assessment process

5. Case studies

5.1 Active drive system (ADS)

This technical offer allows both the forward and rear wheels to turn in the same direction ($\pm 3.5^\circ$ see Figure 8) if the car speed is more than 60 km/h and turns in the counter direction if the car speed is below this limit. In addition, the active drive uses a dynamic correction to prevent an early functioning of the “anti-skid” system. Initially this idea, using a different technology, was utilised during the nineties by some Japanese cars and in the series 8 from BMW.

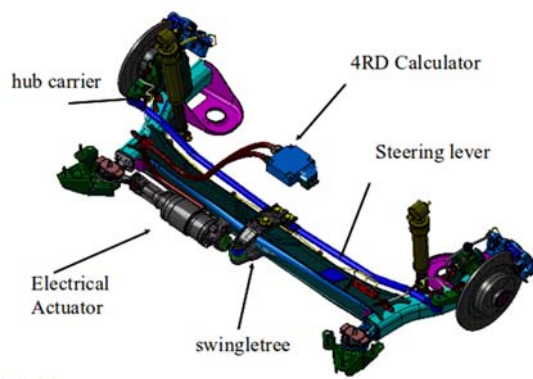


Figure 7. ADS: Global view

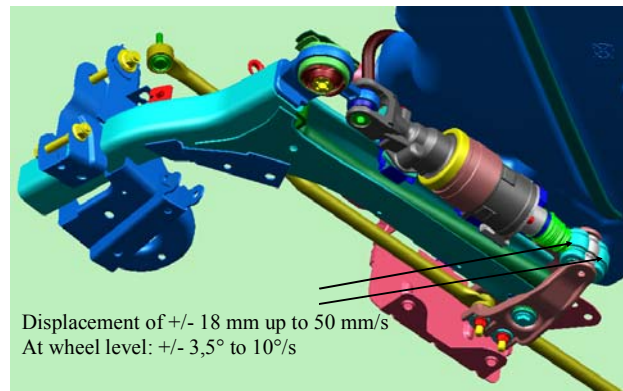


Figure 8. ADS: Local view at wheel level

The rotation of the wheels is actioned with an electrical engine and an embedded calculator that computes the optimal angle 100 times per second (Figure 7). At low speed the fact that the wheels turn in opposite directions allows an easy parking.

Despite the real benefit for both modes, the system is considered by the end-users as a parking assistance system only.

We have run the methodology above described to improve understanding of this failure and explore the possibility to advise the engineers of paths for a better design through an additional set of requirements.

The process starts with a full description of the technology, the end-users targeted and the way it is sold. At the beginning the working group of designers report their understanding of the requirements as set as answers to the 60 questions that capture the values they think the product should highlight. Then these experts, with scientists from various fields, assess the potential perception of the driver using the system by adopting a scoring method that allows them to provide 1) a single mark within a given scale, 2) an interval or 3) two different marks that may correspond to 2 different perceptions. Using the MCR we then processed the side effects to generate a positioning of the intended design, and the corrected scoring against the intended design. Figure 9 reports the corresponding results in a subset of values (as the 60 values makes it difficult to read in a A4 page size).

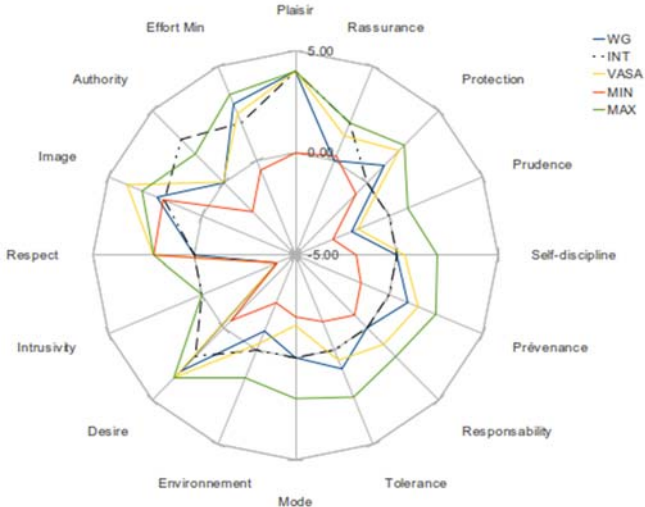


Figure 9. Active drive: Scoring of the perception against the intended design

Using the transfer matrix, we also get the scoring the overall system against some specific criteria such as: safety, reassurance, wow effect, driver-centric, corporate identity. Figure 10 reports the corresponding results for the Active Drive System. One can report that whilst the ADS has a relatively good potential (4/9) to be considered as safety system, the end user may not perceive it at the same level (2/9). We can also highlight the fact that this system is mainly considered as “driver centric” which in turn is true. Nevertheless its safety dimension does appear and thus difficult to sale. Several in-the-field and during car fairs investigations confirmed this finding. The salers are not able to perceive the safety aspect and consequently are not convinced. This system didn't match any unique buyer.

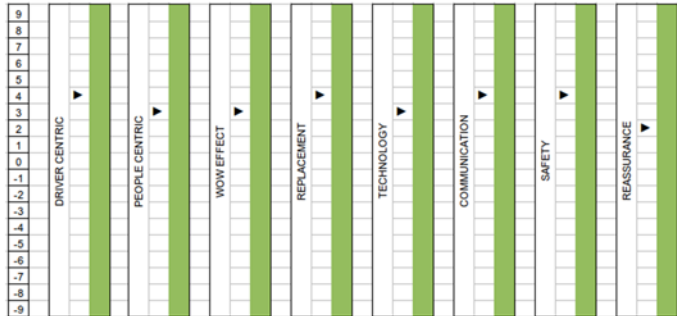


Figure 10. Marks of the ADS for the selected criteria

Considering the objectives of the manufacturer, we have extracted those values that are lagging or weakly perceived (Figure 11). All these values (Myth, Confidence, Equality, Immitation & Norms)

do not reach the level intended by the designer, which express the gap between what was intended and what was achieved. The analysis of the most influent values (Figure 12) allows the identification of the values we can act on and benefit out of their side effects in order to decrease the gap reported in Figure 10.

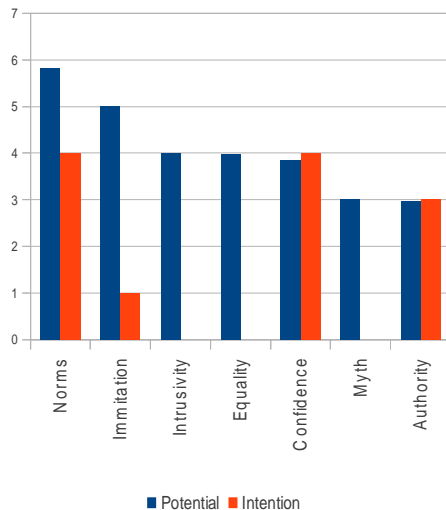


Figure 11. Active drive: Values that merits consideration

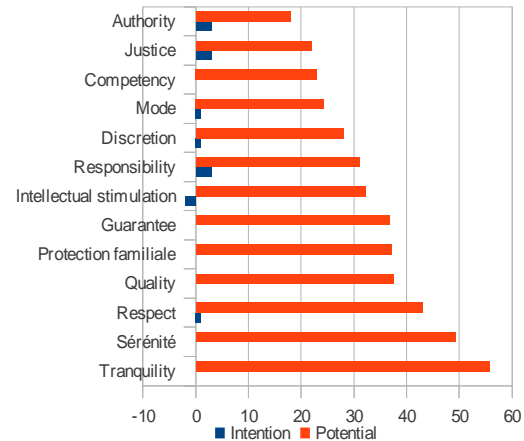


Figure 12. Ultimate values that should be transcribed into the set of requirements for the designers

Using the scripts from the debates between the working members and the previous outcomes, we derive the inputs to the brainstorming sessions.

For the active drive our suggestions lay as follows:

- This system should be proposed as an item of the safety pack,
- A display of the system activity on the dashboard is required,
- Four modes should be considered separately (full functioning, mode <60km/h, mode >60 km/h, no use),
- No alarm or any specific signal should be used to alert the driver,
- For some users, displaying the road curves could work as an activator of the senses.

Using these recommendations, the engineers get orientations for the development of new interfaces to the system without being required to rethink its main functions. A new version of this system is being considered by the design department.

5.2 Lane departure warning (LDW)

The basic idea behind the LDW is to prevent the driver from leaving the driving lane. Cognitive overload such as diminished vigilance, mobile phone use, access to specific items in the car, discussion with rear passengers (usually kids) lead to a loss of control, thus putting the car and its passengers in an unsafe situation. The LDW is aimed at alerting the driver that the car is overlapping the lane limit mark. This is done by the use of two frontal cameras and a pattern recognition algorithm. The system do not take over the control of the vehicle. The reason behind is that the transfer of control means the possibility to cover all possible driving situations some of which some may need lane overlapping. The driver is thus fully responsible for his vehicle in line with the regulation. We have reported in figures (Figure 13 and 14) an illustration of this system. In Figure 13 we show the pattern recognition that is reported on the dashboard (Figure 14). the LDW covers both sides of the lane as shown in (Figure 15).



Figure 13. LDW: Main steps & lane recognition

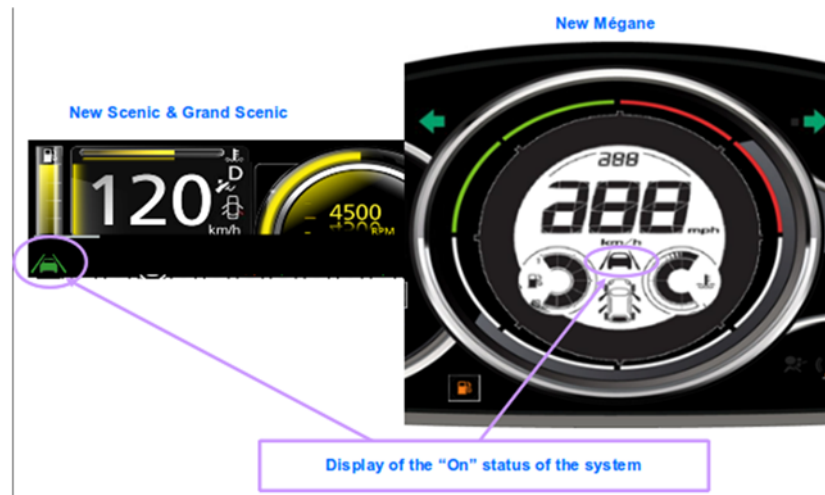


Figure 14. Dashboard reporting the functioning of the LDW system

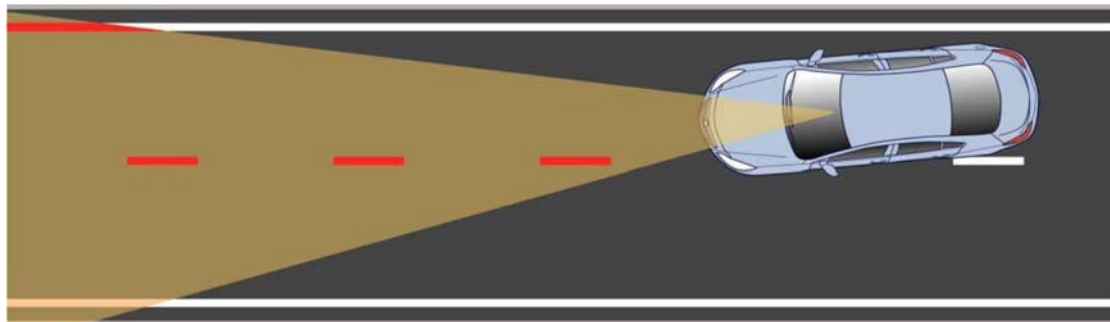


Figure 15. Lane departure warning: Functional zone

This system is designed as part of the "Driving Assistance" techniques that most of the car manufacturers endorsed some years ago.

The question is : **"Can this system, that theoretically is a safe one, be perceived as such? Will it match with the real expectations from the car owners/buyers/users?"**

Using the same methodology as before, the team of experts reported the design intention as well as the potential perception of the system characteristics from the values perspective. Figure 16 reports the findings.

One can see that the targeted objective is far from being reached. The main reasons (as we can see in Figure 16) is the contradiction between two targets: loyalty and fashion. This is emphasised by the scoring in term of safety and reassurance (Figure 17). Safety systems do not appear, in general, as "in". Applying the methodology, this leads to the system likely to be purchased because of the perception of "family protection" value. In other words, the fact that in case of extreme emergency the priority is to save life rather than respecting the law is appreciated. When transferred into technical requirements, it means that the system should necessarily consider more than just alerting. If it does not, the perception will be less positive.

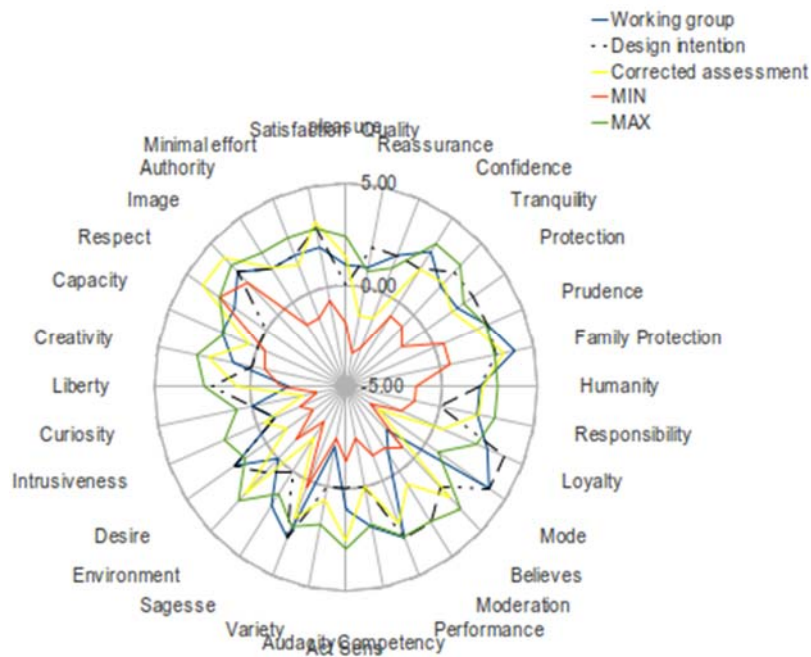


Figure 16. Lane departure warning: Scoring of the perception against the intended design

The LDW highlights the fact that from the user standpoint, life is much more important than law whilst for the car manufacturer the law and image are critical, because they can put the company in a critical situation (not that the car manufacturers don't care about their customer's lives!)

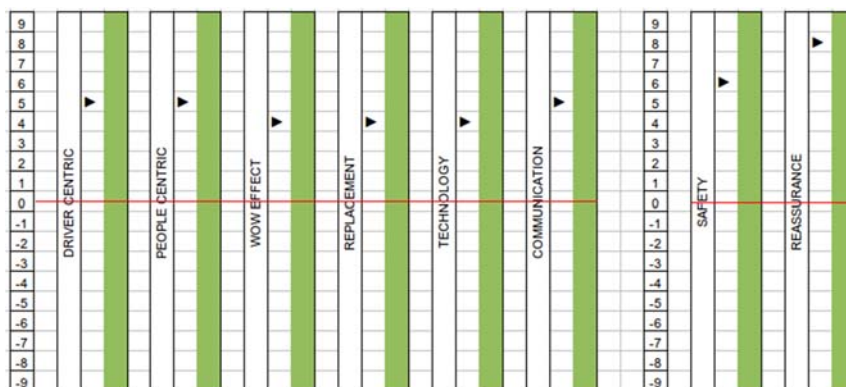


Figure 17. Marks of the LDW for the selected criteria.

This example shows that the interpretation of the user need can lead to a system that hits an unwritten principle. The challenge is thus to either transform the specifications and add the one related to this principle : "Save life at any cost first" or play on other values to create a confident perception for the future buyer. Both options need to be turned into new technical and/or communication specifications. The analysis of the outcomes from the methodology suggests that the intended design while in the same stream as the expectation from the end-users is too rigid.

Explicitly, considering the results from Figure 18 and 19, this means that the designers should work on:

1. reducing the noise generated by the alerts and thus better consider lighting effects
2. introduce an automatic control for extreme situations only (which will necessarily end-up with more costly options)
3. innovate in a way that forces the driver to be more cautious in those extreme cases (which means the collection of all possible situations that lead automatically to entering the danger zone).

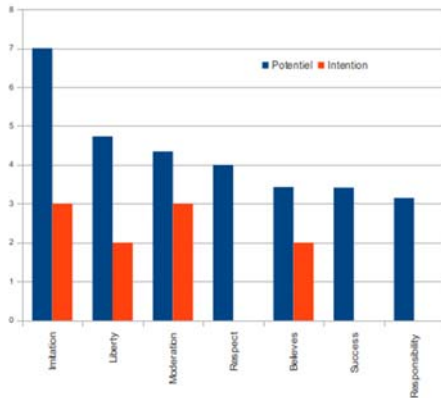


Figure 18. Active drive: Values that merit consideration

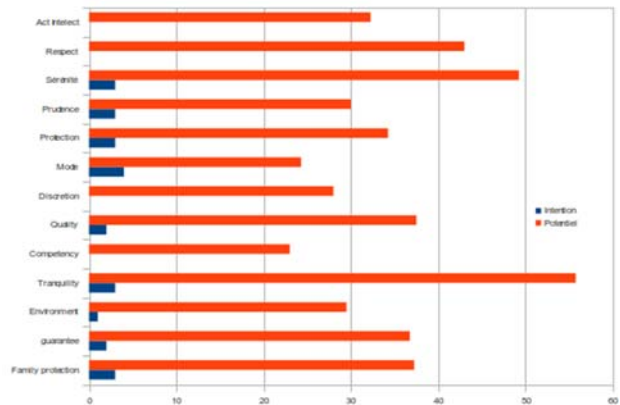


Figure 19. Ultimate values that should be transcribed into the set of requirements for the designers

Feedbacks to the designers have been run for more than 20 safety systems and driving assistance technologies to ensure the understanding of these requests for the redefinition of the requirements. In this report we have focused on those highly significant orientations to populate the methodology, in real terms, the process involving 60 values is full of richness and merits deep analysis.

6. Conclusions

This study led to several propositions that designers could consider when assessing the match between the user needs, the way they perceived them and those implemented in the design. In fact the concept of the Matrix of Contradiction and Reinforcement is new. While pretty simple, it still allows the identification of the main signals that a product can send. From the user perspective, this wide multi-disciplinary approach allows also a better matching between a product and the users in the sense that a clustering of the consumer may help a better focus, however this is much more marketing approach. From the design perspective, knowing exactly what is missing is helpful in refining the design specifications. In this paper we have presented two simplified examples, knowing that these kinds of technologies are very sophisticated and interlinked with the Man:Machine interfaces. The methodology is now fully functional and used daily at Renault TECHNOCENTRE.

Acknowledgement

This research work has been supported by RENAULT-TECHNOCENTRE Guyancourt, France under the grant program DREAMDTAA6827010SP58.

References

- Andersson, H., "The Value of Safety as Revealed in the Swedish Car Market: An Application of the Hedonic Pricing Approach", *The Journal of Risk and Uncertainty*, Vol. 30, Issue.3, 2005, pp 211–239.
- Boztepe, S., "Toward a framework of product development for global markets: a user-value-based approach", *Design Studies*, 28., 2007, pp 513-533.
- Drucker, P. F., "The essential Drucker: the best of sixty years of Peter Drucker's ideas on management", Harper Business, New York, 2011.
- Feertchak, H., "Les motivations et les valeurs en psychosociologie", Ed: Paris: Masson & Armand Colin, 1996.
- Herbst, S. A., Houmanfar, R., "Psychological Approaches to Values in Organizations and Organizational Behavior Management", *Journal of Organizational Behavior Management*, Vol. 29, 2009, pp 47-68.
- Johannesson, Magnus., Per-Olov Johansson, and R. M. O'Connor., "The Value of Private Safety Versus the Value of Public Safety," *Journal of Risk and Uncertainty*, 13(3), 1996, pp 263–275.
- Merton, R. K., "Social theory and social structure", New York: Free Press, 1949.
- Persson, Ulf and Magnus Cedervall., "The Value of Risk Reduction: Results of a Swedish Sample Survey", IHE Working Paper, The Swedish Institute for Health Economics, 6, 1991.

Persson, Ulf, et al., "The Value of a Statistical Life in Transport: Findings from a new Contingent Valuation Study in Sweden", Journal of Risk and Uncertainty, 23, 2001, pp 121–134.

Rokeach, M., "The nature of Human Values", Ed: New York: Free Press, 1973.

Rokeach, M., "Value survey". Ed: California: Halgren tests, 1967.

Schwartz, S., "Normative influences on altruism". In L. Berkowitz (Ed.), Advances in experimental social psychology, New York: Academic Press, 10, 1977, pp 221-279.

Mounib Mekhilef

Researcher

University of Orléans

Rue Emile Hilaire Amagat, 18000 – Bourges - France

Telephone: +33 (0) 248 642 155

Telefax: +33 (0) 248 642 155

Email: mounib.mekhilef@univ-orleans.fr

URL: <http://www.univ-orleans.fr>